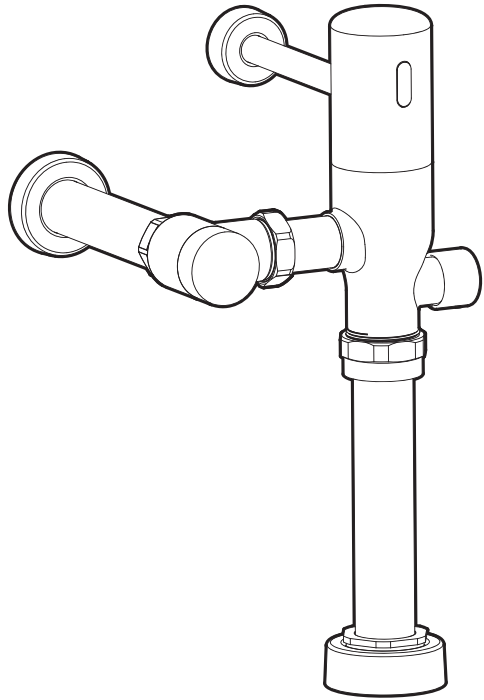


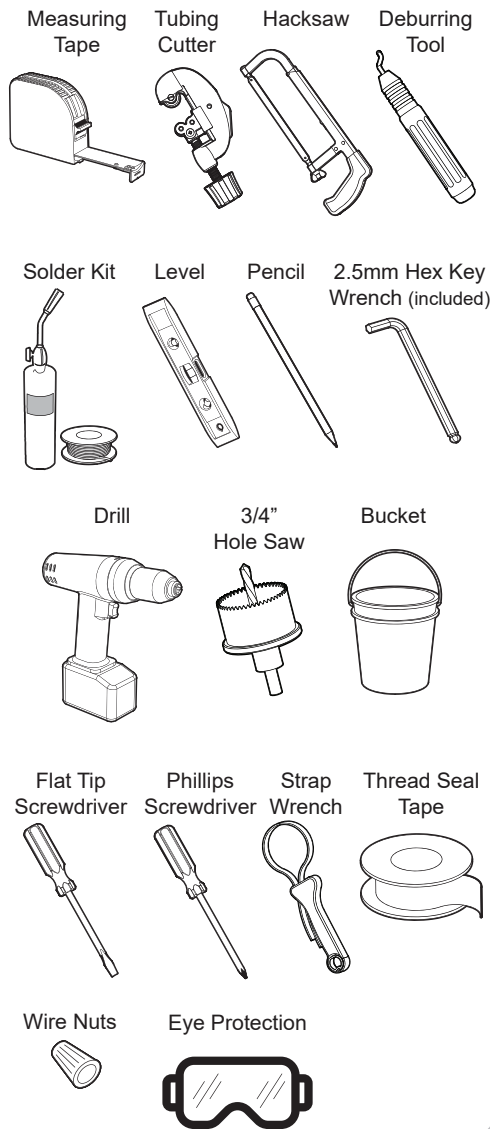
INSTALLATION INSTRUCTIONS

SV-4116 SV-4128 Sensor Flushometer



92-SV-41XX-01

TOOLS & SUPPLIES NEEDED



IMPORTANT

SAFETY TIPS:

Be sure to read and understand all instructions before beginning installation.

Inspect all connections after installation.

Cover the drain to avoid loss of parts.

Be sure to wear proper eye protection.

Do NOT over tighten any connections or damage may occur.

Shut OFF water supplies before beginning installation.

Observe all local plumbing and building codes.

Do NOT use toothed wrenches on any part of the Flushometer. This will damage the finish and void the finish warranty.

Do NOT use pipe sealant/plumbing grease/etc. on any threaded connection except for the connection between the control stop body and the supply pipe.

VALVE SPECIFICATIONS:

EPA regulation prohibits using a higher flushing volume than is described on the product and/or tampering with the flow controller inside of the adjustable tail piece.

CAUTION

Ensure proper structure is in place to support the Valve and plumbing during use.

Be sure to wear proper eye protection during installation.

MAINTENANCE

While designed for years of trouble-free performance, this product contains several mechanical and electrical components that are subject to normal wear and tear. These components should be inspected on a regular basis to ensure this product is working properly. These components include but are not limited to, the Control Stop, internal O-Rings and Seals, Sensor Eye Mechanism, Solenoid Mechanism, Piston, Override Button Assembly, and Vacuum Breaker. Repair kits are available for purchase for each of the components given above as well as components that will need to be serviced less frequently, such as the spud nut assembly and inlet piping assembly. See "Repair Parts" section of this document for a full list of repair kits that are offered for this product.

NOTE: Regulations prohibit using replacement parts for this product that would increase the flushing volume beyond what is stated on the label. As such, replacement parts are not designed or intended to be interchangeable with parts that would cause this product to exceed said flushing volume.

Battery replacement will be the most common maintenance item. Standard AA alkaline batteries will supply approximately 335,000 flush cycles. Frequency of battery replacement will be determined by how often the flushometer is activated. This product is equipped with a low battery warning system to notify you when replacement is required. See troubleshooting guide for additional information.

FINISH MAINTENANCE:

Your new product is designed for years of trouble-free performance. Keep it looking new by cleaning it periodically with a soft cloth. Avoid abrasive cleaners, steel wool, and harsh chemicals as these will dull the finish and void your warranty.

NEED HELP?

