

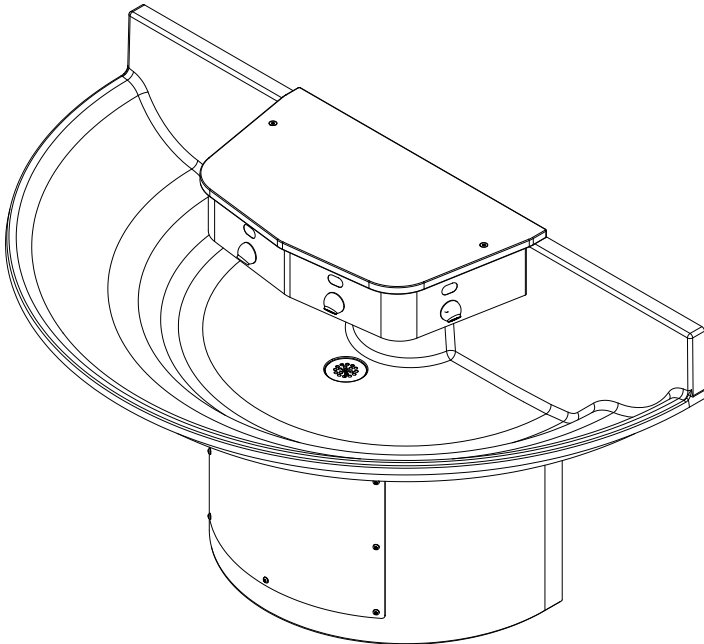
Installation & Operation Manual

WAF-5403 Series WAF-5404 Series


Aquafont® 54" 180° Solid Surface Washfountain Electronic/Pneumatic

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WAF-5404



**IN COMPLIANCE
WITH A.D.A. 2010**

* Wall mounted models only. Follow the applicable instructions in this manual to ensure installation complies with A.D.A. requirements.



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WILLOUGHBY

Rev. 8/2023

MADE IN THE U.S.A.



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Pre-Installation Information

Installation notice!

Check Rough-In location **PRIOR** to installation

Flush lines thoroughly **PRIOR** to hook-up

When installing the **Willoughby Industries' WAF-5403/5404 Series** washfountain system:

Before Step 1 of the installation instructions, ensure that rough-ins are in the correct location.

The valve assembly, including the spray head, **MUST NOT BE** connected until *after* all lines have been flushed to remove the small particles of debris that are inherent with new construction projects and all chemicals that are used in flushing are purged from the system.

Chemicals used in flushing plumbing systems can attack the internal components of the valve and spray head and severely damage them, so any flushing of the system must be followed by a full flushing with pure water to clear any harsh chemicals remaining in the system. Debris in the system if allowed to enter the valve assembly and spray head can cause poor performance or outright failure.

Again **DO NOT** attempt to connect the valve assembly and spray head until *after* all flushing is complete and pure water is the only media that will be passing through the system. Damage to the valve assembly or spray head caused by harsh chemicals or debris will not be covered by the manufacturer's warranty.

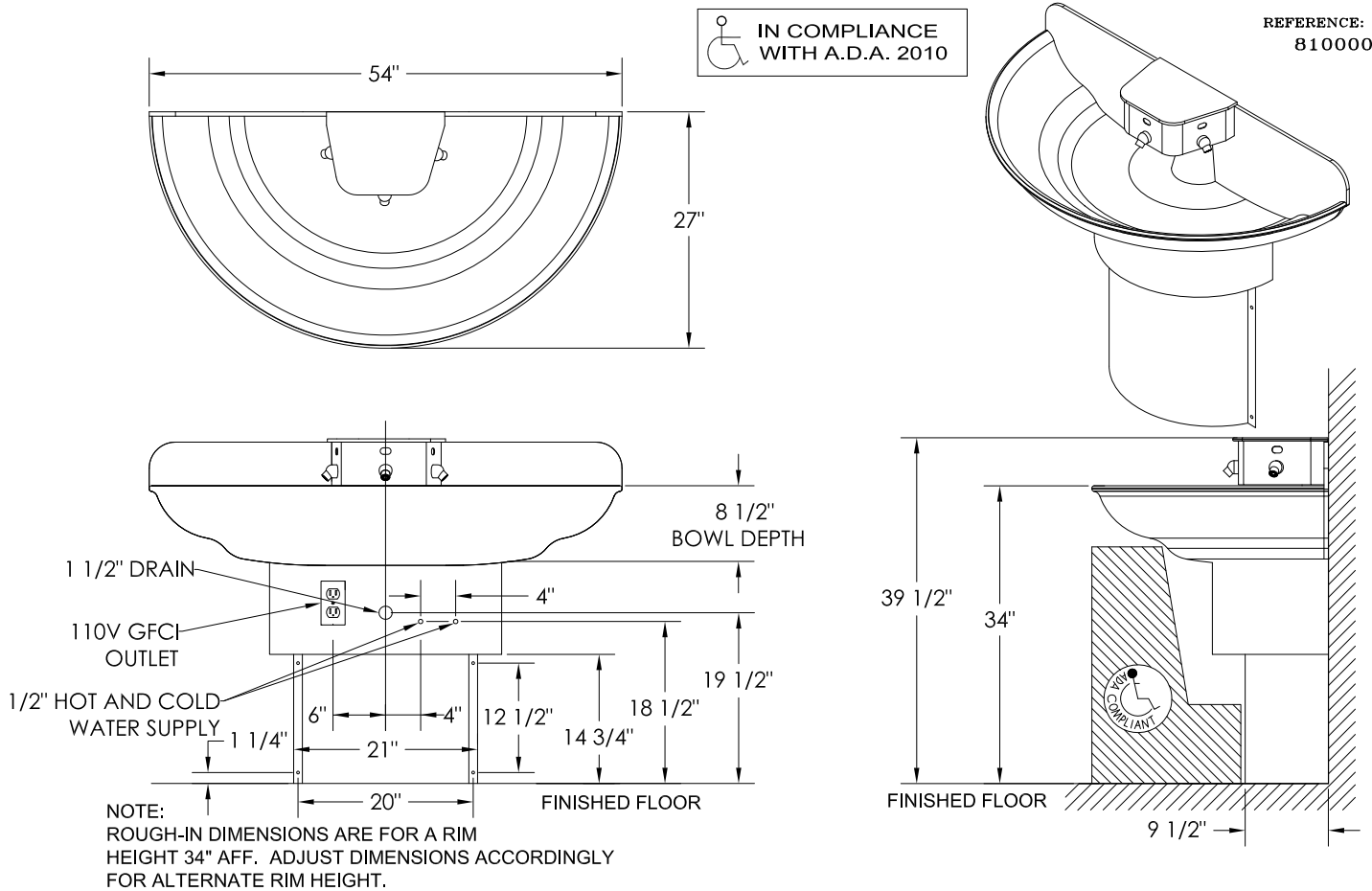
Installation notice!

Check Rough-In location **PRIOR** to installation

Flush lines thoroughly **PRIOR** to hook-up

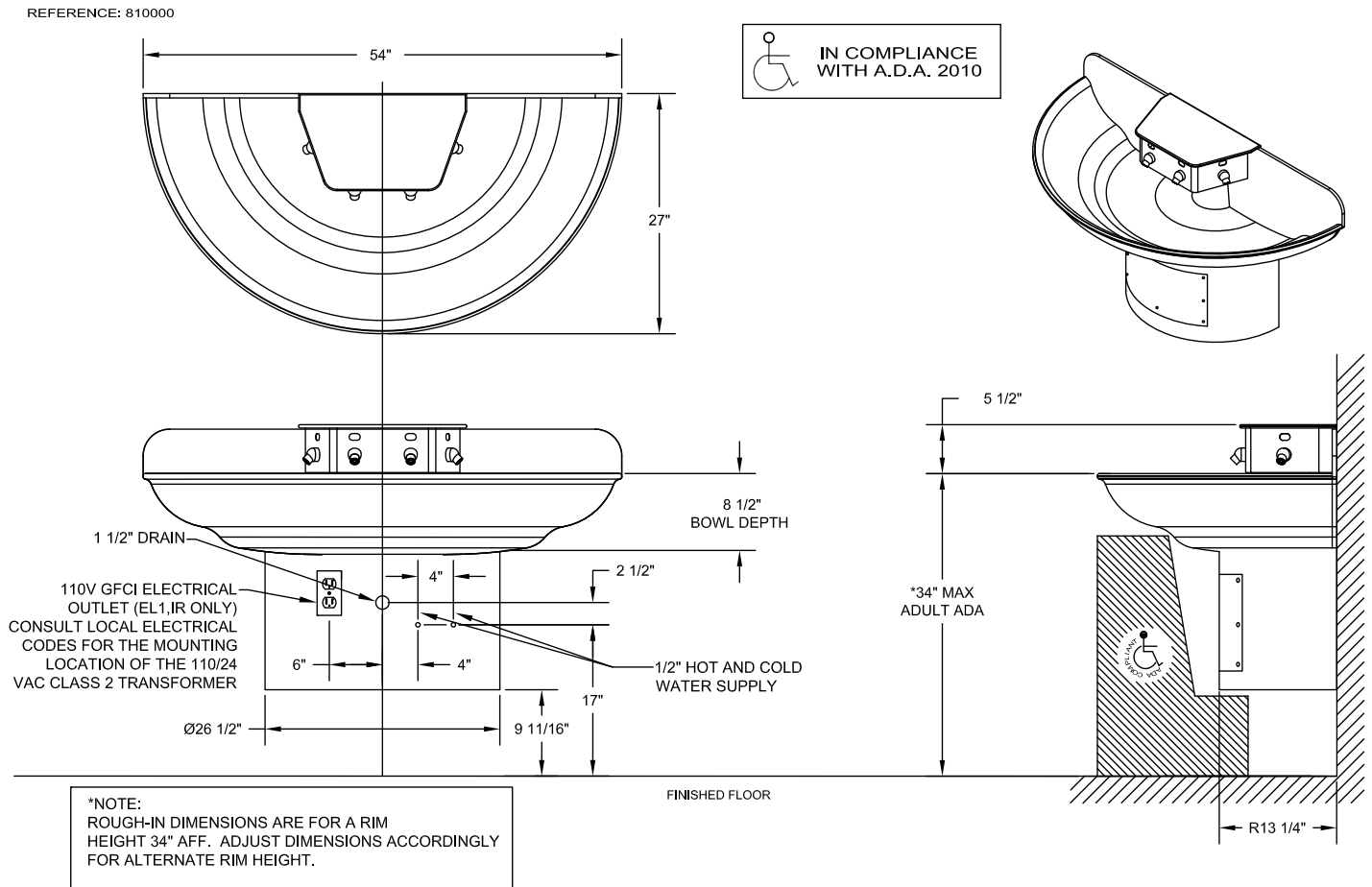
Physical Dimensions- Floor-mounted Unit

*WAF-5403-FL unit shown; WAF-5404-FL will have same pedestal dimensions.



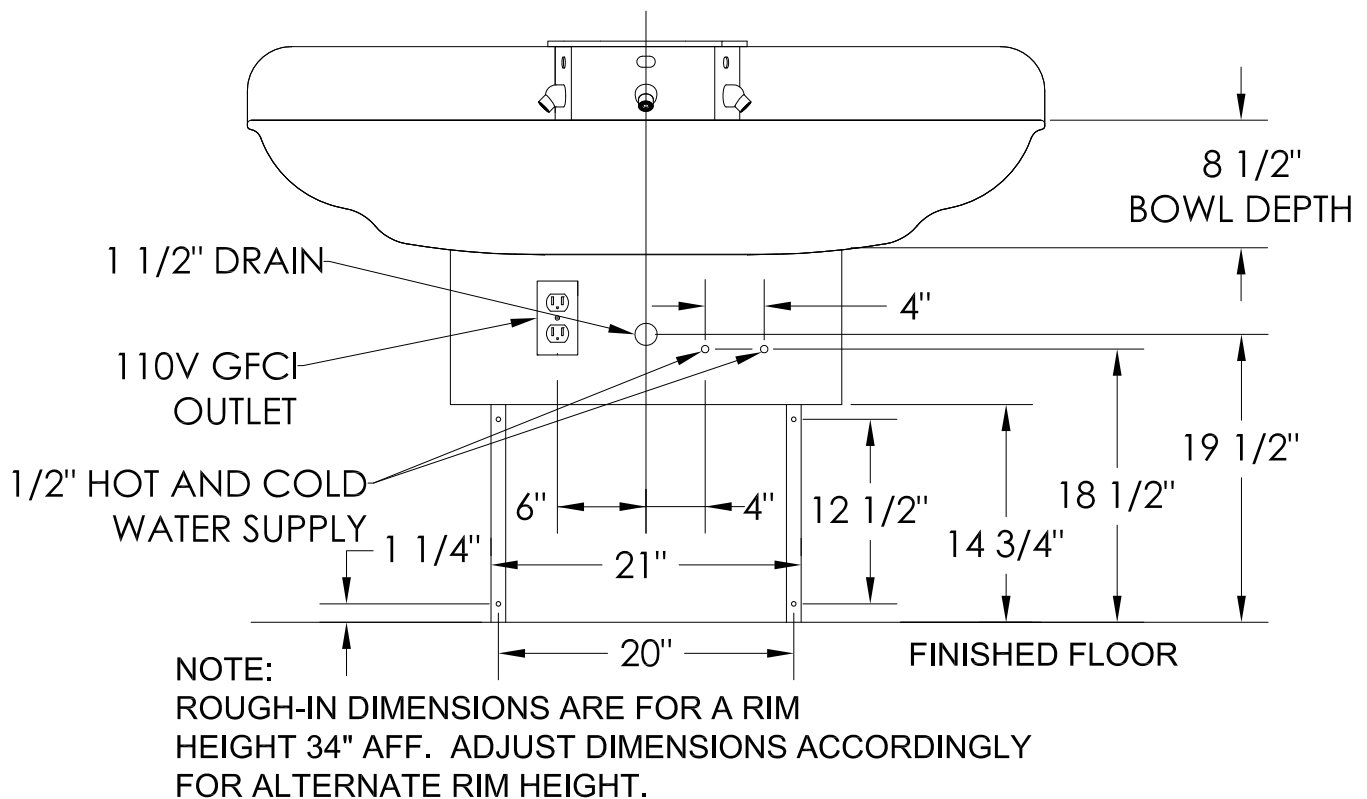
Physical Dimensions- Wall-mounted Unit

*WAF-5404 unit shown; WAF-5403 will have same pedestal dimensions.



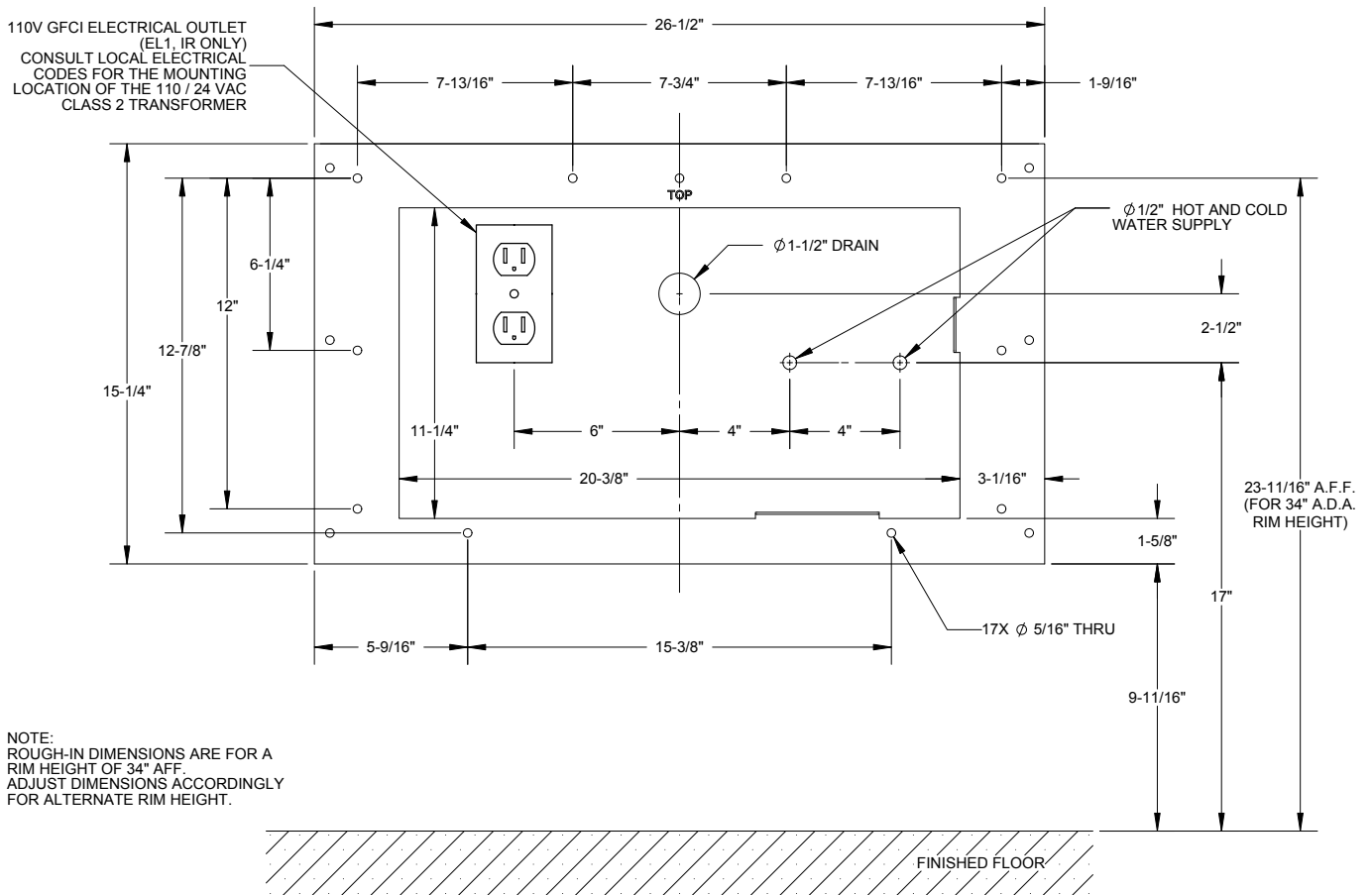
Rough-in Dimensions- Floor-mounted Unit

*WAF-5403-FL unit shown; WAF-5404-FL will have same rough-in dimensions.



Rough-in Dimensions- Wall-mounted Unit

*WAF-5404 unit shown; WAF-5403 will have same rough-in dimensions.