For additional assistance or service please contact:



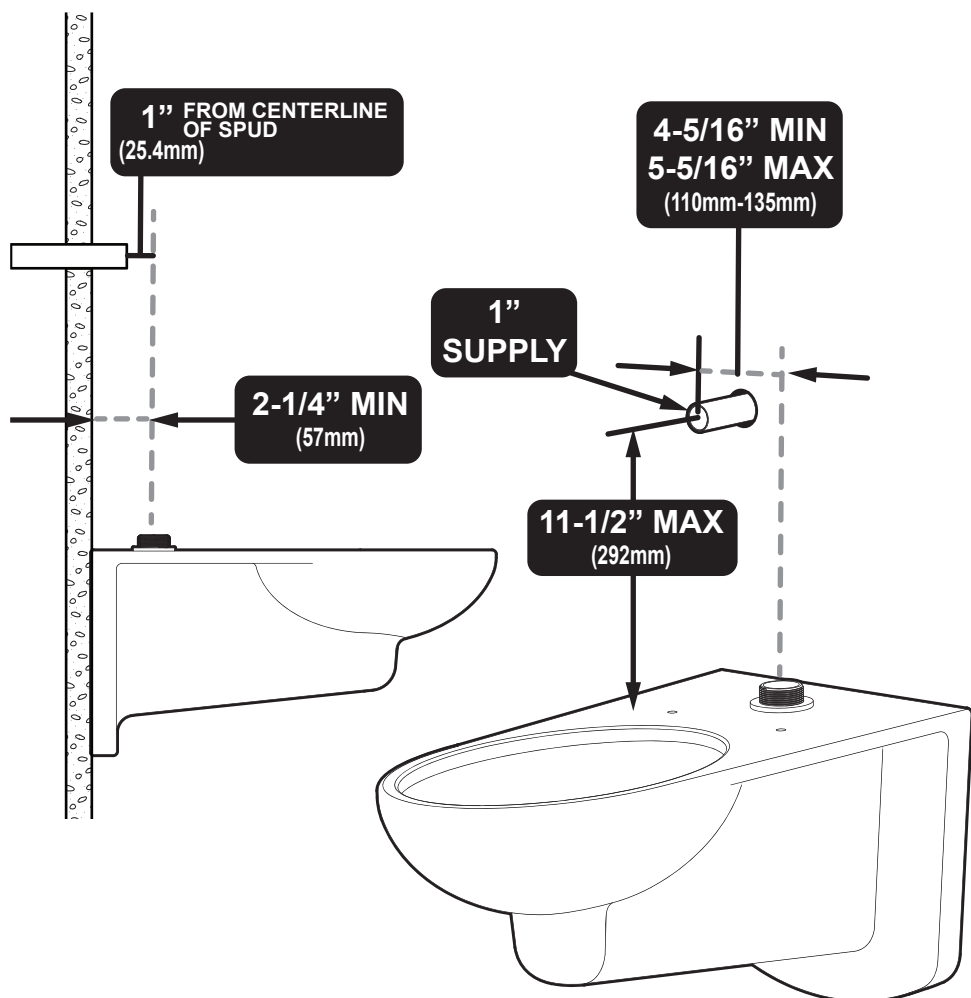
800-537-2107



www.speakman.com

ROUGH IN OF SUPPLY PIPE

- 1** Before you begin: Your supply pipe must be properly located. The pipe should be no more than 11 1/2" above the fixture surface (measured to the centerline of the supply pipe), and within 4-5/16" to 5-5/16" to the left or right of the fixture's spud (measured from centerline to centerline). This product has the ability to receive a supply line from the left or right. Simply rotate the position of the Valve Body Cover to adapt. See rough-in.



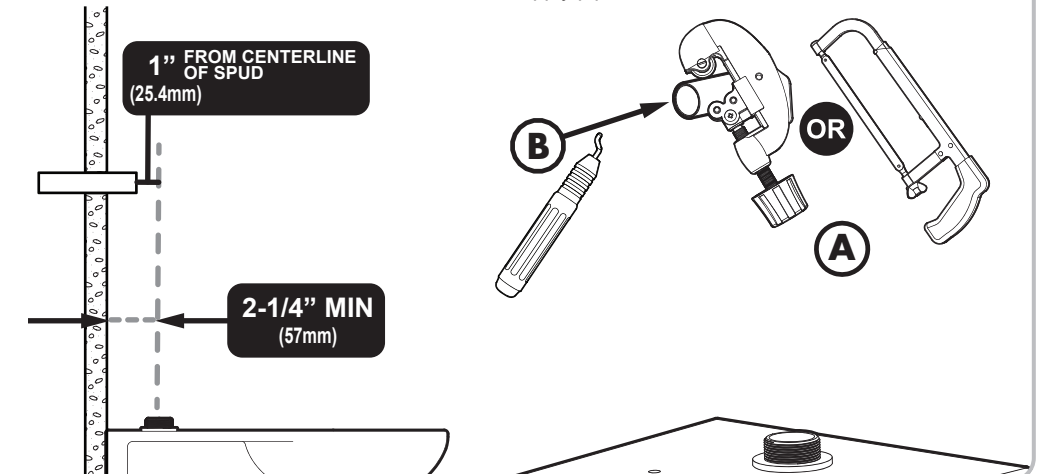
NOTE: If you are cutting the vacuum breaker tube to size, consult local plumbing codes to ensure that the critical line is properly located above the fixture. Typically, the critical line is 6" above the fixture.

PREPARE SUPPLY PIPE

- 2** If your Supply Pipe is already threaded and is the proper length per the rough-in diagram, skip to STEP 4.

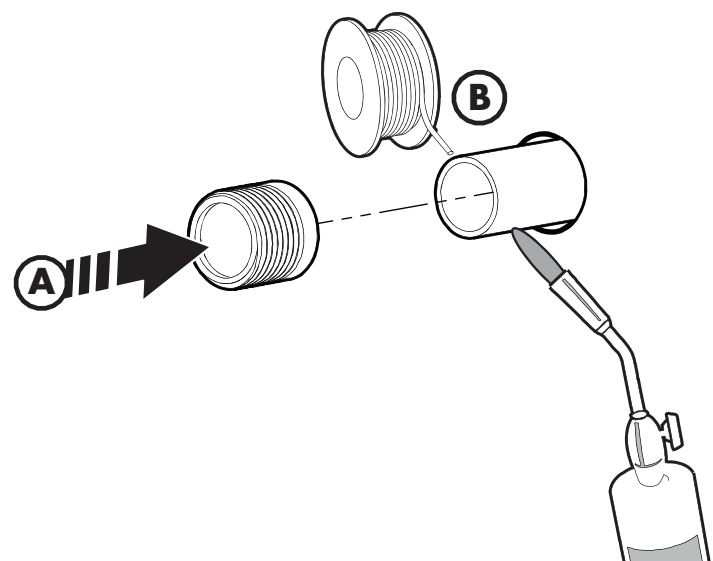
A. Cut supply pipe 1" back from the center line of the fixture's spud using a hacksaw or tubing cutter.

B. Deburr both the inside and outside of the supply pipe.



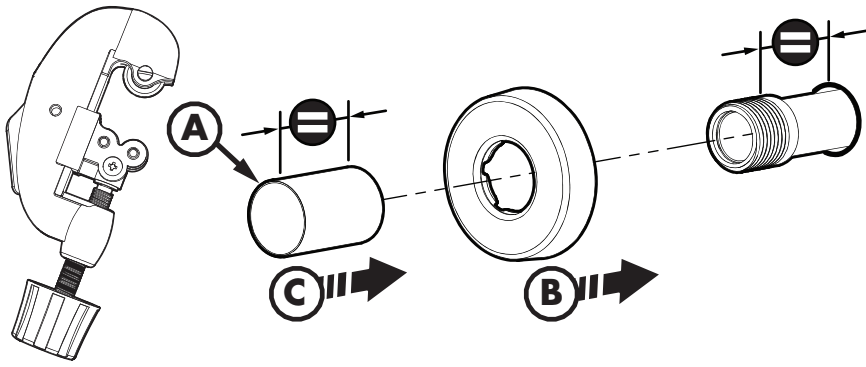
SOLDER THREADED ADAPTER

- 3** **A.** Slide the Threaded NPT Adapter fully over the cut and chamfered supply pipe.
B. Sweat solder the Adapter to the pipe using soldering wire and torch.



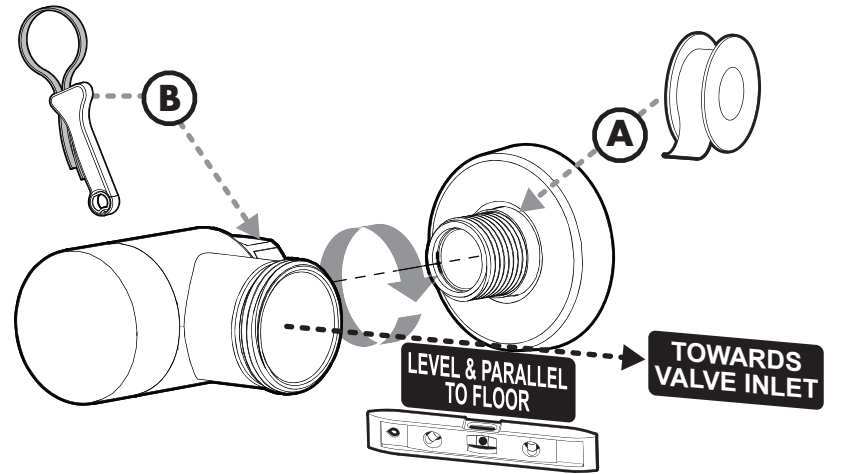
INSTALL ESCUTCHEON TRIM

- 4** A. Measure from the finished wall to the first thread of the Adapter. Cut the Cover Tube to this length.
 B. Slide Escutcheon over the supply pipe until it is against the wall.
 C. Slide Cover Tube over the supply pipe and press into the Escutcheon.



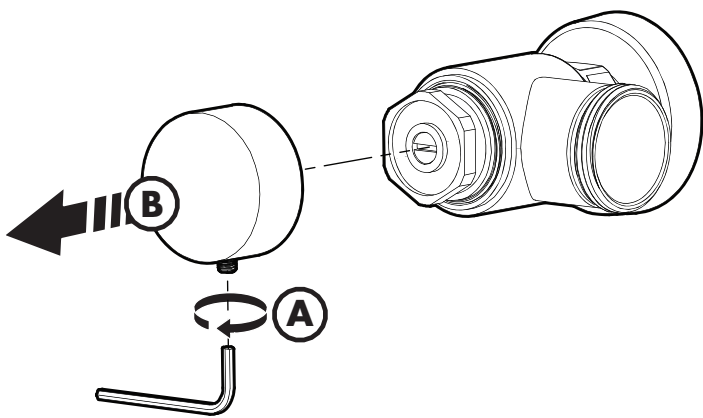
INSTALL CONTROL STOP

- 5** A. Apply Thread Sealant Tape to the Threaded Pipe Adapter.
 B. Thread the Control Stop onto the Threaded Pipe Adapter. Using a Strap Wrench, tighten into the final position. Outlet should point towards the Valve Inlet and be parallel to the floor.