NOTE:
 ROUGH-IN DIMENSIONS ARE FOR A RIM HEIGHT OF 34" A.F.F.
 ADJUST DIMENSIONS ACCORDINGLY FOR ALTERNATE RIM HEIGHT.

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Required Installation Supplies

- Proper mounting hardware
- Hardware for waste outlet connections
- Gasket for waste outlet connection
- Shims (for installation if necessary)
- Supply piping
- Silicone caulk

□ WARNING: Willoughby Industries does not assume any responsibility for personal injury or damage to equipment due to an improperly installed WAF-5403/5404 Series washfountain.

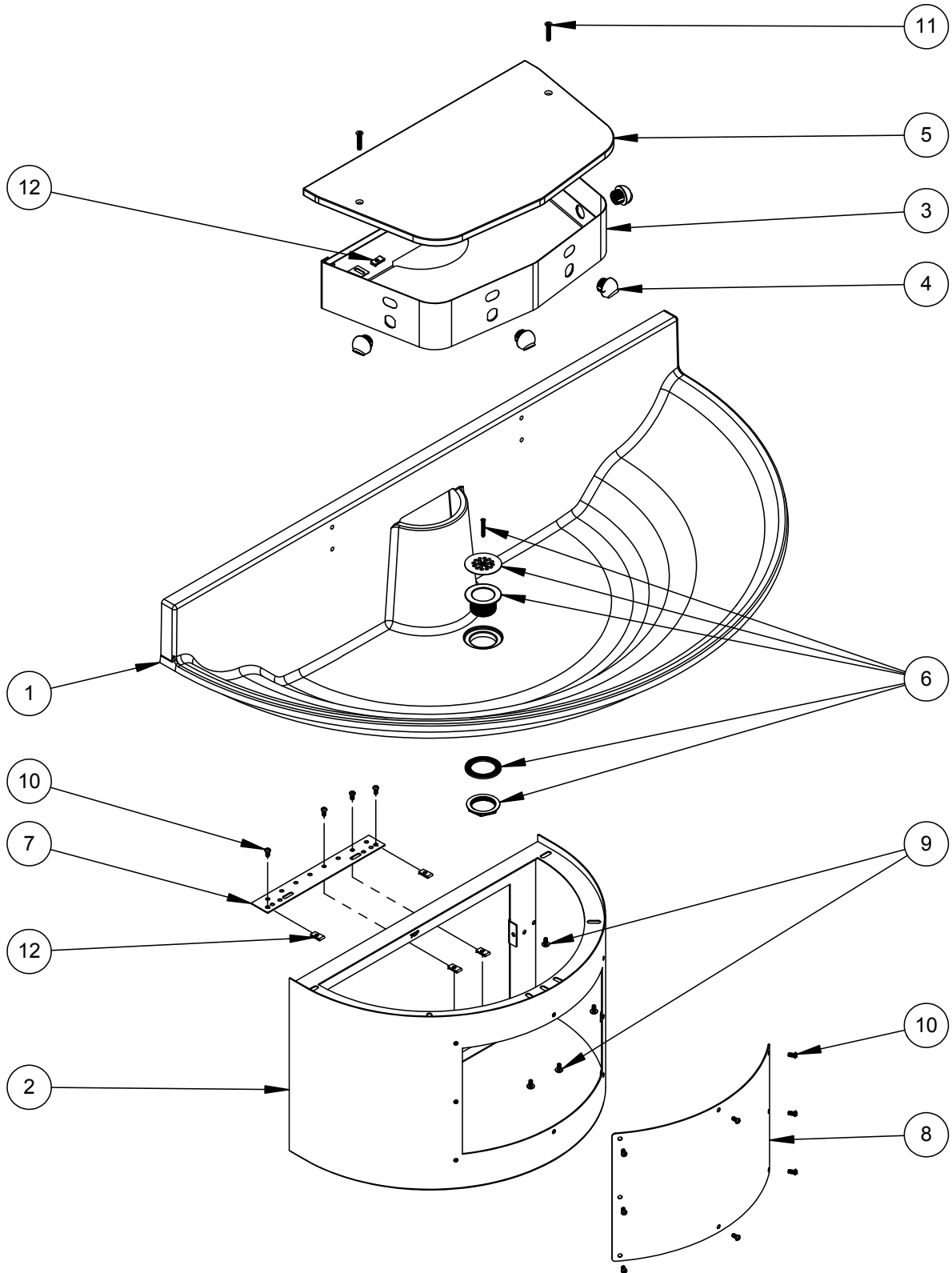
Parts List

ITEM #	DESCRIPTION	PART NUMBER (P/N) - 3-STATION	PART NUMBER (P/N) - 4-STATION
1	54" HALF-ROUND BASIN - SOLID SURFACE	800540C-XX*	800540C-XX*
2	PEDESTAL ASSEMBLY (WALL-MOUNT)	WAF5404-WA	WAF5404-WA
	PEDESTAL ASSEMBLY (FLOOR-MOUNT)	WAF5404-FL	WAF5404-FL
3	ACTUATOR HOUSING / VALVE HEAD KIT - INFRARED	WAF5403-I	WAF5404-I
	ACTUATOR HOUSING / VALVE HEAD KIT - PIEZO	WAF5403-E	WAF5404-E
	ACTUATOR HOUSING / VALVE HEAD KIT - PNEUMATIC	WAF5403-P	WAF5404-P
	ACTUATOR HOUSING / VALVE HEAD KIT - BATTERY OPERATED	WAF5403-B	WAF5404-B
4	STND. SPRAY HEAD ASSEMBLY- WAF (AERATOR SPRAY HEAD, 0.5 GPM- #320157A) (SPRAY HEAD BASE, 45*- #800001)	320157A-ASMB	320157A-ASMB
5	TOP COVER- SOLID SURFACE	800333LP-XX*	800441LP-XX*
6	DRAIN ASSEMBLY (WAF)	380281	380281
7	VALVE BRACKET ADAPTER (WAF)	S600417	S600417
8	ACCESS COVER (WALL-MOUNT)	S600481	S600481
	ACCESS COVER (FLOOR-MOUNT)	S600171	S600171
9-12	HARDWARE KIT	800258	800258
NOT SHOWN	INFRARED SENSOR	700150	700150
	PIEZO PUSHBUTTON	701179-C	701179-C
	ACTUATOR PUSHBUTTON	600307	600307
	ELECTRONIC VALVE ASSEMBLY	803105-3EL	803105-4EL
	PNEUMATIC VALVE ASSEMBLY	803105-3PW	803105-4PW
	BATTERY OPERATED VALVE ASSEMBLY	803150-3BW	803105-4BW
	CHECKSTOP ASSEMBLY	980183	980183
	STAINLESS STEEL FLEX HOSE (6")	980506	980506
	STAINLESS STEEL FLEX HOSE (20")	980520	980520
	POWERS HYDROGUARD T/P (LFe480)	700480ELF	700480ELF
	POWER SUPPLY - INFRARED	800137B	800138B
	POWER SUPPLY - PIEZO	800139A	800140A
	PLUG-IN TRANSFORMER - INFRARED	701210	701210
	PLUG-IN TRANSFORMER - PIEZO	701210	701211
	PNEUTRONIC TIMER	330043	330043

*XX REPRESENTS THE WASH FOUNTAIN COLOR

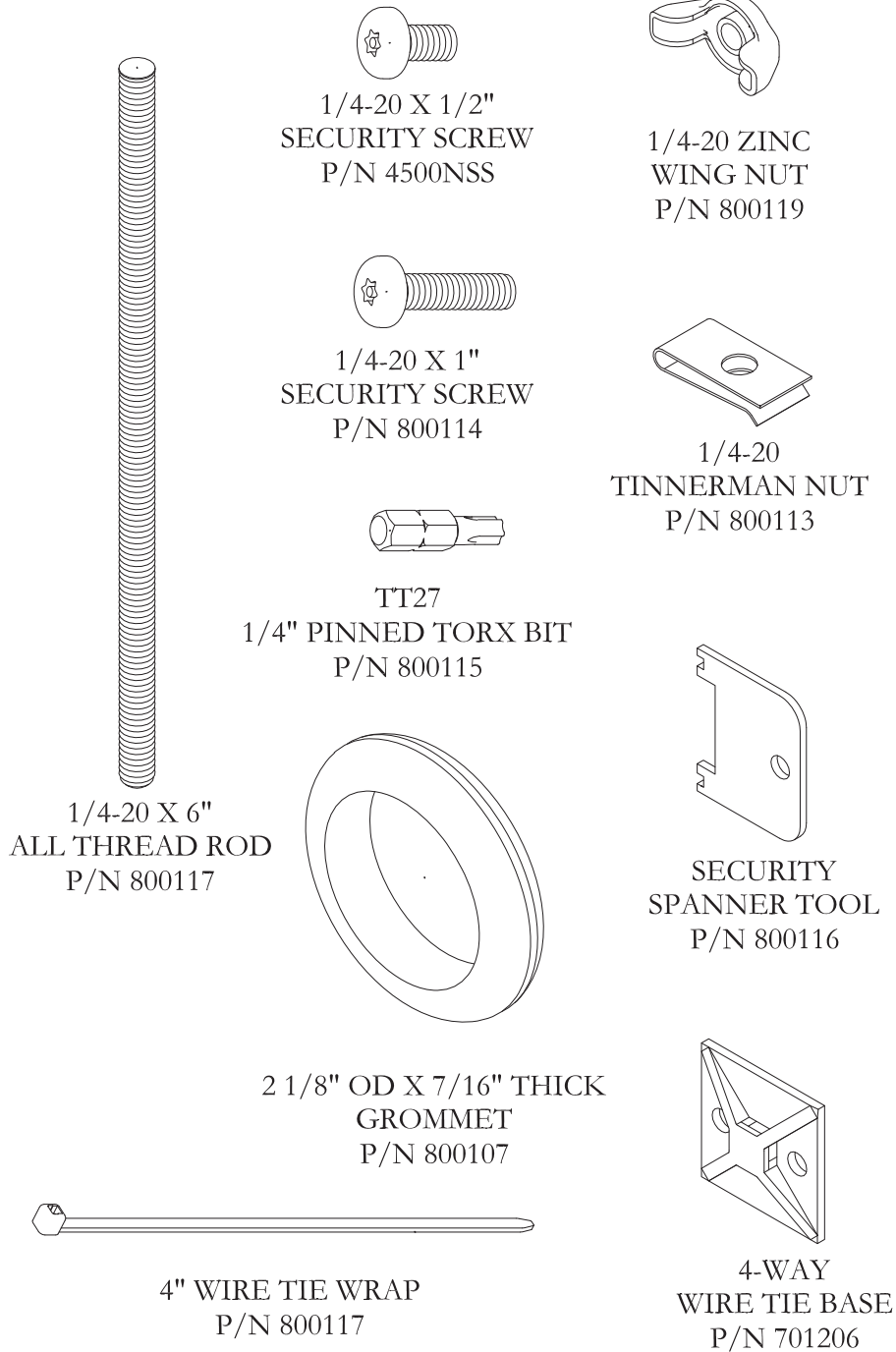
WHITE GRANITE=WG
 SAND STONE=SS
 GRAY GRANITE=GG
 BLACK GRANITE=BG
 SEA GREEN=SG
 NOCTURNAL BLUE=NB
 GLACIER WHITE=GW
 BONE=B

Exploded-view Drawing



***WAF-5404 (wall-mounted) unit shown**

Hardware Identification Chart

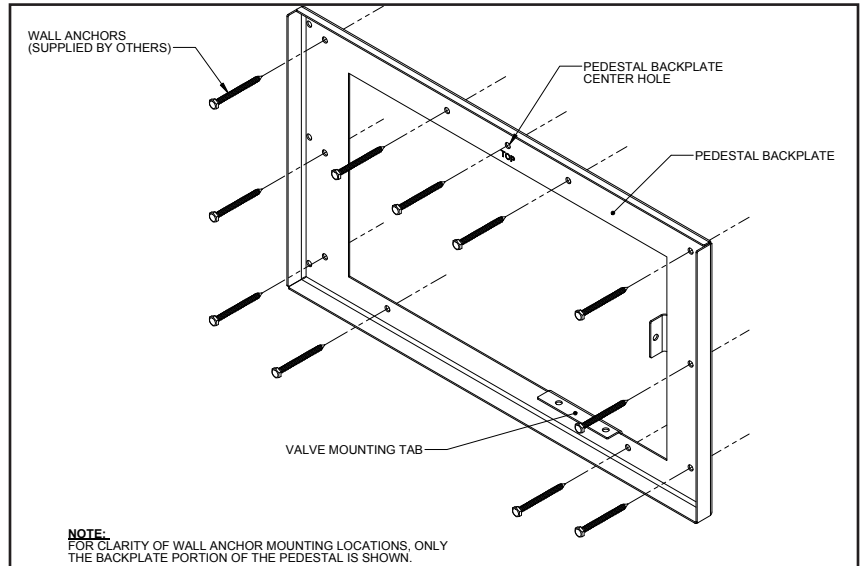


Installation Instructions

Step 1: Pedestal Mounting

Parts supplied:

- Complete Unit (Pre-assembled)



Note: Hardware for wall anchoring by others.

Note: Use anchors that are adequate for the type of wall: drywall, concrete, metal studs, wood studs, etc.

Note: Refer to rough-in drawing for backplate mounting hole locations to achieve 34" rim height.

- 1.) Measure and mark the vertical centerline of the washfountain on the wall. Mark a level line at the height prescribed by the rough-in drawing for the pedestal backplate center hole. Drill a hole for a wall anchor (supplied by others) at this height mark.
Make sure that the intended anchor locations will provide adequate backing to support the installed washfountain. If adequate backing does not exist, install appropriate support backing or relocate unit before proceeding with installation (backing provided by others).
- 2.) Mount the pedestal on the wall using a wall anchor through the backplate center hole and the first drilled hole. DO NOT TIGHTEN THIS FIRST WALL ANCHOR ALL THE WAY, as you may need to adjust the pedestal to ensure it is level.
- 3.) Make sure the pedestal is level and plumb against the wall, then mark and drill holes for the rest of the wall anchors as specified by the rough-in drawing.
- 4.) Ensure once more the pedestal is level, then secure it to the wall using the remaining anchors (supplied by others). Make sure all wall anchors are tight and secure against the pedestal backplate.

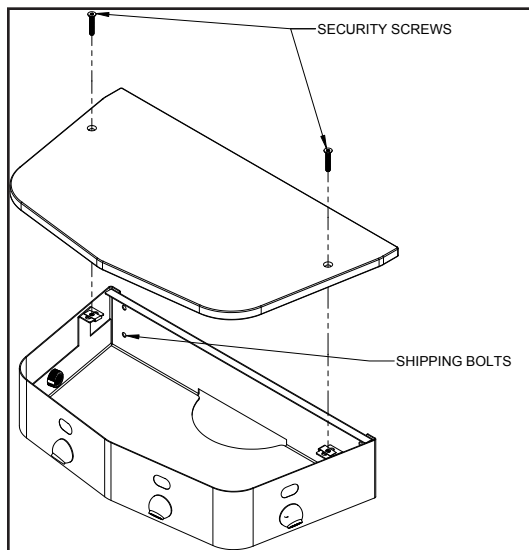
Note: Be sure backplate is level and plumb against the wall so that water in basin will drain correctly once assembly is completed.

Installation Instructions (cont.)

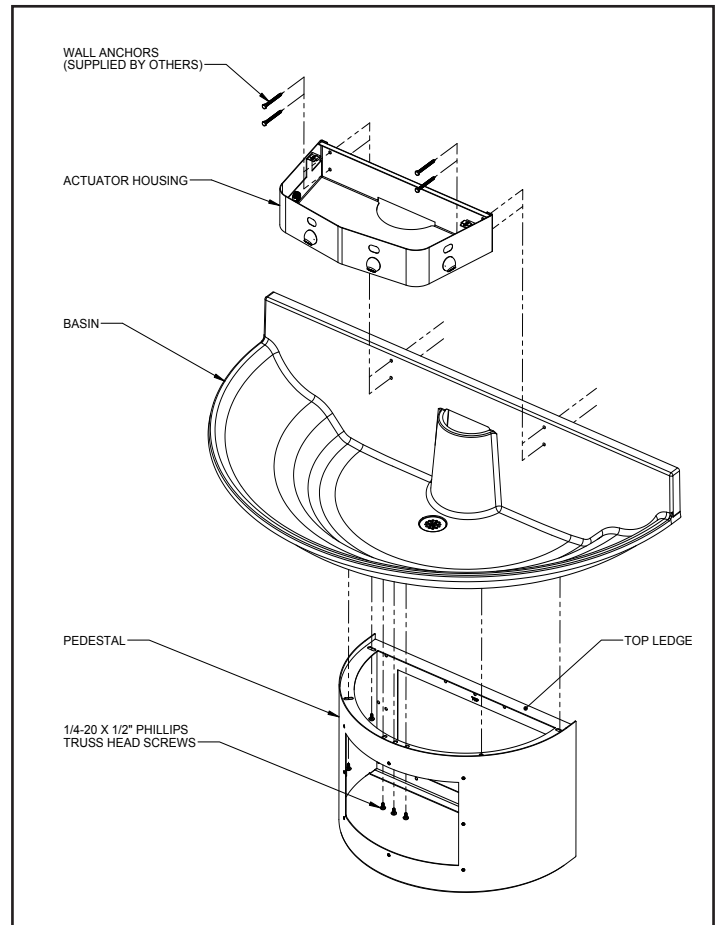
Step 2: Mounting Basin

Parts supplied:

- Solid Surface Basin
- Actuator Housing
- Pedestal Backplate



Removing the top cover.



Mounting the basin and actuator housing to the backplate and wall.

- 1.) Remove top cover from the valve head kit by loosening the security screws as shown in the above-left diagram. Set the top cover, screws, and nuts aside.
- 2.) With the help of an assistant, place basin on top ledge of the pedestal assembly.
- 3.) Carefully mark mounting holes on wall through the basin, then remove the basin and drill the mounting holes.
- 4.) Replace the basin and valve head kit as shown in the above-right diagram.
- 5.) Fasten wall anchors (supplied by others) through the basin and valve head kit holes securely, **but DO NOT OVERTIGHTEN**; this can damage the solid surface basin and valve head kit.
- 6.) Secure the basin to the pedestal by fastening the 1/4-20 x 1/2" Philips truss head screws up through the pedestal basin mounting ring into the threaded inserts on the bottom of the basin.

Note: *BE SURE to use the truss head screws included with the washfountain. Using longer screws than those provided can damage the solid surface basin.*

Installation Instructions (cont.)

Step 3: Drain Assembly

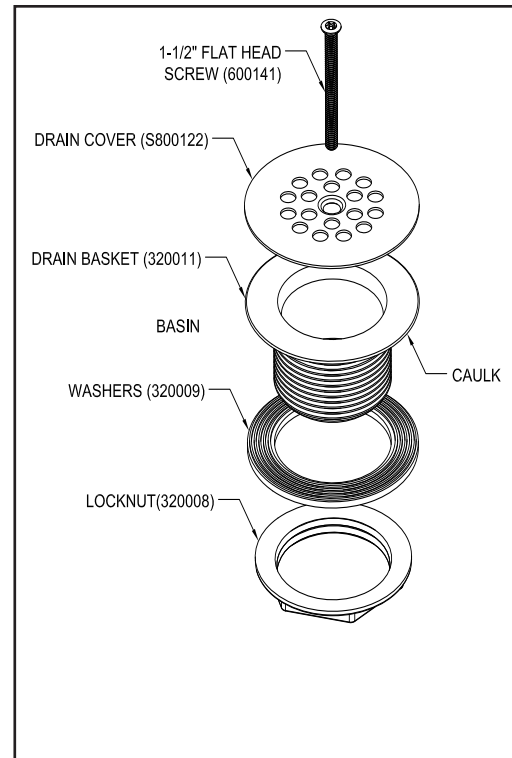
Parts/Materials supplied:

- Solid surface basin
- Drain assembly (see diagram)

- 1.) As shown on the diagram, apply a small (approx. 1/4" dia. 6" long) strand of Silicone caulk on the underside of the drain basket lip (supplied by others).
- 2.) Insert the drain basket down through the basin drain hole.
- 3.) Secure the drain basket in place by fitting the rubber and stainless steel washers onto the drain assembly from the underside of the basin. Tighten the locknut onto the drain basket assembly, sandwiching the washers between the basin and locknut.

Note: Over-tightening the locknut or security screw can damage the solid surface basin and/or drain assembly components.

- 4.) Secure the drain cover to the drain basket using the provided screw.



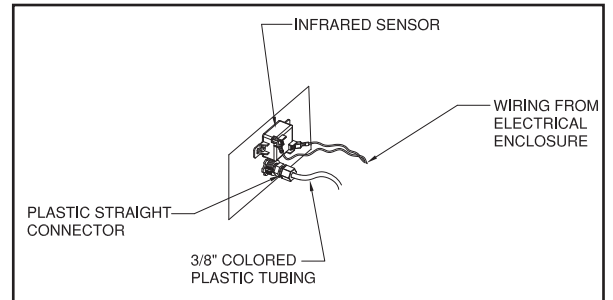
Installation Instructions (cont.)

Step 4A: Connections for Infrared/Piezo Actuators

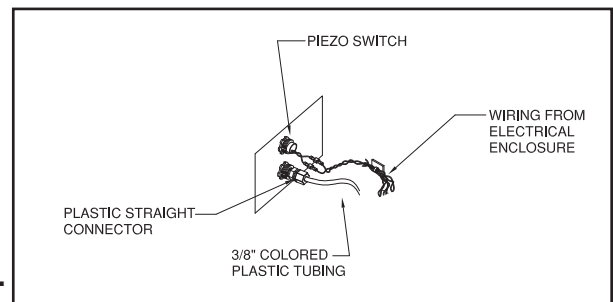
Parts supplied:

- Valve Assembly (pre-installed)
- 3/8" x 4' Multi-Colored Water Lines
- Small Diameter Multi-Colored Pneumatic Tubing
- 1/4-20 x 1/2" security screws
- 1/4-20 tinnerman nuts

Note: Use wire tie mounts and wire ties to route and secure wiring. Wires are long enough to accommodate various routing paths. Longer tubes may need to be bundled with wire ties so they do not come in contact with sharp corners.



Infrared Sensor Actuator



Piezo Push Button Actuator

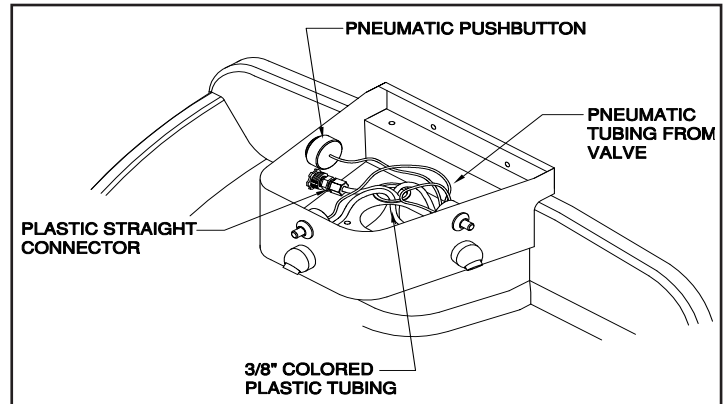
- 1.) Locate the terminal block plate and attach to the pedestal using 1/4-20 x 1/2" security screws and tinnerman nuts.
- 2.) Locate the group of loose colored wires coming from the terminal block plate labeled "UPPER".
- 3.) Feed 2 like-colored wires into each of the actuator housing assemblies (either the Infrared or Piezo assemblies, whichever applies to the installation).
- 4.) Plug both like-colored wires into the actuator as shown above (either wire will work on each connector).
- 5.) Locate the 3/8" multi-colored water lines. Match the color of each water line with the corresponding color of wiring. Run the end of each water line up through the basin to the head kit. Match the color of each water line to the spray head assembly below each actuator. On each corresponding spray head, loosen the plastic nut on the plastic connector and firmly push the water line through the plastic nut into the fitting. Tighten the plastic nut to secure the water line to the spray head. Repeat for each remaining water line. (**see JACO Fitting Instructions on Page 19 for further detail).
- 6.) Once all water lines have been attached to their corresponding spray heads, on each corresponding manifolded valve assembly, loosen the plastic nut on the plastic connector and firmly push the water line through the plastic nut into the fitting. Tighten plastic nut to secure the water line to the valve assembly. Repeat for each water line.
- 7.) Connect each set of like-colored wires to each of the manifolded valves.

Installation Instructions (cont.)

Step 4B: Connections for Pneumatic Actuators

Parts supplied:

- Valve Assembly (pre-installed)
- 3/8" x 4' Multi-Colored Water Lines
- Small Diameter Multi-Colored Pneumatic Tubing
- 1/4-20 x 1/2" security screws
- 1/4-20 tinnerman nuts



Pneumatic Push Button (Similar 3-station unit shown)

Note: Use wire tie mounts and wire ties to route and secure tubing. Longer tubes may need to be bundled with wire ties so that do not come in contact with sharp corners.

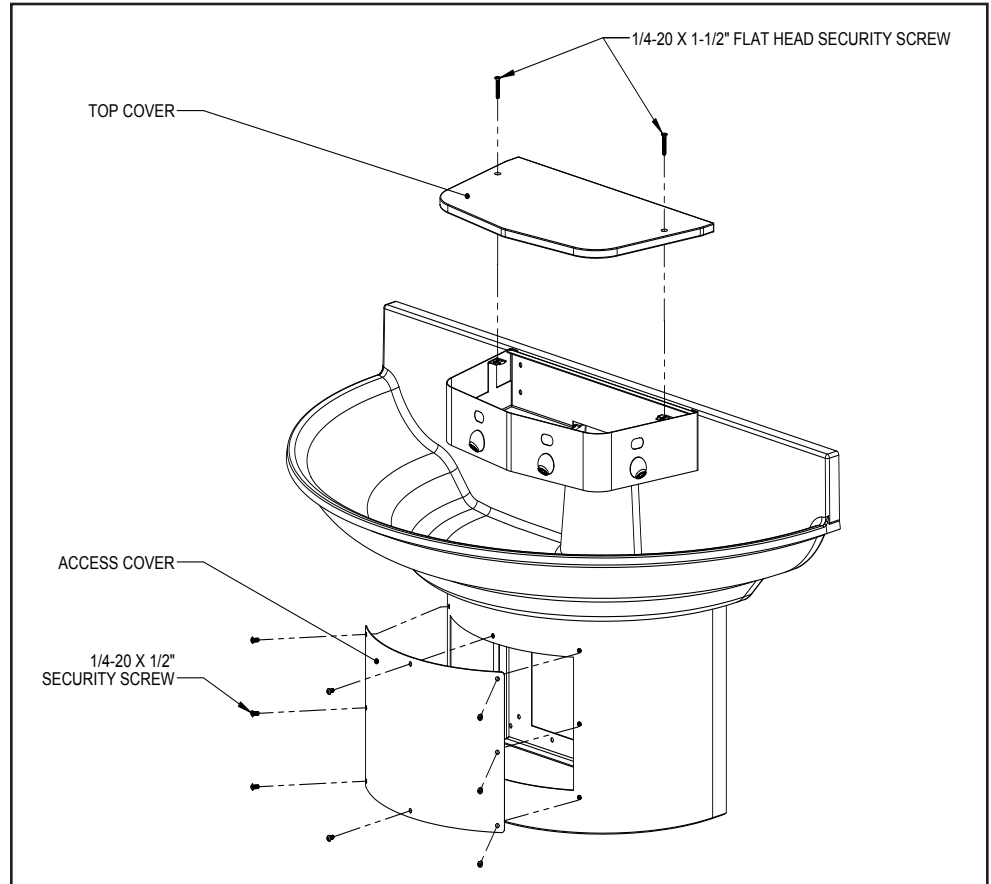
- 1.) Locate the small multi-colored pneumatic tubing. Feed each one into each of the actuator housing assemblies.
- 2.) Plug each tube onto the hose barb on the back of the push button.
- 3.) Locate the 3/8" multi-colored water lines. Match the color of each water line with the corresponding color of tubing. Run the end of each water line up through the basin to the head kit. Match the color of each water line to the spray head assembly below each push button actuator. On each corresponding spray head, loosen the plastic nut on the plastic connector and firmly push the water line through the plastic nut into the fitting. Tighten the plastic nut to secure the water line to the spray head. Repeat for each remaining water line. (**see JACO Fitting Instructions on Page 19 for further detail).
- 4.) Once all water lines have been attached to their corresponding spray heads, on each corresponding manifolded valve assembly, loosen the plastic nut on the plastic connector and firmly push the water line through the plastic nut into the fitting. Tighten plastic nut to secure the water line to the valve assembly. Repeat for each water line.
- 5.) Connect each set of like-colored tubing to each of manifolded valves.

Installation Instructions (cont.)

Step 5: Final Assembly

Parts supplied:

- Solid Surface Top Cover
- Access Cover
- 1/4-20 Tinnerman Nut
- 1/4-20 x 1" Security Screw
- 1/4-20 x 1-1/2" Flat Head Security Screws



- 1.) Make all final plumbing connections to valve inlets using supplied flex hoses (flex hoses have shut-off valves attached that should be connected to the supply inlets).
- 2.) Once all of the connections in the actuator housings are complete, locate the transformer.

NOTE: PLUG-IN TRANSFORMER (IF NEEDED) MUST BE USED WITH A GROUND FAULT INTERRUPT (GFCI) RECEPTACLE TO HELP PREVENT POSSIBLE ELECTRICAL SHOCK.

- 3.) Test the system for leaks (both supply and waste).
- 4.) Using 1/4-20 x 1-1/2" flat head security screws, attach top cover to the actuator housing.
- 5.) Using 1/4-20 x 1" security screws, attach shroud to the backplate.

JACO Fitting Instructions

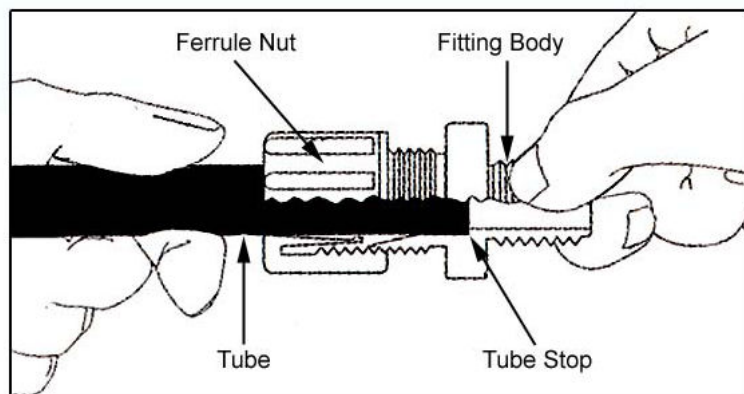
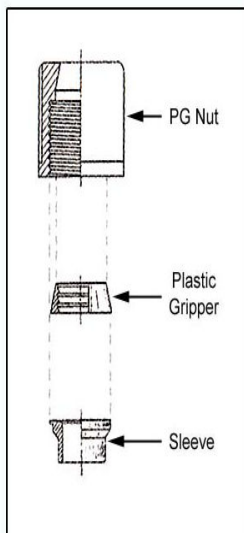


Note: It is not necessary to disassemble this fitting for application. Merely insert tubing to stop and tighten seal.

1. Cut tubing end squarely and remove the internal burrs.
2. Insert the tubing through the back of the nut all the way through the nut assembly to the tube stop in the fitting body (see illustration). If the tubing does not enter the nut easily, loosen the nut one turn and reinsert the tubing all the way to the tube stop in the fitting body.
3. Turn the nut hand tight.
4. Wrench tighten the nut 1½ - 2 turns.
5. All nuts must be retightened when the system reaches projected operating temperature.

Note: To ensure proper assembly, tubing MUST be fully inserted into the fitting body all the way to the tube stop.

Note: Squeaking sound when tightening nut is normal. For pipe threaded connections, Teflon tape must be used.



Mixing Valve Instructions

POWERS™

IS-P-e480

**HydroGuard® T/P Series e480
Lavatory Combination Valve**

Installation Instructions

To Install ■

NOTE: Installation should be in accordance with accepted plumbing practices. Flush all piping thoroughly before installation.

1. Locate a suitable place for the tempering valve. Valve should be accessible for service and adjustment and as close to the point-of-use as possible.
2. Connect hot and cold water to the supply valve using 1/2" NPT or 3/8" compression connections.
3. Connect outlet of tempering valve to fixture(s) using 1/2" NPT or 3/8" compression connections.
4. Turn on hot and cold water supplies. If any leaks are observed, tighten connections as necessary to stop leaks before proceeding.
5. Turn on fixture and allow water to flow for 2 minutes. Measure water temperature at outlet. If water is not at desired temperature, adjust as necessary.

Specifications ■

e480-00	1/2" NPT (Rough Bronze)
e480-01	1/2" NPT (Rough Chrome)
e480-10	3/8" Compression (Rough Bronze)
e480-11	3/8" Compression (Rough Chrome)
Capacity:	4.0 gpm (15.0 l/m)
Approach Temperature:	5°F (2.8°C) above set pt.
Max. Operating Pressure:	125psi (862 kpa)
Max. Static Pressure:	125psi (862 kpa)
Max. Hot Water Temperature:	180°F (82°C)
Temp. Adjustment Range:	
..... ASSE Type T/P: 95 – 110°F (43-48°C)	
..... ASSE Type T: 80 – 120°F (27-49°C)	
Minimum Flow:	0.5 gpm (2.2 l/m)
Checks:	Integral
Construction:	Cast Brass Body
Certified:	CSA B125
Listing	ASSE 1016-1996 (Type T/P)
.....	ASSE 1070

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. (California law requires this warning to be given to customers in the State of California.)

For more information: www.watts.com/prop65

Figure 1

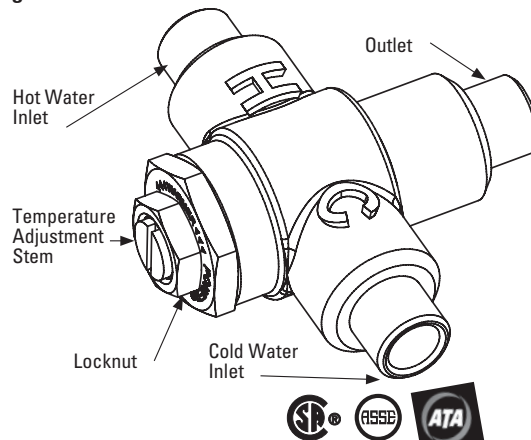
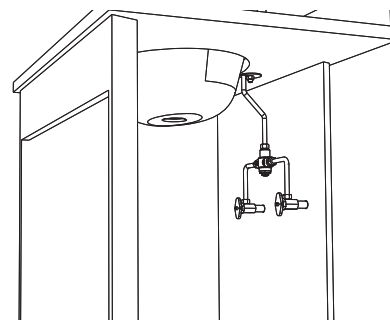


Figure 2: Typical Installation



To Adjust Temperature ■

1. Loosen locknut.
2. Turn on fixture and run water for at least two (2) minutes to allow supply temperature to stabilize.
3. Turn temperature stem counter-clockwise for hotter or clockwise for colder outlet temperature.
4. Tighten locknut to prevent accidental or unauthorized temperature adjustment.
5. Re-check outlet temperature.

Repair Kit ■

Motor Repair Kit.....480-270

Infrared Sensor Installation Instructions

WILLOUGHBY INDUSTRIES INFRARED LAVATORY SENSOR

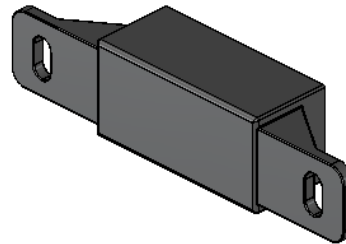
PART#: **700150**
24V AC System Infrared Sensor

DETECTION AND ACTIVATION

- When the sensor detects a user, a slow-flashing red light appears in the sensor window.
- After 1-2 seconds of detection, the light flashes rapidly, the sensor immediately activates the solenoid valve, beginning water flow.
- The valve remains open while the user is detected.
- The valve closes when the user is no longer detected.
- The sensor is set to activate the solenoid valve for a maximum of 30 seconds before automatically shutting off.