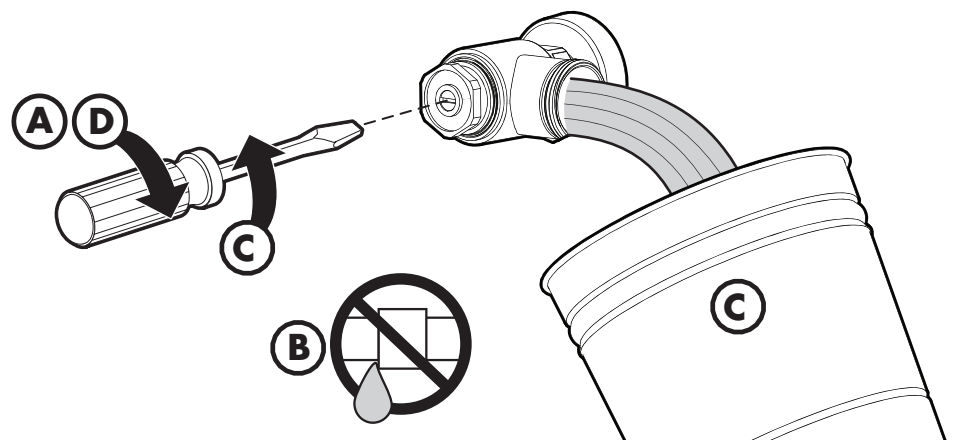
REMOVE CONTROL STOP COVER

- 6** A. Loosen, but do not remove, the Set Screw of the Control Stop Cover using the included 2.5mm Hex Key.
 B. Remove Control Stop Cover.



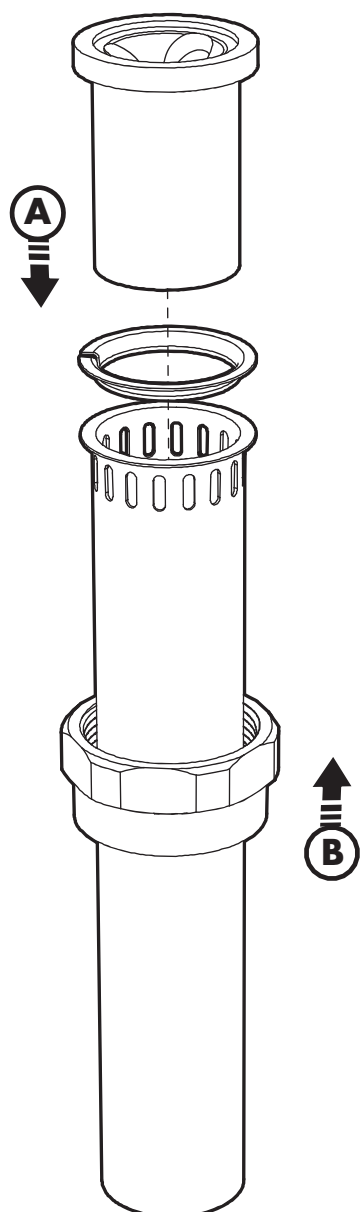
FLUSH SUPPLY LINE AND INSPECT FOR LEAKS

- 7** A. Using a Flat Tip Screwdriver, verify that the Control Stop Valve is fully closed by turning Adjustment Screw clockwise until fully seated.
 B. Slowly turn ON water supplies and inspect for leaks and piping issues.
 C. Hold a bucket or catch basin at the outlet of the Control Stop. Slowly open the Control Stop Adjustment Screw by turning a Flat Tip Screwdriver counter-clockwise and flush out any debris.
 D. Return the Adjustment Screw to a fully closed position.