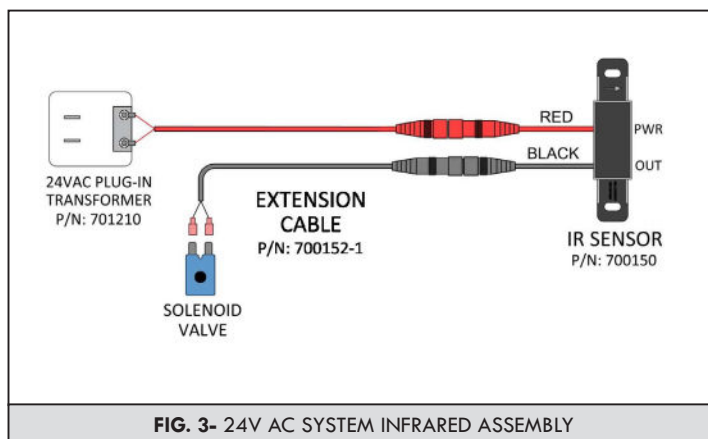
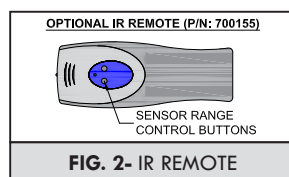
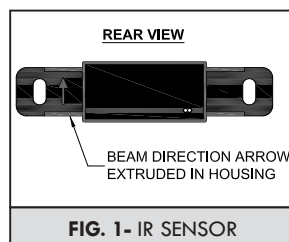
Note: Sensor range is factory preset to 20";
Optional range adjustment remote available
to adjust range from 1" min. to 30" max.
(SEE FIG. 2).

INSTALLATION AND OPERATION MANUAL



INSTALLATION AND REPLACEMENT

- 1) Disconnect the 24V AC power at either the transformer or fuse box.
- 2) Remove top cover to expose sensors (SEE FIG. 1)
- 3) Install the new sensor with arrow pointing upwards.
- 4) Connect the red male power cable to the female connector on the sensor (SEE FIG. 3).
- 5) Connect the black female solenoid cable to the male connector on the sensor.
- 6) Replace the top cover removed in Step 2.
- 7) Reconnect the power.



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Liquid Soap Specification and Maintenance

(For models with “LSD” option only)

Liquid soap viscosity is measured in “cps” (centipoise). The liquid soap chosen to be used with Willoughby’s Liquid Soap Dispenser should be between 100cp and 2500cp.

The viscosity of the soap should be thin and free flowing.

Some soap types are available in a concentrate and must be diluted with water.

The pH (acidity) level should be in the range of 6.5 to 8.5.

Soap which is too acidic (pH less than 6.5) can corrode stainless steel and degrade rubber, plastic, or chrome-plated materials.

Soap that is outside the range of 6.5 - 8.5 might be harsh on the hands or skin.

(Generally, any quality soap meeting the viscosity and pH guidelines should work well.)

Recommended Maintenance Schedule

To maintain proper function, Willoughby’s Liquid Soap Dispenser should be cleaned periodically to remove soap residue. The Liquid Soap Spout should be soaked in hot water for a period of 30 minutes when cleaning is being performed. The soap tray should also be cleaned with hot water.

Care and Maintenance

Solid Surface Care

Aquasurf® surfaces may be easily cleaned using conventional cleaning agents such as an ammonia based liquid cleaner, (glass cleaner).

Dry stains on a matte finish can be removed with a 3M Scotch-Brite gray scouring pad or a mild abrasive cleaner.

Burns or scorches can be removed by sanding with coarse grit sandpaper followed by finer grit (220) sandpaper. Follow sanding with a 3M Scotch-Brite gray pad (or equivalent) to match finish of sanding area to surrounding area. A final buffing may be required on polished surfaces. Accidental nicks or chips can be repaired with special patch kits available in all Aquasurf® colors.

Avoid exposing Aquasurf® surfaces to strong chemicals such as acetone's; paint removers and sulfuric acid or hydrochloric chemical cleaners. Exposure to strong chemicals may result in permanent damage to Aquasurf® surfaces.

Stainless Steel Care

Stainless Steels are basically alloys of iron and chromium and are corrosion resistant. Stainless steel has a bright surface that is easy to clean and is free from oxides. Therefore, cleaning of stainless steel is relatively simple and easy if done on a regular basis.

Frequency of cleaning should depend on the rate at which the fixture becomes dirty. Remember that fresh (soft) deposits of all kinds are relatively easy to remove, while removing older (hard) deposits are much more difficult. Establish a cleaning SCHEDULE.

Routine cleaning should involve ordinary soap or detergent and water, applied with a sponge, brush or cloth. Baking soda, borax or any of several non-abrasive commercial cleansing agents can help hasten the cleaning action. After scrubbing, rinse THOROUGHLY and wipe dry.

DO NOT use common steel wool, scouring pads, scrapers, wire brushes, files or other steel tools to clean stainless steel. Such items will scratch the surface or leave small particles of iron imbedded in the surface, which will eventually rust and stain the surface - even appearing as if the stainless itself was rusting.

Certain chemical compounds, if used on stainless steel, can give the appearance of rust and if allowed to stand for long periods of time, can pit the surface of even stainless. Products containing hydrochloric acid, muriatic acid or potassium hydrochloride can ruin the surface.

Troubleshooting - Infrared Sensors

- I. Faucet does not function (red light does not appear when user steps in front of sensor)
 - A. No power to sensor. Make certain that power is on. Check transformer leads and connections. Repair or replace as necessary.
 - B. Willoughby 700150 IR Sensor not operating. Replace Willoughby 700150 IR Sensor.

- II. Faucet does not function (red light appears when user steps in front of sensor and solenoid does not click)
 - A. Debris in solenoid; disassemble, clean, and flush.
 - B. Solenoid not wired correctly; check solenoid connections.
 - C. Solenoid problem; replace solenoid.

- III. No water when activated (valve clicks)
 - A. Make certain that water is turned on.
 - B. Valve clogged. Clean or replace filter.

- IV. Very low flow or slow dribble
 - A. Check supply stop(s); open if closed.
 - B. Debris in filter; remove, clean, and reinstall.
 - C. Debris in aerator or spray head; remove, clean and reinstall.
 - D. Disassemble solenoid; clean and flush.

- V. Continues to run (with power on and red light flashing)
 - A. Non-permanent target in range after user leaves. Remove non-permanent target. If this target is a new permanent target (i.e., a new wall or partition), turn off 24 volt power for fifteen (15) seconds. Turn power back on and let the sensor complete start-up mode.
 - B. Sensor failure; replace sensor.

- VI. Continues to run (even with power disconnected)
 - A. Solenoid valve installed backwards.
 - B. Debris in solenoid, won't close properly; remove operator and clean. Reassemble in the same manner.

Troubleshooting - Electronic Valves

The two most common reasons an electronic valve does not operate properly are: (1) lack of power or (2) lack of water pressure. The following steps should be used as a guide in identifying the problem of a malfunctioning electronic valve.

- I. Lack of power
 - A. Verify that the 110V GFCI outlet has power
 - B. Check all connections to ensure they have been made correctly:
 1. Cable connecting the valve coil and the timer or IR sensor
 2. Cable connecting the timer and the pushbutton (Piezo only)
 3. Cable connecting the timing device and the 24VAC transformer
 4. The 24VAC transformer and the 110V GFCI outlet
 - C. If the valve is wired correctly, the solenoid will make a “click” sound indicating that the valve has been actuated. The electronic valve is actuated by either the piezo pushbutton or the triggering of the infrared sensor (see the Start-Up Instructions for Infrared Sensors in this manual).
- II. Lack of water pressure
 - A. Check the supply to the rough-ins
 - B. Make sure the screwdriver stops are in the open position
 - C. Water pressure needs to be above 35psi to operate the valve
 1. If the water supply pressure is above 35psi but not exiting the valve:
 - a. Clean any debris from the screen on the inlet side of the solenoid valve body
 - b. Remove the screws on the valve body and clean any debris from the diaphragm

After all of the above steps have been followed, if there is still no water coming out of the spray head, there may be a damaged or defective part (see installation notice in the beginning of this manual).

Troubleshooting - Pneumatic Valves

- I. Valve will not open or deliver water
 - A. Check the plastic tubing that runs from the pushbutton actuator to the pneumatic valve for air leaks.
 - B. Make sure the checkstop on the supply to the valve is fully open. Do not partially close the checkstop for any reason as it is not a throttling valve. The checkstop should be fully open (normal operation) or fully closed (when servicing the valve).
 - C. Close checkstop and then inspect the strainer in the supply line (installed after the checkstop) to make sure the strainer is not blocked or partially blocked, prohibiting water flow.

- II. Valve will not shut off
 - A. Separate valve motor from casting by removing the four (4) #8 screws.
 - B. Inspect the water diaphragm assembly to see if bypass hole in diaphragm is blocked. Remove any debris by blowing on diaphragm or using force of air. Do not use any tool (such as straight pin) to remove any debris. Enlarging the hole will shorten or make for erratic cycling.
 - C. Check the metering screw on the timer assembly to make sure the adjustment screw is not closed too tightly. To reset, back out adjustment screw (counterclockwise) about 1-1/2" turns, and adjust for the desired cycle.

- III. Valve continues to trickle or partially deliver water after cycle is over
 - A. Inspect seating area on valve base to make sure no debris, pitting, or scoring is present.
 - B. Clean seat or replace seat as necessary.
 - C. Inspect seating area of diaphragm for debris, clean as necessary. If debris has caused permanent indentations in the rubber, it may have to be replaced.

After all of the above steps have been followed, if there is still no water coming out of the spray head, there may be a damaged or defective part (see installation notice in the beginning of this

Replacement Part Numbers

Table 1 – Replacement part numbers for general assembly:

*XX REPRESENTS THE WASH FOUNTAIN COLOR

DESCRIPTION	PART #	
	WAF-5403	WAF-5404
SOLID SURFACE BASIN	800540C-XX*	
SOLID SURFACE TOP COVER	800333LP-XX*	800441LP-XX*
PEDESTALASSEMBLY - WALL MOUNT	WAF5404-WA	
PEDESTAL ASSEMBLY - ON FLOOR	WAF5404-FL	
HARDWARE KIT	800258	
STND. SPRAY HEAD ASSEMBLY- WAF (AERATOR SPRAY HEAD, 0.5 GPM- #320157A) (SPRAY HEAD BASE, 45°- #800001)	320157A-ASMB	

B = BONE
 BG = BLACK GRANITE
 GG = GREY GRANITE
 GW = GLACIER WHITE
 NB = NOCTURNAL BLUE
 RC = RED CORAL
 SG = SEA GREEN
 SS = SAND STONE
 WG = WHITE GRANITE

Table 2 – Replacement part numbers for models with Infrared Actuation:

DESCRIPTION	PART #	
	WAF-5403	WAF-5404
VALVE HEAD KIT - INFRARED	WAF5403-I	WAF5404-I
VALVE ASSEMBLY - ELECTRONIC	803105-3EW	803105-4EW
POWER SUPPLY	800137B	800138B
PLUG-IN TRANSFORMER	701210	
INFRARED SENSOR	700150	

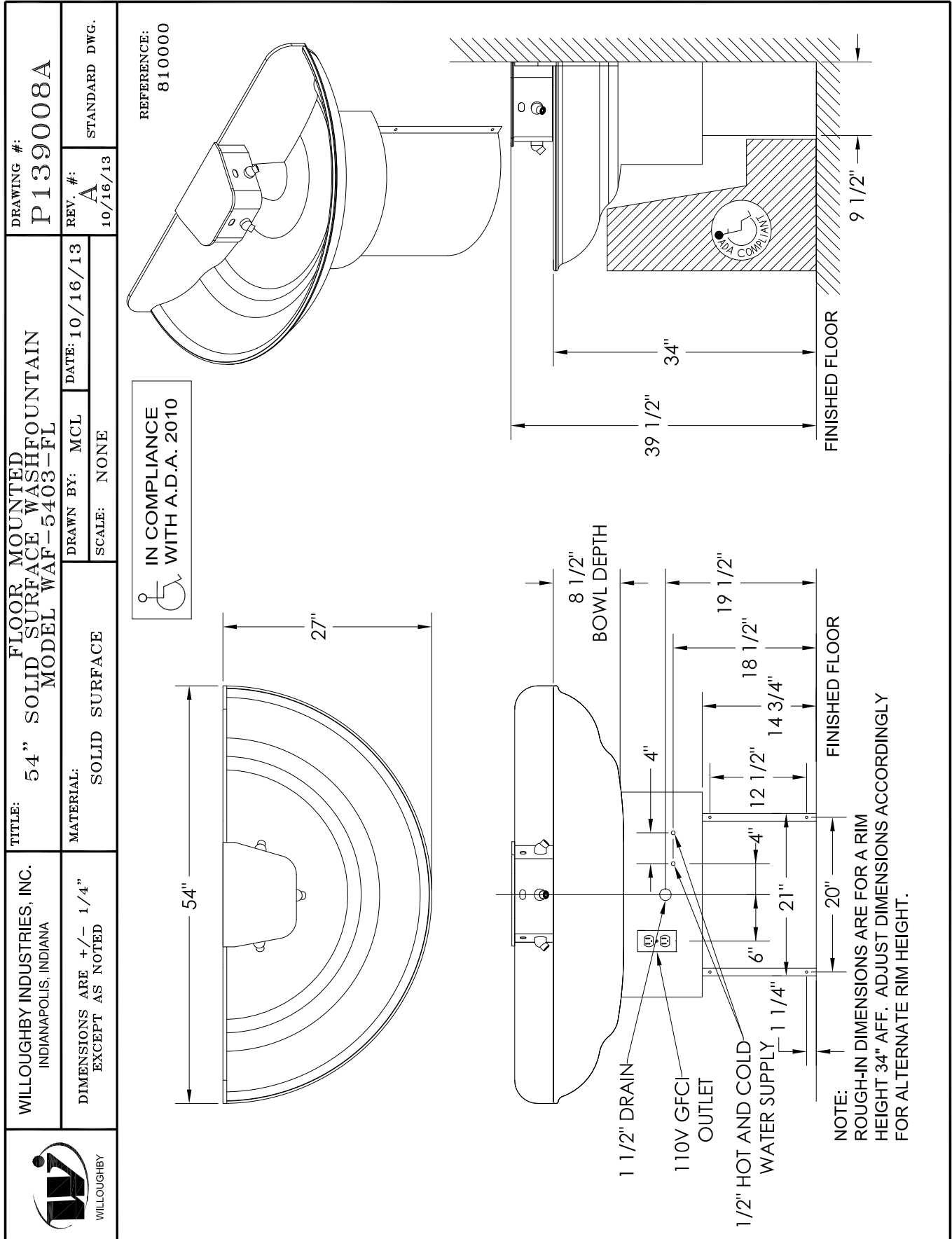
Table 3 – Replacement part numbers for models with Piezo Actuation:

DESCRIPTION	PART #	
	WAF-5403	WAF-5404
VALVE HEAD KIT - PIEZO	WAF5403-E	WAF5404-E
VALVE ASSEMBLY - ELECTRONIC	803105-3EW	803105-4EW
PUSHBUTTON - PIEZO	701179-C	
POWER SUPPLY	800139A	800140A
PLUG-IN TRANSFORMER	701210	701211
PNEUTRONIC TIMER	330043	

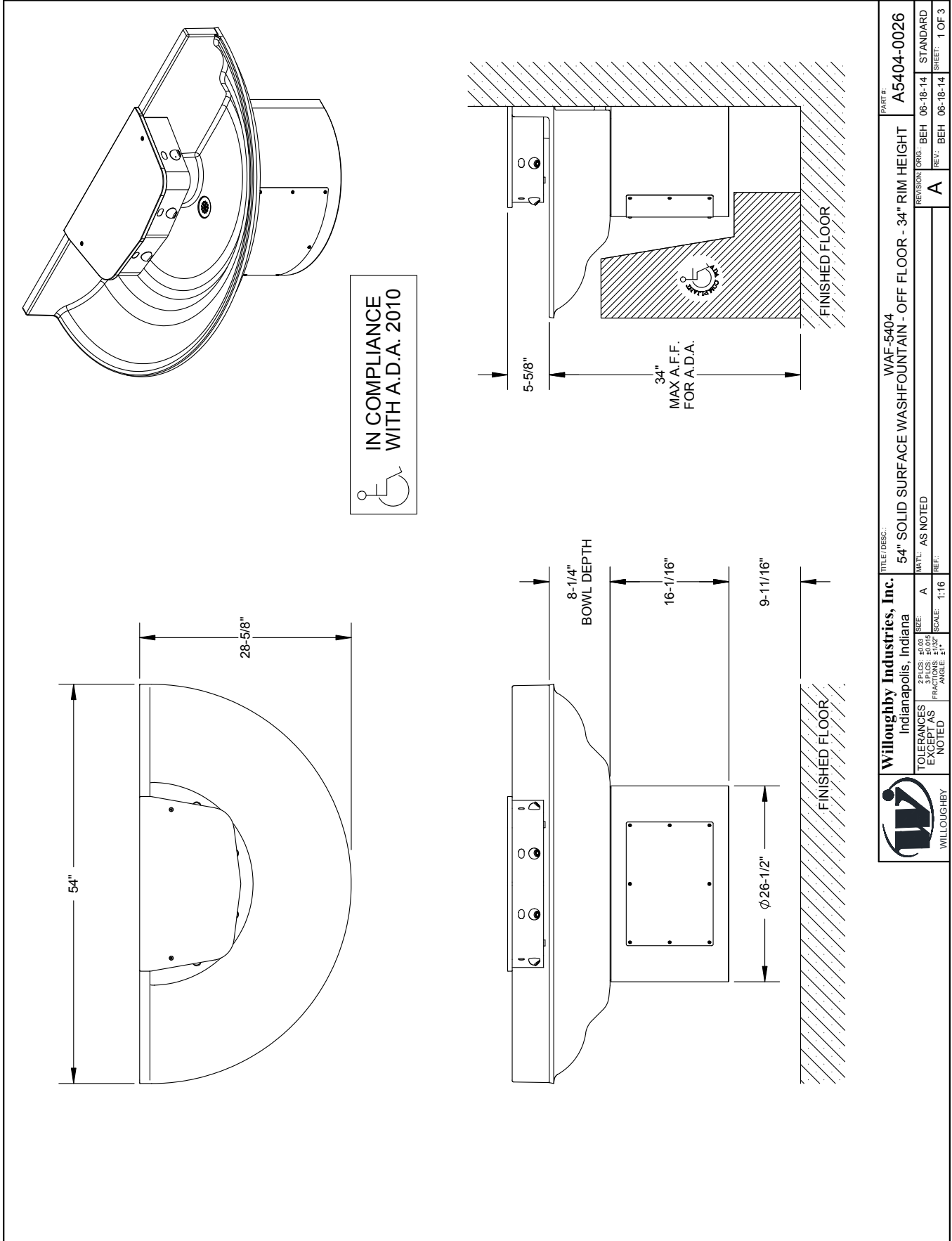
Table 4 – Replacement part numbers for models with Pneumatic Actuation:

DESCRIPTION	PART #	
	WAF-5403	WAF-5404
VALVE HEAD KIT - PNEUMATIC	WAF5403-P	WAF5404-P
VALVE ASSEMBLY - PNEUMATIC	803105-3PW	803105-4PW
PUSHBUTTON - PNEUMATIC	600307	

DRAWING: General Dimensions

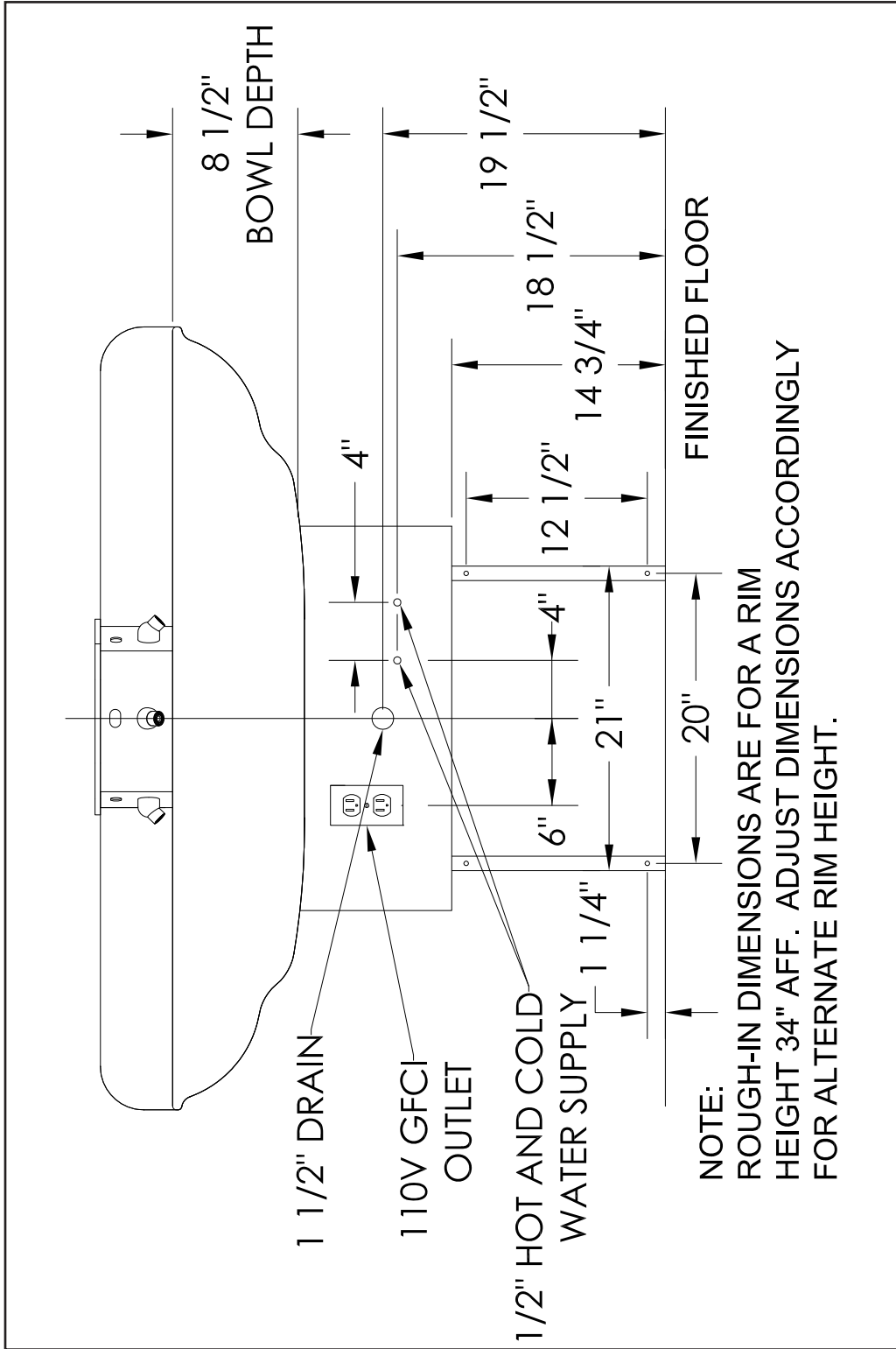


DRAWING: General Dimensions

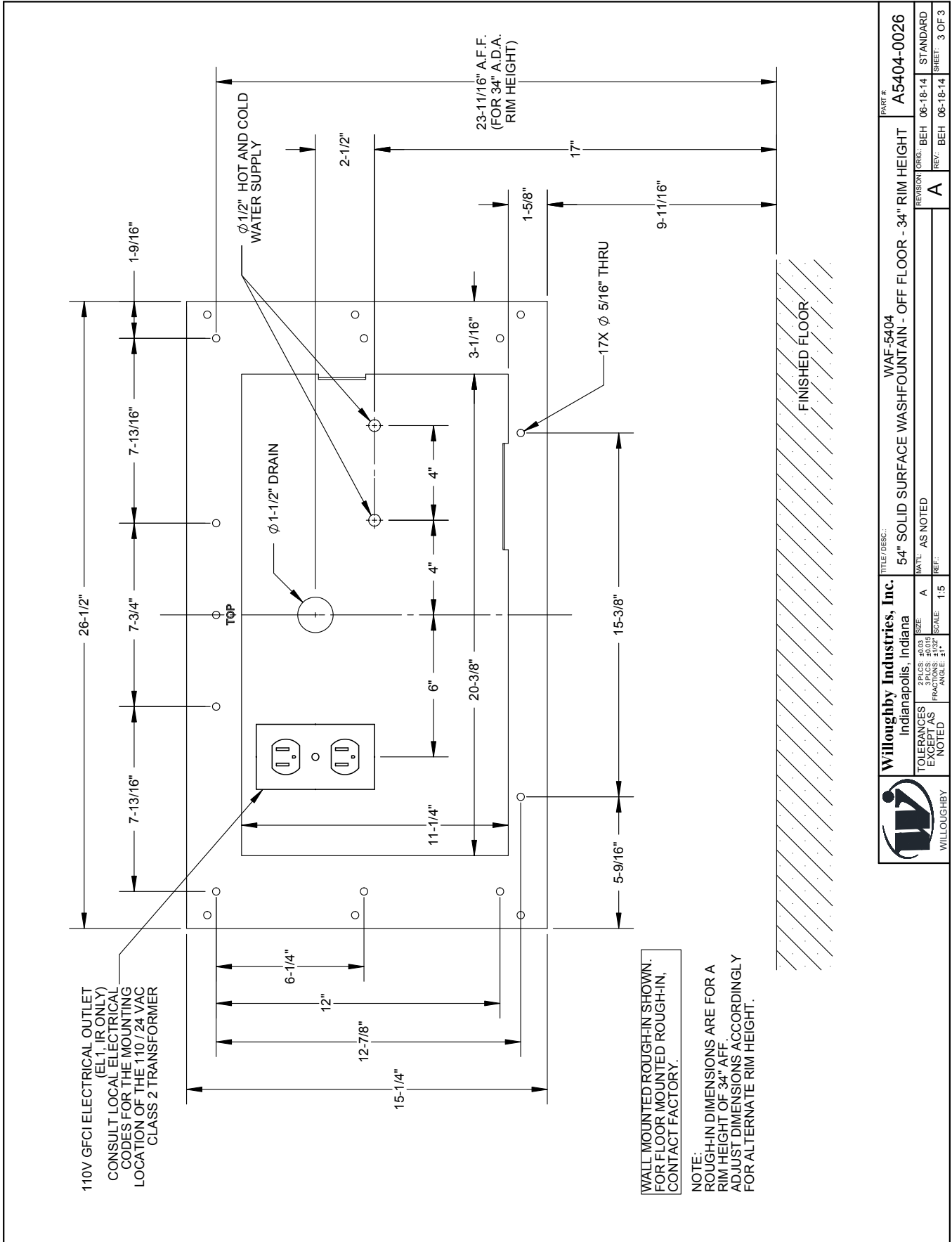


 WILLOUGHBY	Willoughby Industries, Inc. Indianapolis, Indiana	TITLE/DESC: 54" SOLID SURFACE WASHFOUNTAIN - OFF FLOOR - 34" RIM HEIGHT	PART #: A5404-0026
	TOLERANCES EXCEPT AS NOTED 2 PLCS: ±0.02 FRACTIONS: ±0.02 ANGLE: ±1°	MATL: AS NOTED REF:	REVISION ORIG.: BEH 06-18-14 STANDARD SHEET: 1 OF 3

DRAWING: Rough-in Dimensions
DETAIL: DWG# P139008A

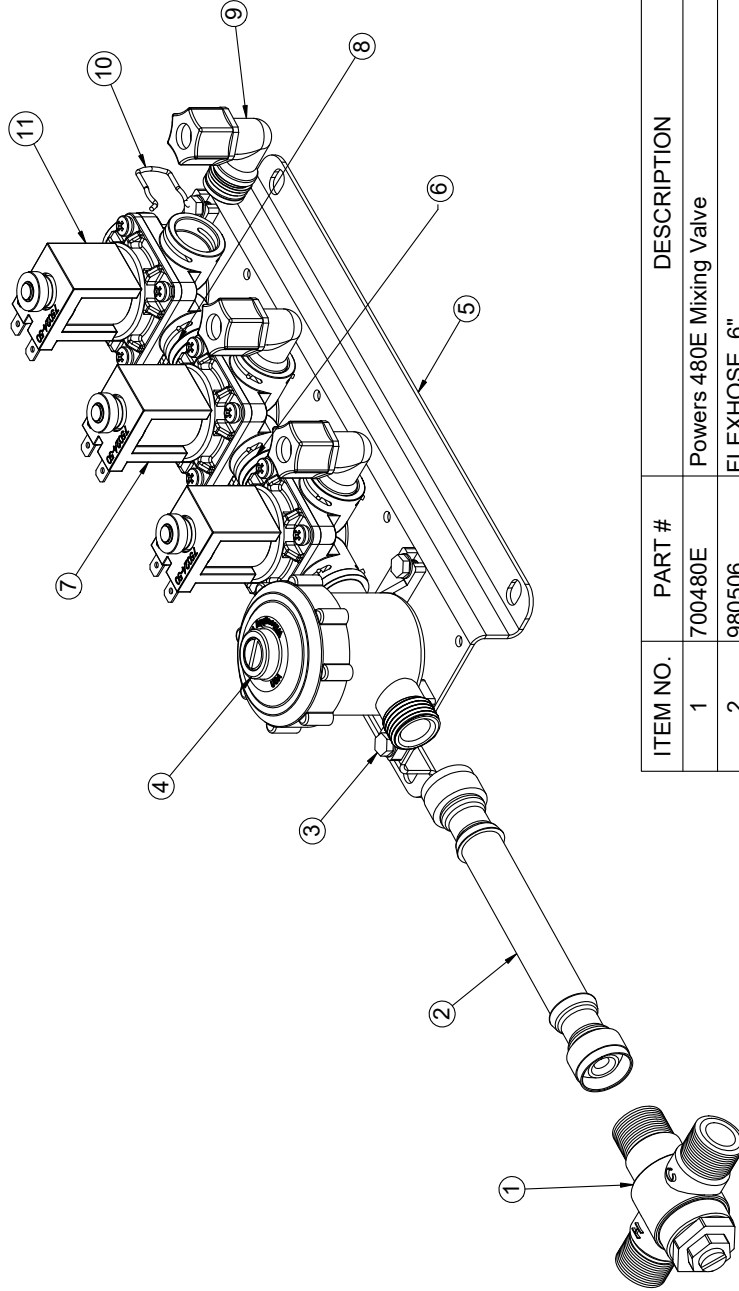


DRAWING: Rough-in Dimensions



 <p>WILLOUGHBY</p>	<p>Willoughby Industries, Inc. Indianapolis, Indiana</p>	<p>TITLE/DESC: WAF-5404 54" SOLID SURFACE WASHFOUNTAIN - OFF FLOOR - 34" RIM HEIGHT</p>	<p>PART #: A5404-0026</p>
	<p>TOLERANCES EXCEPT AS NOTED</p> <p>2 P.L.S.: 40/30 SIZE: A FRACTIONS: 3/32" SCALE: 1:5 ANGLE: 21°</p>	<p>MATL: AS NOTED</p>	<p>REVISION: ORIG. - BEH 06-18-14 REV: A BEH 06-18-14</p>


 <p>WILLOUGHBY</p>	<p>Willoughby Industries Inc. Indianapolis, Indiana</p>		<p>Title or Part Description: VALVE ASSY, WASHFOUNT 3-STATION (EL)</p>		<p>Drawing #: 803105-3EW</p>	
	<p>Tolerances Except as Noted</p> <p>2 Places +/- .03 3 Places +/- .015 Fractions +/- 1/32" Angle +/- 1°</p>	<p>Material:</p> <p>Job Name: N/A</p>	<p>Drawn By: TRB</p> <p>Scale: 1:8</p>	<p>Date: 11/7/11</p> <p>Part Number:</p>	<p>Qty: N/A</p>	<p>Revision #: B</p>

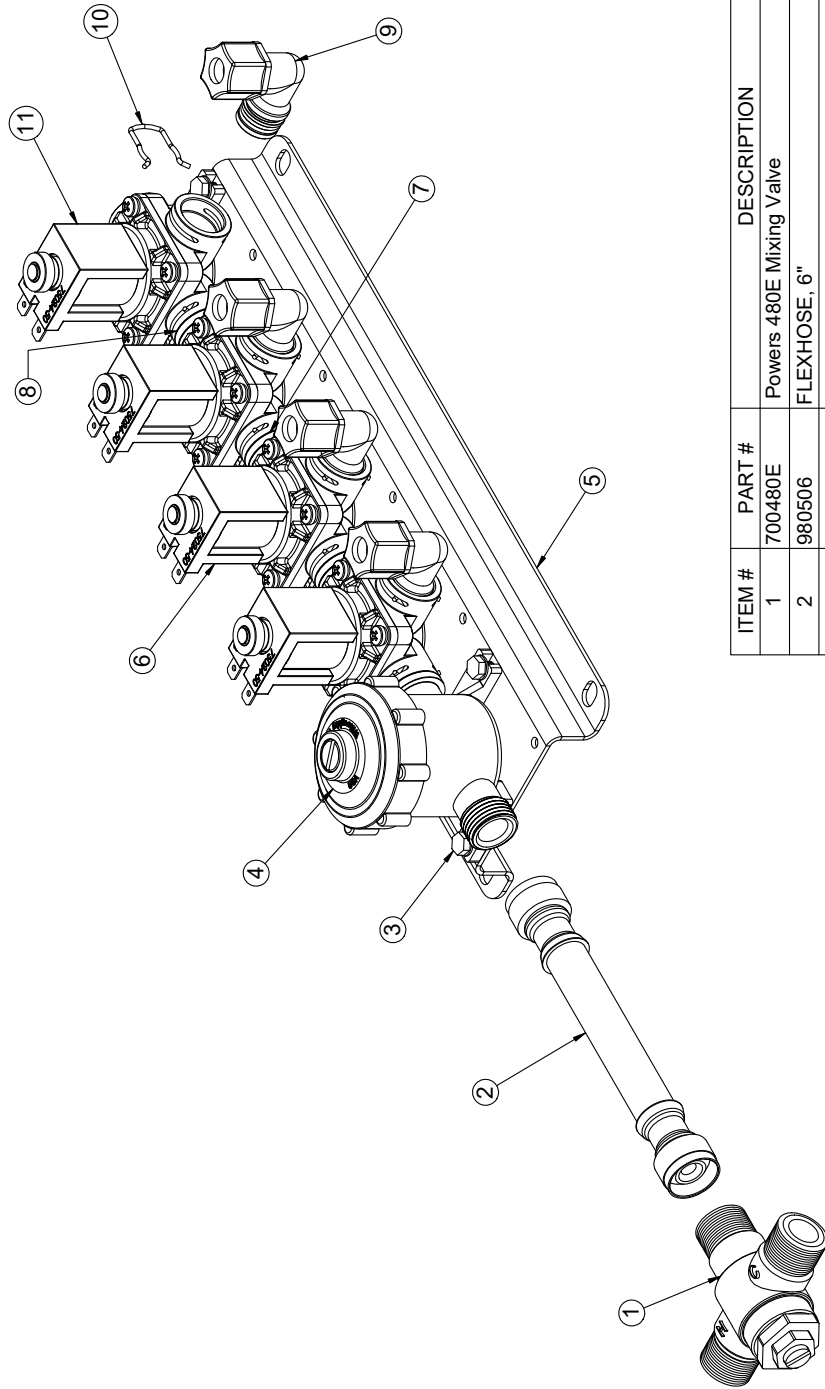


ITEM NO.	PART #	DESCRIPTION	QTY.
1	700480E	Powers 480E Mixing Valve	1
2	980506	FLEXHOSE, 6"	1
3	800133	#10-16 SELF TAP TYPE B HEX HEAD SCREW	8
4	980183	CHECKSTOP ASSEMBLY	1
5	9805013	PM1-MA3 Valve Bracket - Plastic	1
6	980164	O-RING, #015	4
7	980408	E1L VALVE ASSEMBLY	2
8	980197	PLASTIC VALVE COUPLING	2
9	980600A	VALVE FITTING ASSEMBLY, 3/8" ELBOW	3
10	980140	SPRING CLIP	8
11	980408PR	E1L VALVE ASSEMBLY, RIGHT - PLUGGED PORT	1
12	980520	FLEXHOSE, 20" (NOT SHOWN)	2

NOTE:
PART #12 FLEXHOSE, 20" NOT SHOWN

DRAWING: Electronic Valve Detail

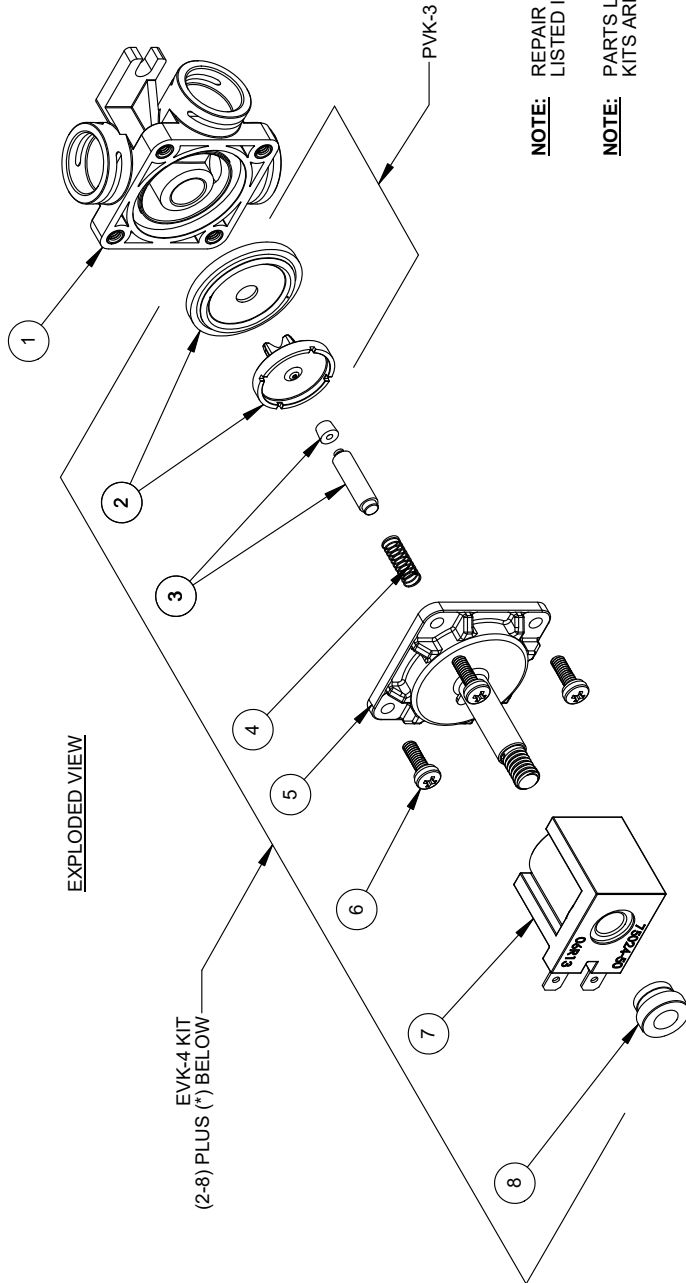
 <p>WILLOUGHBY</p>	<p>Willoughby Industries Inc. Indianapolis, Indiana</p>		<p>Title or Part Description: VAVLE ASSY, WASHFOUNT 4-STATION (EL)</p>		<p>Drawing #: 803105-4EW</p>	
	<p>Tolerances Except as Noted</p>	<p>2 Places +/- .03 3 Places +/- .015 Fractions +/- 1/32" Angle +/- 1°</p>	<p>Material:</p>	<p>Material:</p>	<p>Date: 11/7/11</p>	<p>Qty: N/A</p>
<p>Job Name: N/A</p>		<p>Drawn By: TRB</p>	<p>Scale: 1:8</p>	<p>Part Number:</p>	<p>Approved By:</p>	
						<p>Sheet: 1 Of 1</p>



ITEM #	PART #	DESCRIPTION	QTY.
1	700480E	Powers 480E Mixing Valve	1
2	980506	FLEXHOSE, 6"	1
3	800133	#10-16 SELF TAP TYPE B HEX HEAD SCREW	10
4	980183	CHECKSTOP ASSEMBLY	1
5	9805014	PM1-MA4 Valve Bracket - Plastic	1
6	980408	E1L VALVE ASSEMBLY	3
7	980197	PLASTIC VALVE COUPLING	3
8	980164	O-RING, #015	6
9	980600A	VALVE FITTING ASSEMBLY, 3/8" ELBOW	4
10	980140	SPRING CLIP	11
11	980408PR	E1L VALVE ASSEMBLY, RIGHT - PLUGGED PORT	1
12	980520	FLEXHOSE, 20" (NOT SHOWN)	2

NOTE:
PART #12 - FLEXHOSE, 20" NOT SHOWN

DRAWING: Electronic Valve Detail

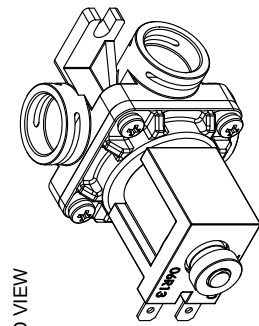


NOTE: REPAIR KIT ORDERING #'S ARE LISTED IN THE EXPLODED VIEW.

NOTE: PARTS LISTED IN THE PVK REPAIR KITS ARE NOT SOLD INDIVIDUALLY

* EVK-4 KIT INCLUDES 380897 VALVE SEAT W/ O-RING (NOT SHOWN)


ITEM #	PART #	DESCRIPTION	QTY.
1	980420	SINGLE TEMP BASE w/INSERTS (ALL PORTS OPEN)	1
2	980305	WATER SIDE DIAPHRAGM/ADAPTOR ASSY.	1
3	980565	ARMATURE BUMPER ASSEMBLY, EL VALVE	1
4	980533	SPRING, 5/8 24V VALVE	1
5	980530	ARMATURE CAP, 24V VALVE	1
6	980170A	#8-32 x 1/2 " SCREW	4
7	980532	COIL, 24V DC	1
8	980534	NYLON NUT, 5/16-18	1

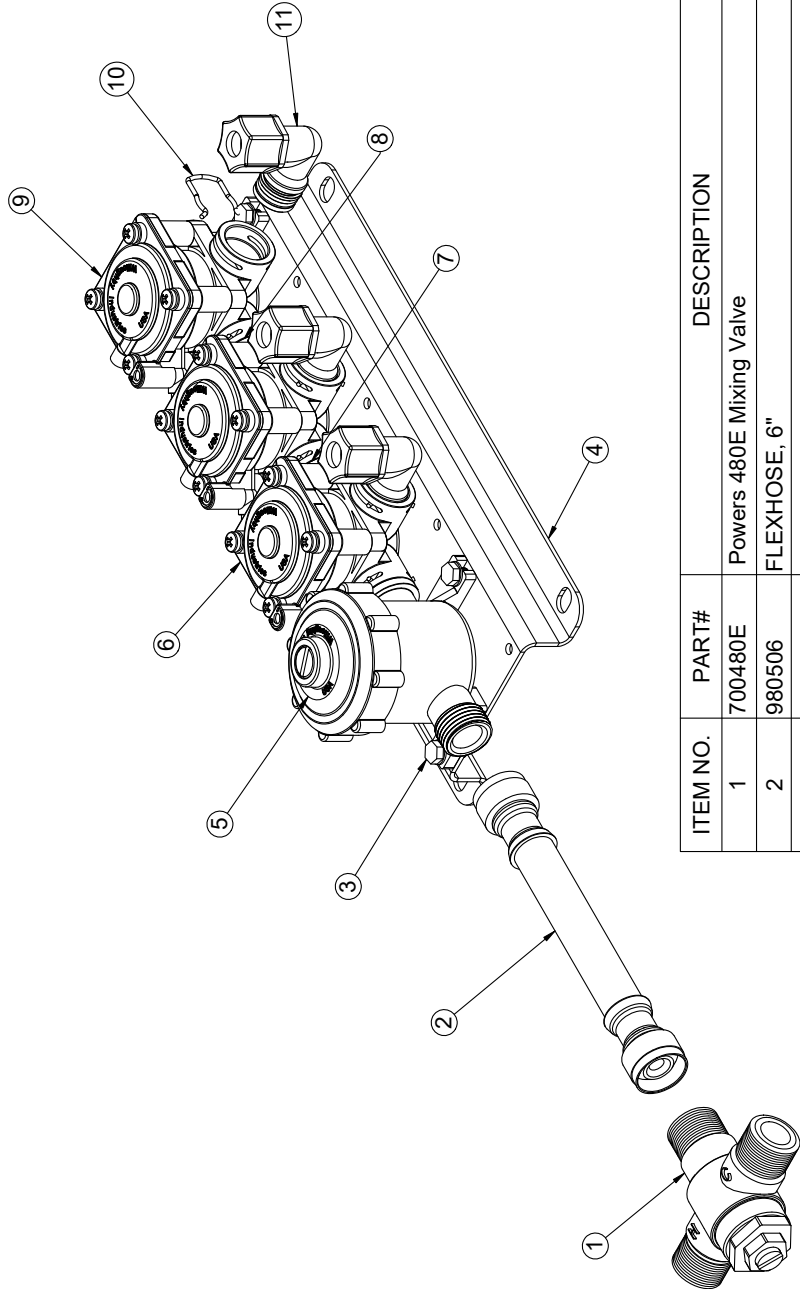


ASSEMBLED VIEW

		Willoughby Industries Inc. Indianapolis, Indiana		27 CS: 40.00 3 FCS: 40.00	SIZE: A SCALE: 1:2
TOLERANCES SHOWN AS NOTED		TITLE / DESC: E1L VALVE ASSEMBLY (ALL PORTS OPEN)		PART #: 980408	
REVISION: TRB 09/23/09 STANDARD		REV: TRB 03/15/11		SHEET: 1 OF 1	

DRAWING: Pneumatic Valve Detail


 <p>WILLOUGHBY</p>	<p>Willoughby Industries Inc. Indianapolis, Indiana</p>		<p>Title or Part Description: VALVE ASSY, WASHFOUNT 3-STATION (PNEUMATIC)</p>		<p>Drawing #: 803105-3PW</p>	
	<p>Tolerances Except as Noted</p>	<p>2 Places +/- .03 3 Places +/- .015 Fractions +/- 1/32" Angle +/- 1°</p>	<p>Material: Job Name: N/A</p>	<p>Drawn By: TRB Scale: 1:8 Part Number:</p>	<p>Date: 11/7/11 Qty: N/A</p>	<p>Revision #: B</p>

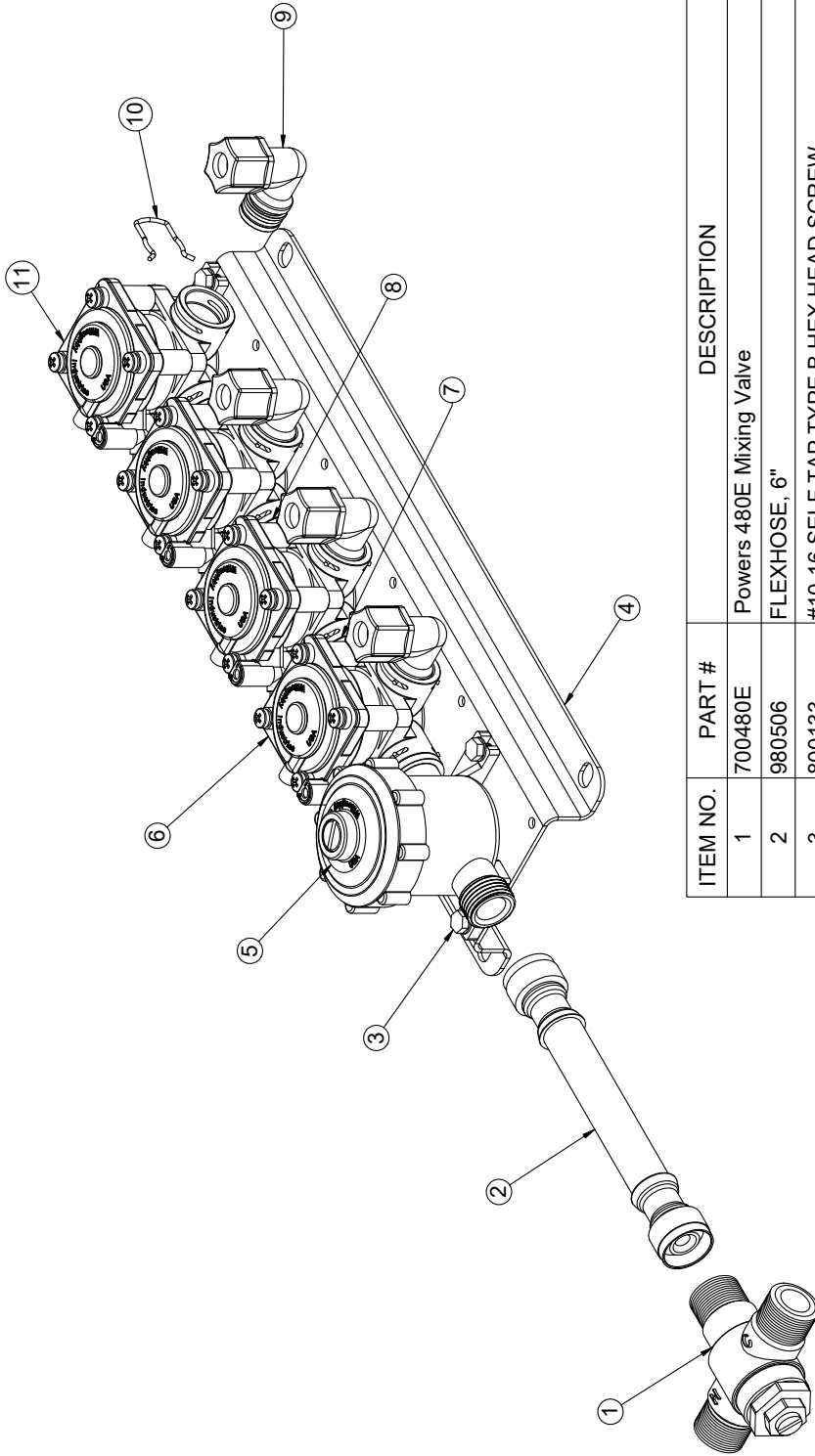


ITEM NO.	PART#	DESCRIPTION	QTY.
1	700480E	Powers 480E Mixing Valve	1
2	980506	FLEXHOSE, 6"	1
3	800133	#10-16 SELF TAP TYPE B HEX HEAD SCREW	8
4	9805013	PM1-MA3 Valve Bracket - Plastic	1
5	980183	CHECKSTOP ASSEMBLY	1
6	980406R	PNEUMATIC VALVE ASSEMBLY	2
7	980197	PLASTIC VALVE COUPLING	2
8	980164	O-RING, #015	4
9	980406PR	PNEUMATIC VALVE ASSEMBLY, RIGHT - PLUGGED PORT	1
10	980140	SPRING CLIP	8
11	980600A	VALVE FITTING ASSEMBLY, 3/8" ELBOW	3
12	980520	FLEXHOSE, 20" (NOT SHOWN)	2

NOTE:
PART #12 FLEXHOSE, 20" NOT SHOWN

DRAWING: Pneumatic Valve Detail

 <p>WILLOUGHBY</p>	Willoughby Industries Inc. Indianapolis, Indiana		Title or Part Description: VAVLE ASSY, WASHFOUNT 4-STATION (PNEUMATIC)		Drawing #: 803105-4PW	
	Tolerances Except as Noted	2 Places +/- .03 3 Places +/- .015 Fractions +/- 1/32" Angle +/- 1°	Material: Job Name: N/A	Drawn By: TRB Scale: 1:8	Date: 11/7/11 Qty: N/A	Revision #: B



ITEM NO.	PART #	DESCRIPTION	QTY.
1	700480E	Powers 480E Mixing Valve	1
2	980506	FLEXHOSE, 6"	1
3	800133	#10-16 SELF TAP TYPE B HEX HEAD SCREW	10
4	9805014	PM1-MA4 Valve Bracket - Plastic	1
5	980183	CHECKSTOP ASSEMBLY	1
6	980406R	PNEUMATIC VALVE ASSEMBLY	3
7	980164	O-RING, #015	6
8	980197	PLASTIC VALVE COUPLING	3
9	980600A	VALVE FITTING ASSEMBLY, 3/8" ELBOW	4
10	980140	SPRING CLIP	11
11	980406PR	PNEUMATIC VALVE ASSEMBLY, RIGHT - PLUGGED PORT	1
12	980520	FLEXHOSE, 20" (NOT SHOWN)	2

NOTE:
 PART #12 - FLEXHOSE, 20" NOT SHOWN

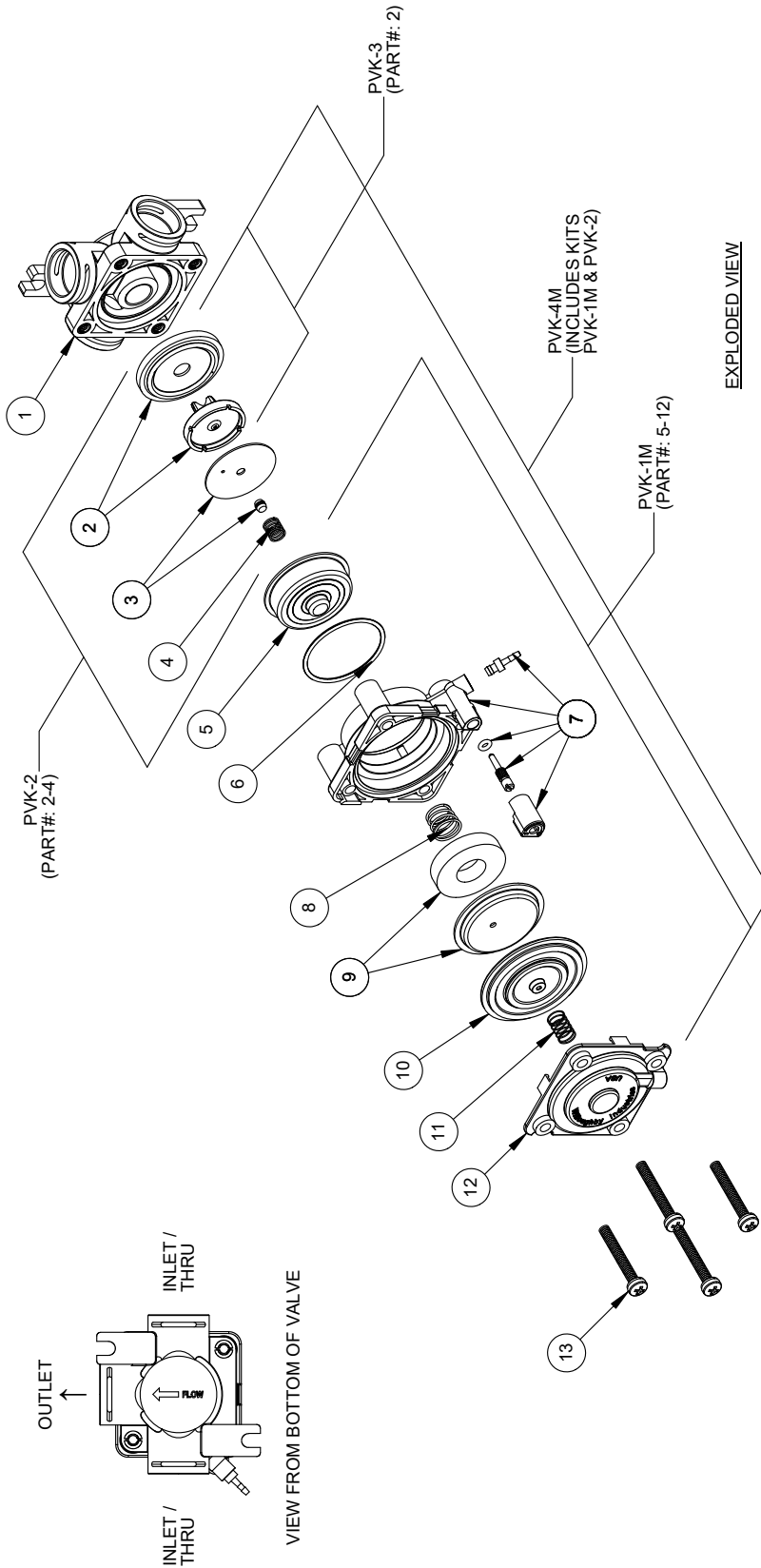
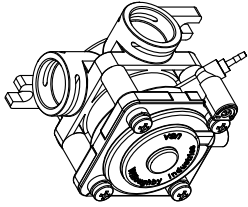
DRAWING: Pneumatic Valve Detail