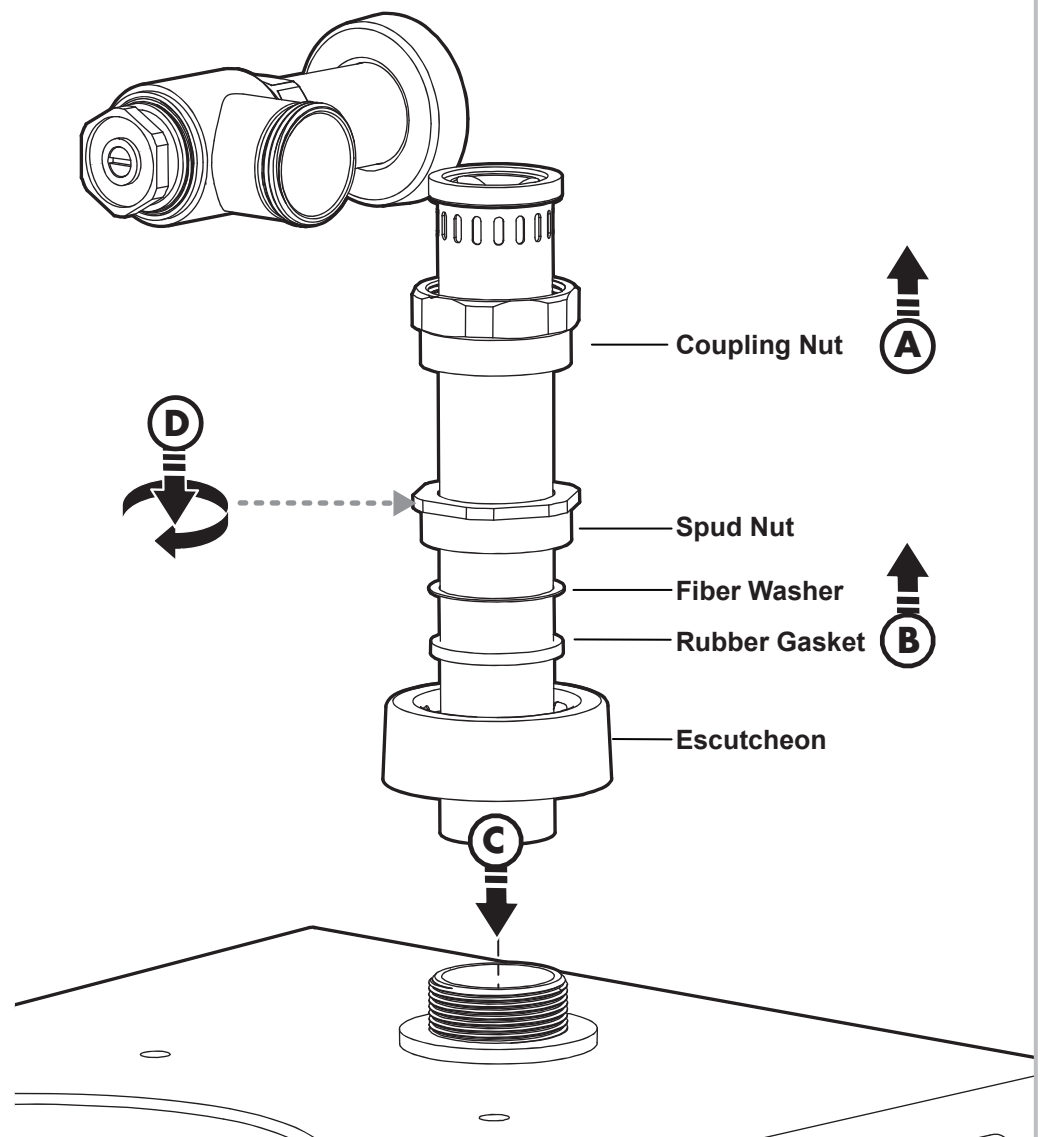
VERIFY VACUUM BREAKER INSTALLATION

- 8** A. Verify that the Split Ring and Vacuum Breaker are properly installed within the Tailpiece.
 B. Slide the Coupling Nut onto the Tailpiece as shown below.



TAILPIECE INSTALLATION

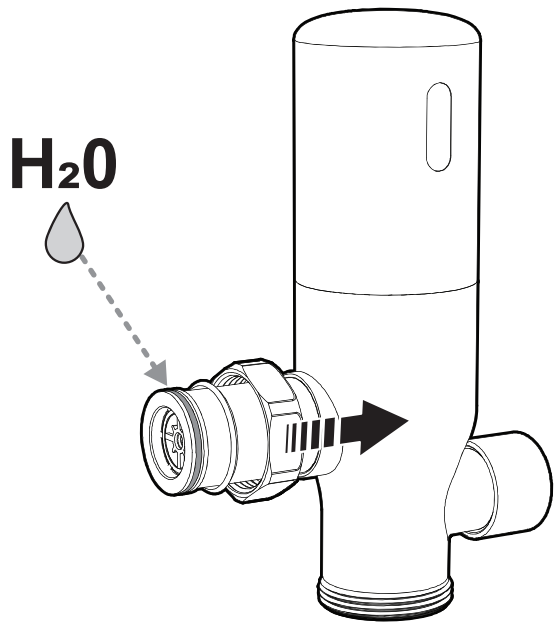
- 9** A. Verify the Coupling Nut is installed as per the previous step.
 B. Slide the Spud Nut, Fiber Washer, Rubber Gasket, and Escutcheon onto the Tailpiece in the order specified.
 C. Install the Tailpiece Assembly into the fixture's Spud.
 D. Hand tighten the Spud Nut to the fixture's Spud. You can use a Strap Wrench, but do NOT fully tighten.



NOTE: Dry connections only! Do NOT use any thread sealant!

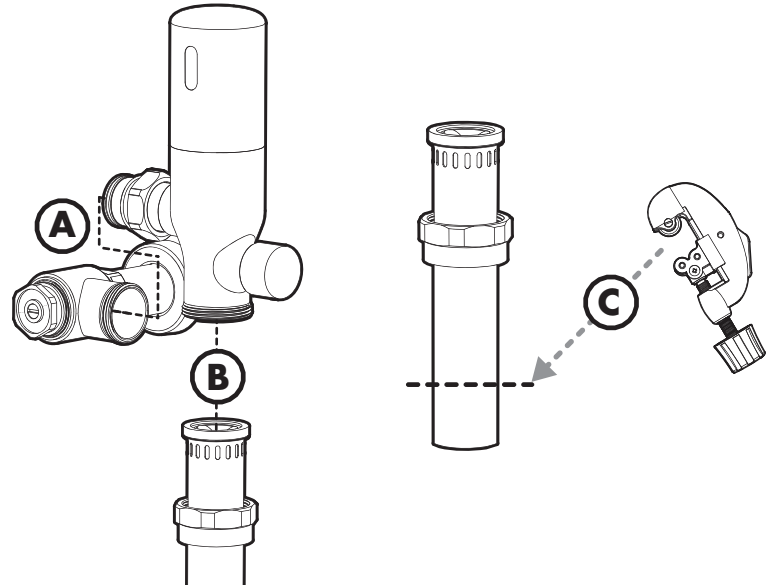
LUBRICATE VALVE BODY O-RING

- 10** Remove protective covering from the Valve Body Inlet. Slide the Nut and Locking Ring towards the Valve Body to reveal the O-ring. Lubricate the O-ring with water.



INSTALL VALVE BODY

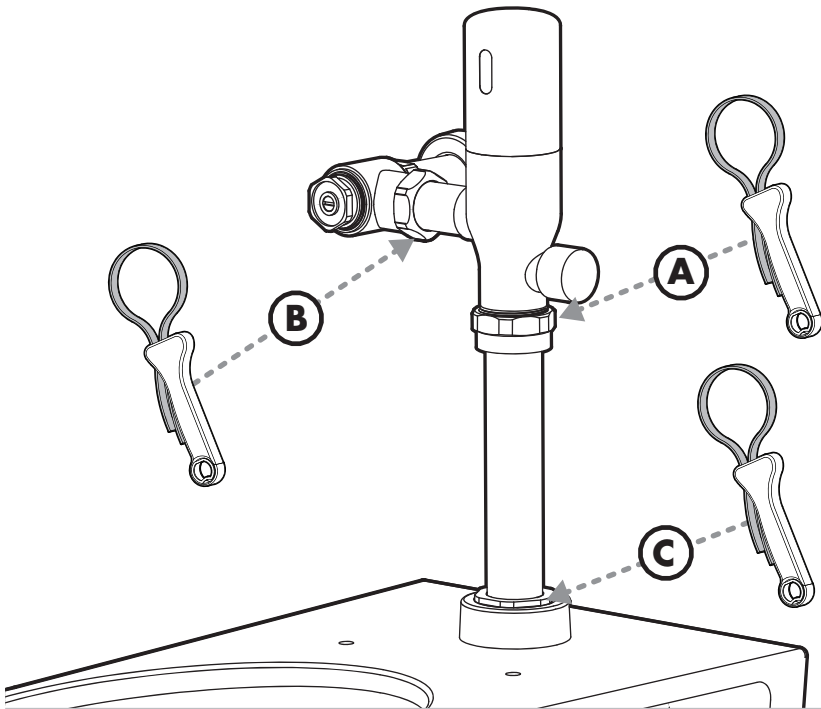
- 11** **A.** Insert the Valve Body into the Control Stop.
B. Align the Valve Body directly over the Vacuum Breaker tubing, adjusting the Valve Body horizontally along the connection to the Control Stop as needed to properly align it. Loosely make threaded connections.
C. Verify correct alignment with the Vacuum Breaker tubing. It may be necessary to cut the Vacuum Breaker tubing to length.
NOTE: If you are cutting the vacuum breaker tube to size, consult local plumbing codes to ensure that the critical line is properly located above the fixture. Typically, the critical line is 6" above the fixture.



NOTE: Dry connections only! Do **NOT** use any thread sealant!

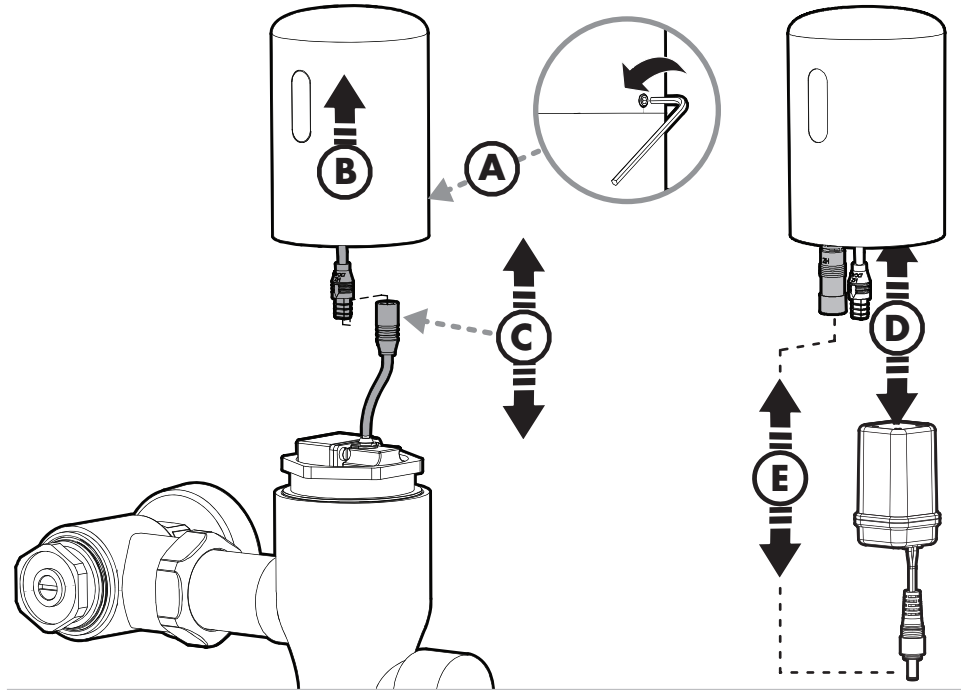
TIGHTEN CONNECTIONS

- 12** Tighten connections in the following order using a Strap Wrench. Do NOT use Toothed Wrench on any connections as this will damage the finish.
A. Tighten the connection between the Valve Body and Tailpiece Assembly.
B. Tighten the connection between the Valve Body and Control Stop.
C. Tighten the connection between the Tailpiece Assembly and Spud Nut.



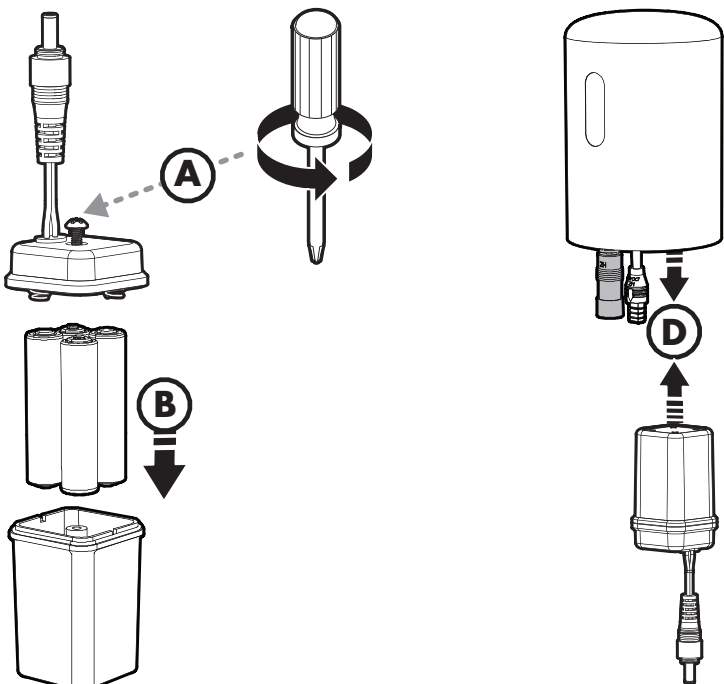
ACCESS BATTERY BOX

- 13** **A.** From behind the Valve Body, loosen, but do not remove the Set Screw with the included 2.5mm Hex Key Wrench.
B. Lift off the Valve Body Cover.
C. Disconnect the **BLACK** wire connection to the Solenoid.
D. Remove the Battery Box from within the Valve Body Cover.
E. Disconnect the **RED** wire connection between the Sensor Eye and Battery Box.