ITEM #	PART #	DESCRIPTION	QTY.
1	980420	SINGLE TEMP BASE w/INSERTS (ALL PORTS OPEN)	1
2	980305	WATER SIDE DIAPHRAGM/ADAPTOR ASSY.	1
3	980310	WATER SIDE DISK ASSEMBLY	1
4	980136	SPRING, WATER SIDE DIAPHRAGM	1
5	980126	BARRIER CUP	1
6	980127	O-RING M1.5x32 BUNA-70	1
7	980410	METERING VALVE BODY ASSEMBLY	1
8	980135	SPRING, AIR SIDE MAGNET	1
9	980405	METERING VALVE MAGNET/CUP ASSEMBLY	1
10	980130	DIAPHRAGM, AIR SIDE, PNEUMATIC METERING VALVE	1
11	980134	AIR SIDE SPRING	1
12	380801M	AIR SIDE TOP COVER	1
13	980001A	#8-32 x 1 1/4" SCREW	4

NOTE: PARTS LISTED IN THE PVK REPAIR KITS ARE NOT SOLD INDIVIDUALLY

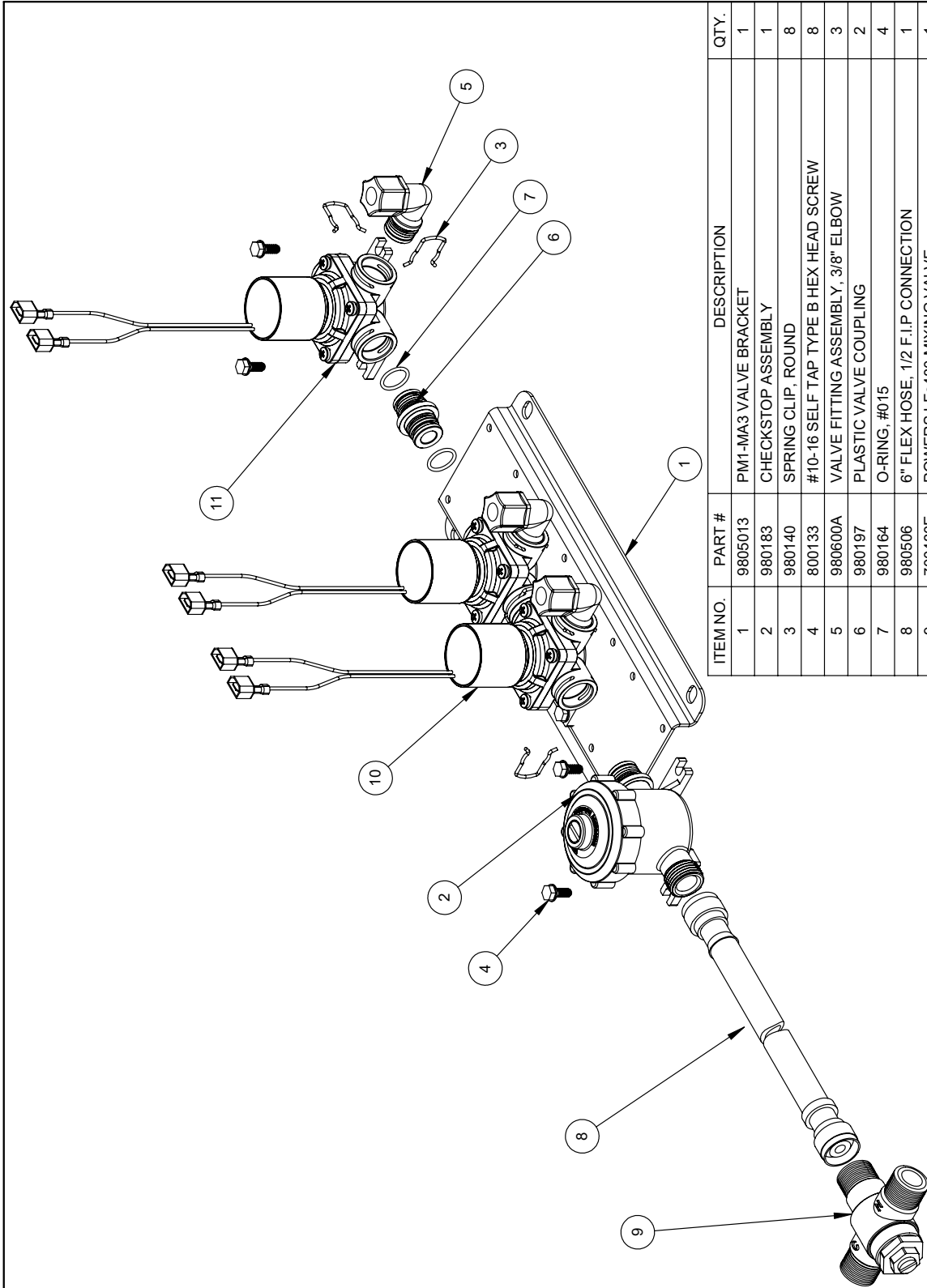
NOTE: REPAIR KIT ORDERING #'S ARE LISTED IN THE EXPLODED VIEW.

NOTE: PVK-1M, PVK-2, & PVK-3 PARTS ARE AVAILABLE IN KIT FORM ONLY.



Willoughby Industries Inc. Indianapolis, Indiana		TITLE / DESC: PNEUMATIC METERING VALVE ASSEMBLY - (RIGHT)		PART #: 980406R	
TOLERANCES EXCEPT AS NOTED		2 PLS: #003 SIZE: A		REVISION / ORIG: TRB 10/18/12 STANDARD	
FRACTIONS: 1/32"		SCALE: 1:2.5		REV: MW 8/31/16 SHEET: 1 OF 1	
WILLOUGHBY		A			

DRAWING: 9V Battery Operated Valve Detail



ITEM NO.	PART #	DESCRIPTION	QTY.
1	9805013	PM1-MA3 VALVE BRACKET	1
2	980183	CHECKSTOP ASSEMBLY	1
3	980140	SPRING CLIP, ROUND	8
4	800133	#10-16 SELF TAP TYPE B HEX HEAD SCREW	8
5	980600A	VALVE FITTING ASSEMBLY, 3/8" ELBOW	3
6	980197	PLASTIC VALVE COUPLING	2
7	980164	O-RING, #015	4
8	980506	6" FLEX HOSE, 1/2 F.I.P CONNECTION	1
9	700480E	POWERS LF6480 MIXING VALVE	1
10	980416	VALVE ASSEMBLY, BATTERY OPERATED	2
11	980416PR	VALVE ASSY, BATTERY OPERATED, RH PLUGGED PORT	1
12	980520	20" FLEX HOSE, 1/2 F.I.P CONNECTION	2

Willoughby Industries, Inc.
Indianapolis, Indiana

TOLERANCES UNLESS NOTED
FRANGIBLES EXCEPT AS NOTED

2 P.C.S. ±0.03
3 P.C.S. ±0.015
FRANGIBLES ±.1"

SCALE: 1:3

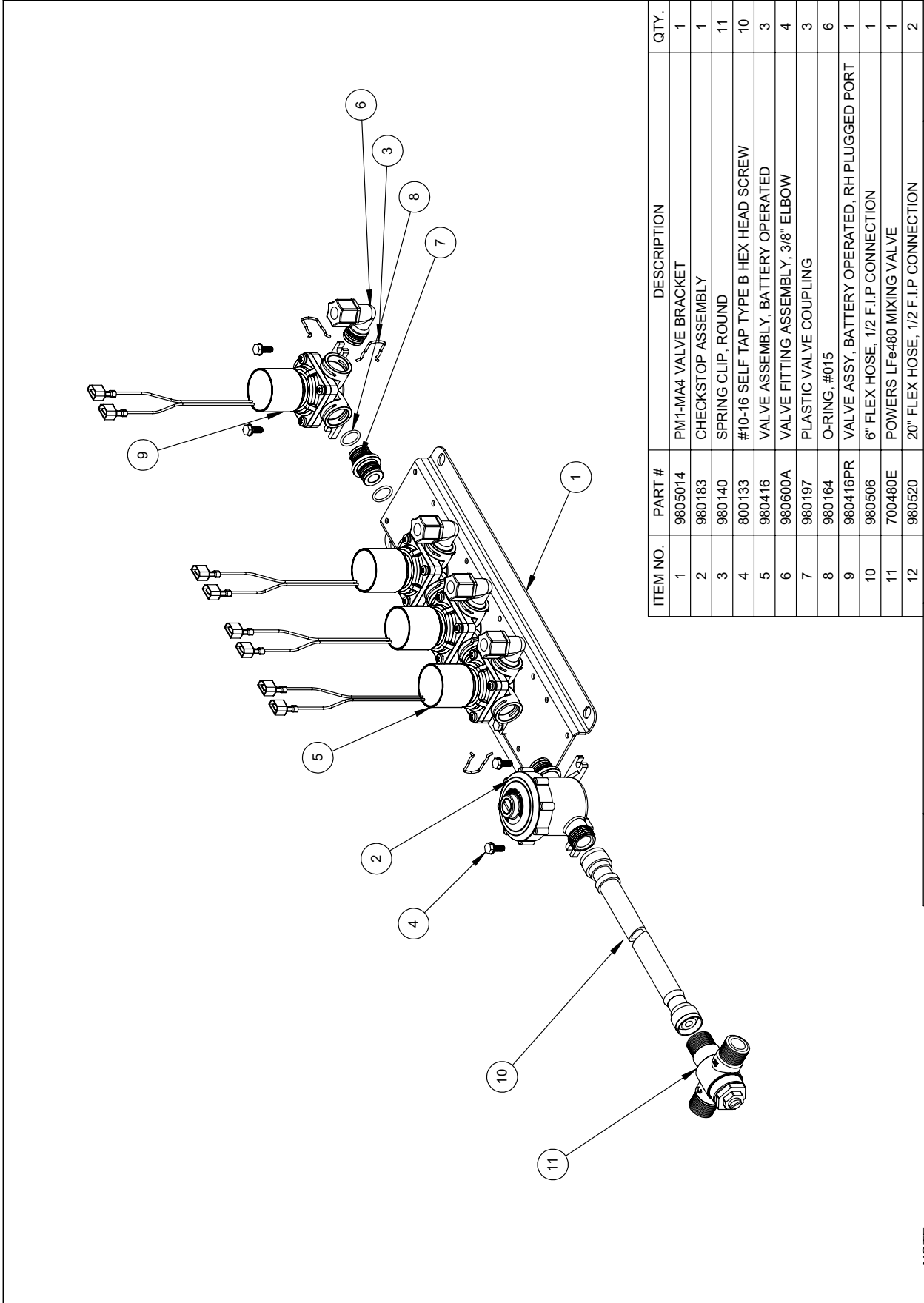
MAT'L: SEE BOM
REV: A

REV. NAL 4/16/21
STANDARD SHEET: 1 OF 1

PART # 803105-3BW
TITLE / DESC: VALVE ASSY, WASHFOUNT 3-STATION (BO)

NOTE:
PART #980520 FLEXHOSE, 20" NOT SHOWN

DRAWING: 9V Battery Operated Valve Detail



ITEM NO.	PART #	DESCRIPTION	QTY.
1	9805014	PM1-MA4 VALVE BRACKET	1
2	980183	CHECKSTOP ASSEMBLY	1
3	980140	SPRING CLIP, ROUND	11
4	800133	#10-16 SELF TAP TYPE B HEX HEAD SCREW	10
5	980416	VALVE ASSEMBLY, BATTERY OPERATED	3
6	980600A	VALVE FITTING ASSEMBLY, 3/8" ELBOW	4
7	980197	PLASTIC VALVE COUPLING	3
8	980164	O-RING, #015	6
9	980418PR	VALVE ASSY, BATTERY OPERATED, RH PLUGGED PORT	1
10	980506	6" FLEX HOSE, 1/2 F.I.P CONNECTION	1
11	700480E	POWERS LFe480 MIXING VALVE	1
12	980520	20" FLEX HOSE, 1/2 F.I.P CONNECTION	2

Willoughby Industries, Inc.
Indianapolis, Indiana

2 P.LCS: ±0.01
3 P.LCS: ±0.015
FRAMING: ±.1" SCALE: 1:4
TOLERANCES EXCEPT AS NOTED

WILLOUGHBY

TITLE / DESC: VALVE ASSY, WASHFOUNT 4-STATION (BO)

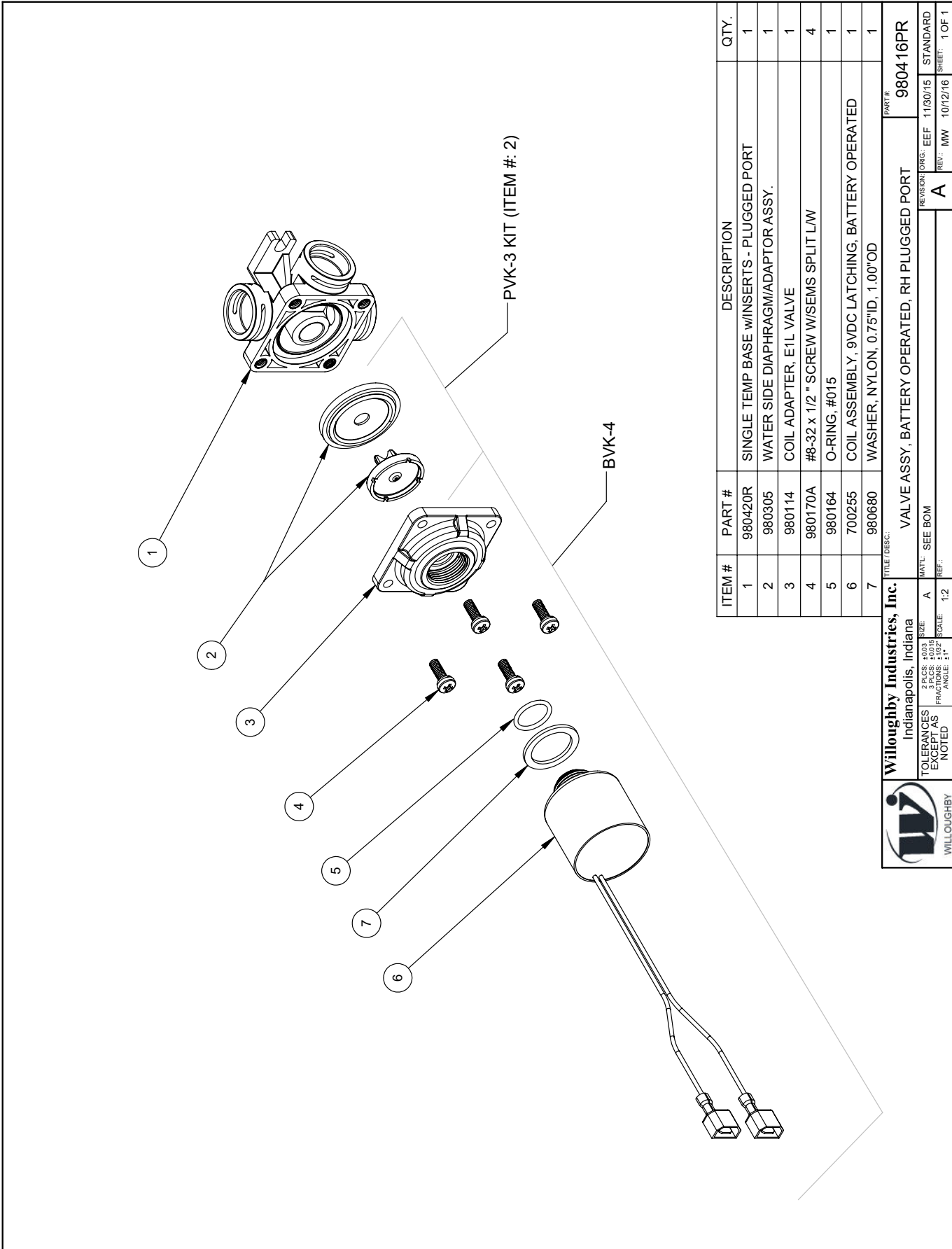
PART # 803105-4BW

REVISION ORG: NAL 4/16/21
REV: NAL 4/16/21


STANDARD SHEET: 1 OF 1

NOTE:
PART #980520 FLEXHOSE, 20" NOT SHOWN

DRAWING: 9V Battery Operated Valve Detail



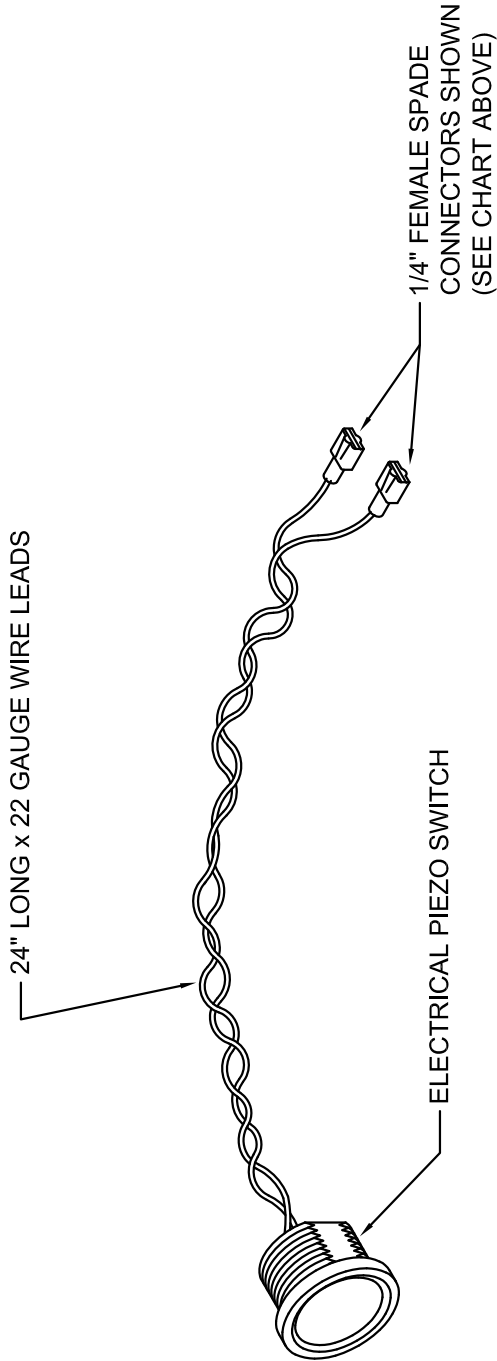
ITEM #	PART #	DESCRIPTION	QTY.
1	980420R	SINGLE TEMP BASE w/INSERTS - PLUGGED PORT	1
2	980305	WATER SIDE DIAPHRAGM/ADAPTOR ASSY.	1
3	980114	COIL ADAPTER, E1L VALVE	1
4	980170A	#8-32 x 1/2" SCREW w/SEMS SPLIT LW	4
5	980164	O-RING, #015	1
6	700255	COIL ASSEMBLY, 9VDC LATCHING, BATTERY OPERATED	1
7	980680	WASHER, NYLON, 0.75"ID, 1.00"OD	1