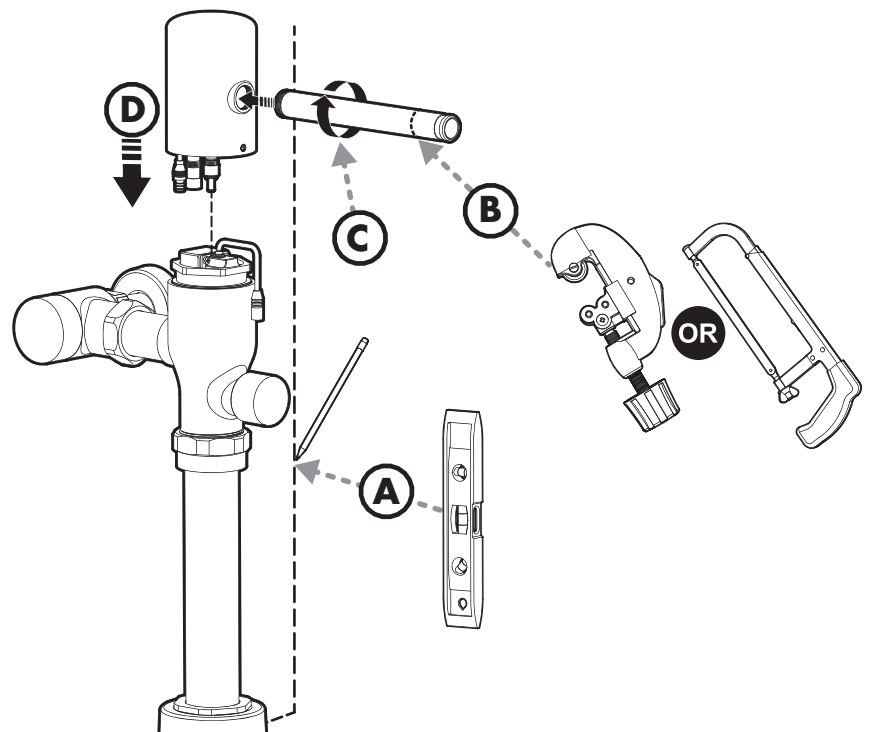
INSTALL BATTERIES

- 14** **A.** Use a Phillips Head Screwdriver to remove the Battery Box Lid.
B. Install the Batteries per the orientation shown on the Battery Box.
C. Re-assemble the Battery Box while taking care to properly align the tabs in the Lid with the notches in the Box.
D. Reposition the Battery Box back into the Valve Body Cover, but do NOT make electrical connections.



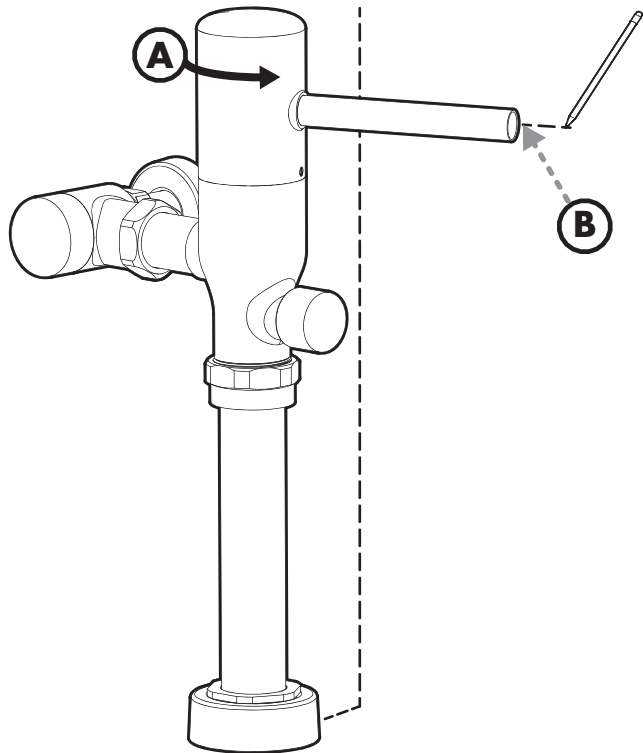
MARK LOCATION FOR CONDUIT

- 15** **A.** Mark vertical centerline from fixture Spud up the wall using a level.
B. Cut Conduit to approximate length taking into account the thickness of the wall and the amount that is threaded into the Valve Body Cover.
C. Hand thread Conduit Pipe to Valve Body Cover.
D. Position the Valve Body Cover onto the Valve Body with the Conduit extending out the side.