 Willoughby Industries, Inc. Indianapolis, Indiana		TITLE / DESC: VALVE ASSY, BATTERY OPERATED, RH PLUGGED PORT PART #: 980416PR	
TOLERANCES EXCEPT AS NOTED	2 PLS: ±0.03 3 PLS: ±0.15 FRAC: ANGLES: 1:1	MATL: SEE BOM	REVISION: ORIG: EEF 11/30/15 REV: MW 10/12/16 A
STANDARD SHEET: 1 OF 1		PART #	

DRAWING: Pushbutton Detail

PIEZO HEAD KIT DETAIL

✓	WIRE TERMINATOR	INV. #
	BARE STRIPPED WIRE	701179
	1/4" FEMALE SPADE CONNECTION	701179-C



PIEZO SWITCH SPECIFICATIONS

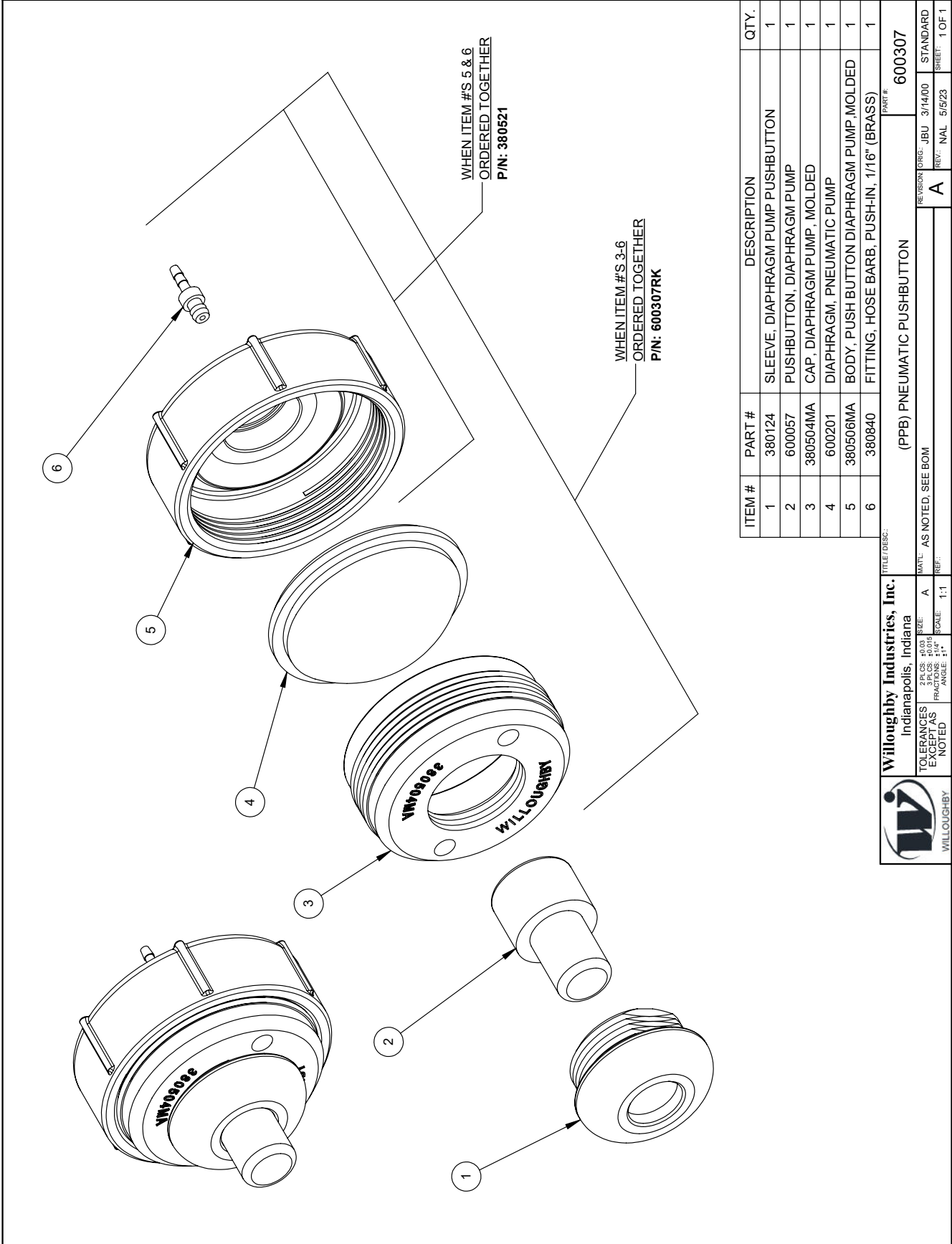
PIEZO SWITCH HOUSING:

- MATERIAL: STAINLESS STEEL
- MOUNTING GEOMETRY: DOUBLE 'D' HOUSING
- SUPPLIED WITH NUT FOR MOUNTING
- 2 FT. LEADS INTEGRAL TO SWITCH (EXTENSION CABLES CAN BE SPECIAL ORDERED)
- EXTERNAL HOUSING OF SWITCH ELECTRICALLY ISOLATED FROM CIRCUITRY OF SWITCH

OPERATIONAL RATINGS:

- ACTUATION FORCE: LESS THAN 5 LBS.
- MAXIMUM VOLTAGE: 36 VOLTS AC/DC
- MAXIMUM AMPERAGE: 100 MA

DRAWING: Push Button Detail



ITEM #	PART #	DESCRIPTION	QTY.
1	380124	SLEEVE, DIAPHRAGM PUMP PUSHBUTTON	1
2	600057	PUSHBUTTON, DIAPHRAGM PUMP	1
3	380504MA	CAP, DIAPHRAGM PUMP, MOLDED	1
4	600201	DIAPHRAGM, PNEUMATIC PUMP	1
5	380506MA	BODY, PUSH BUTTON DIAPHRAGM PUMP, MOLDED	1
6	380840	FITTING, HOSE BARB, PUSH-IN, 1/16" (BRASS)	1

Willoughby Industries, Inc.
Indianapolis, Indiana

TOLERANCES EXCEPT AS NOTED
FRACTIONS: 1/16"
SCALE: 1:1
ANGLE: 1°

2 PLCS: ±0.03
3 DEC: 0.0005
FRACTIONS: 1/16"
SCALE: 1:1
ANGLE: 1°

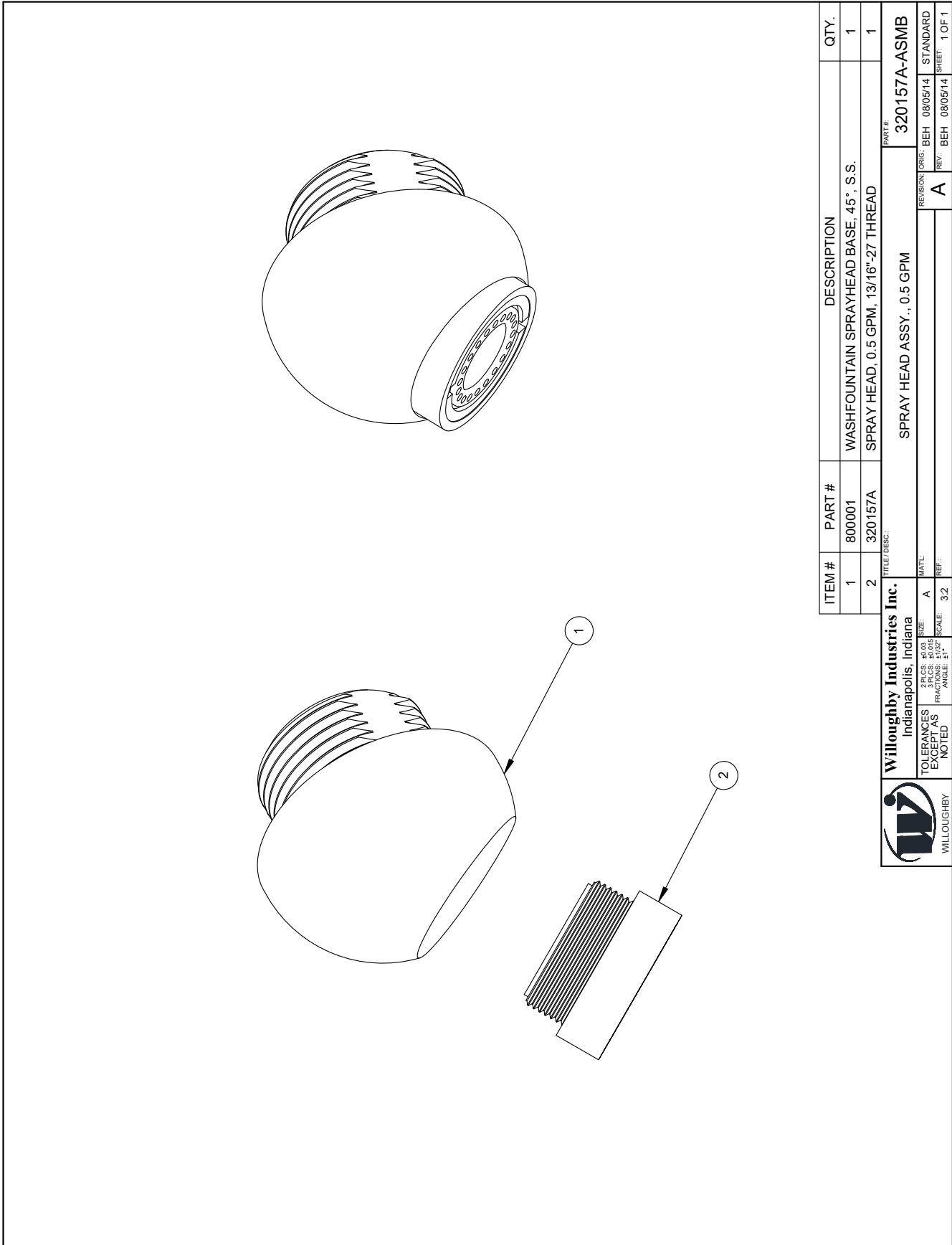
MATL: AS NOTED, SEE BOM
REV: A

REVISION ORG: JBU 3/14/00
REV: NAL 5/5/23

TITLE/DESC: (PPB) PNEUMATIC PUSHBUTTON
PART #: 600307

STANDARD: STANDARD
SHEET: 1 OF 1

DRAWING: Spray Head Detail



ITEM #	PART #	DESCRIPTION	QTY.
1	800001	WASHFOUNTAIN SPRAYHEAD BASE, 45°, S.S.	1
2	320157A	SPRAY HEAD, 0.5 GPM, 13/16"-27 THREAD	1

Willoughby Industries Inc.
 Indianapolis, Indiana

2 PLS: ±0.03
 3 PLS: ±0.015
 EXCEPT AS NOTED

TOLERANCES EXCEPT AS NOTED

PROJ: 32
 SCALE: 1" = 1"

MATL: A
 REV: 08/05/14

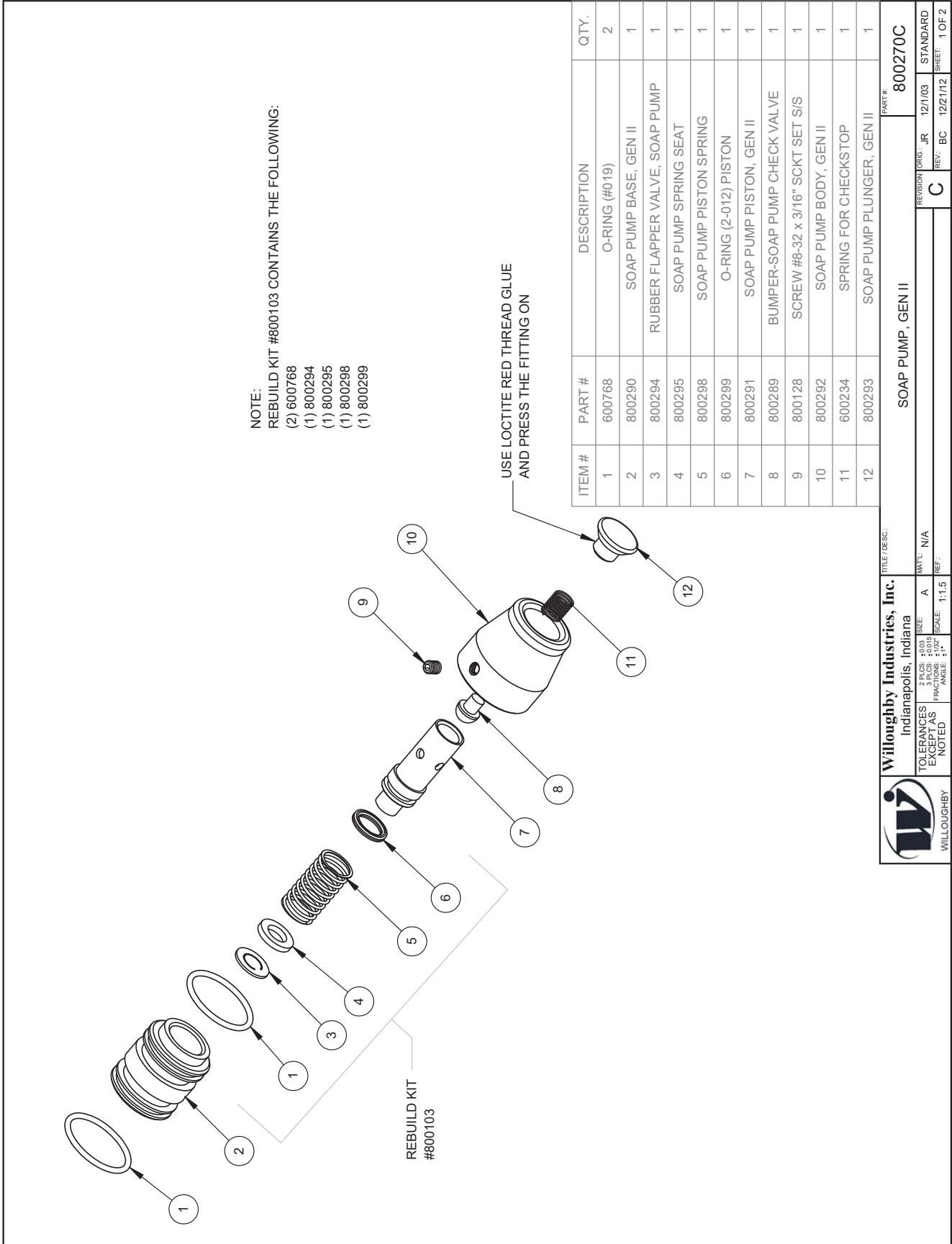
REV: A
 BEH: 08/05/14

STANDARD SHEET: 1 OF 1

PART #: 320157A-ASMIB
 TITLE/DESC: SPRAY HEAD ASSY., 0.5 GPM

WILLOUGHBY

DRAWING: Liquid Soap Dispenser Detail



Willoughby Industries, Inc.
 Indianapolis, Indiana

TOLERANCES EXCEPT AS NOTED
 FINISHES AS NOTED

SCALE: 1:1.5

DATE: 12/1/03
 REV: BC

PART #: 800270C
 STANDARD SHEET: 1 OF 2

Warranty

Aquasurf® Solid Surface Products are a homogeneous blend of resins, mineral filler and colorant manufactured for panels, molded and/or shaped products and components. Aquasurf® Solid Surface products provide a luxurious appearance with the durability of stain proof, impact resistant, burn resistant material with ease of maintenance and cleaning.

Willoughby Industries, Inc. warrants to commercial and institutional purchasers only that each unit will be free from defects in workmanship and materials under normal use and service upon the following terms and conditions. The period during which Aquasurf® components are warranted as follows:

1. Aquasurf® solid surface components are warranted for 2 years from date of shipment.
2. All other components warranted for 1 year from date of shipment.

This warranty does not cover installation or any other labor charges and does not apply to any components damaged by accident, abuse, improper installation or improper maintenance. This warranty does not cover any installation that did not comply with national, state and local building, plumbing or electrical codes. The warranty is limited to replacing or repairing at Willoughbys option, transportation charges prepaid by the purchaser, any Aquasurf® component or part which upon our inspection shall be deemed as defective within the limitations of this warranty. The replacement or repair of defective units as stated in this warranty shall constitute the sole remedy of the purchaser and the sole liability of Willoughby Industries, Inc. Willoughby Industries, Inc. shall not otherwise be liable under any indirect damages caused by defects in the repair or replacement thereof.

This warranty only extends to commercial and institutional purchasers and does not extend to any others, including consumer customers of commercial institutional purchasers. This warranty is in lieu of all other warranties, expressed or implied, including implied warranty of merchantability or fitness or a particular purpose or otherwise.