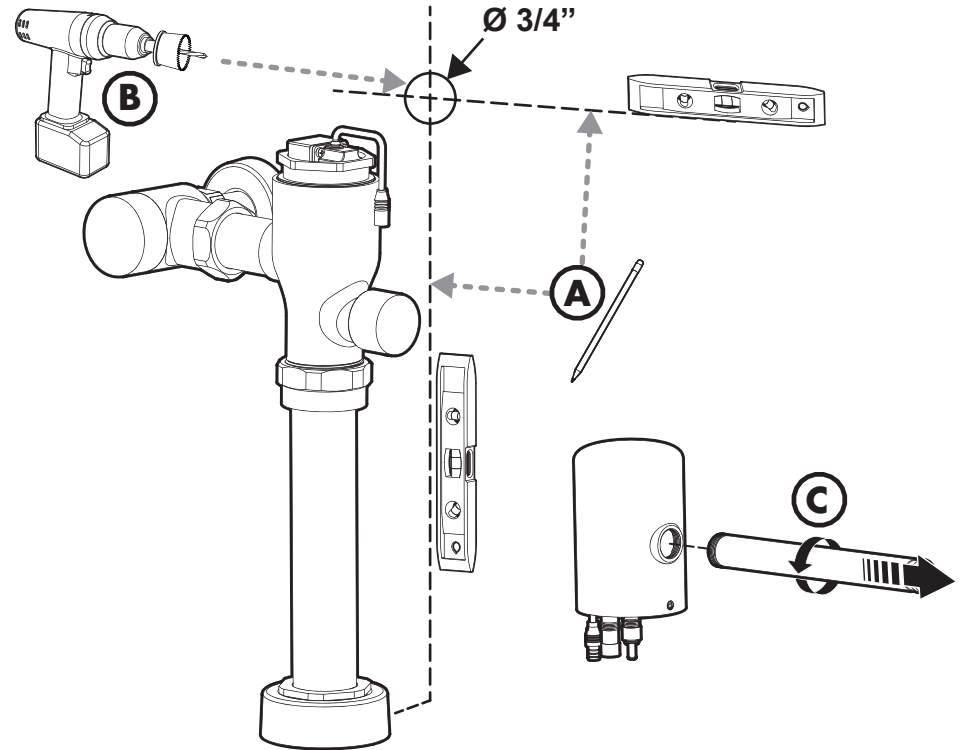
MARK LOCATION FOR CONDUIT

- 16** A. Rotate the Valve Body Cover until the Conduit Pipe makes contact with the wall.
 B. Mark the horizontal centerline of the Conduit Pipe on the wall.
 C. Remove Valve Body Cover assembly from the Valve Body.



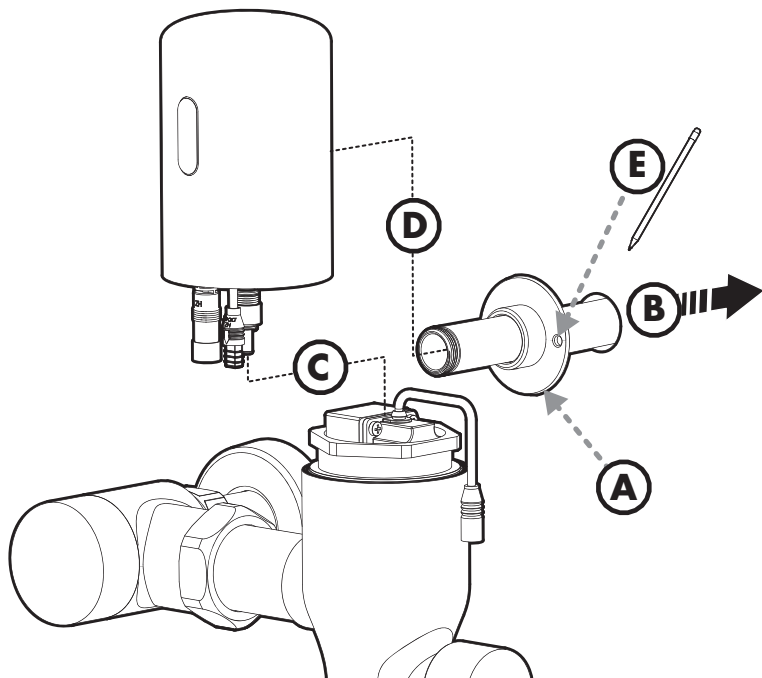
MARK LOCATION FOR CONDUIT AND DRILL HOLE

- 17** A. Using a level, extend the horizontal centerline until it intersects the vertical centerline.
 B. At the intersection of the vertical and horizontal centerlines, drill a $\text{\O} 3/4''$ hole.
 C. Unthread and remove the Conduit from the Valve Body Cover.



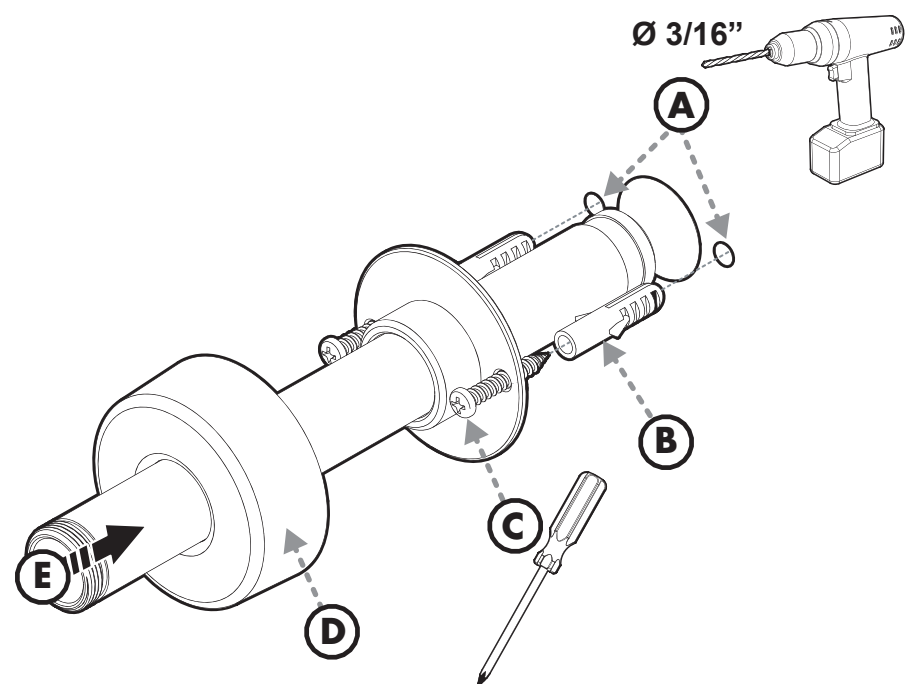
MARK LOCATION FOR MOUNTING FLANGE

- 18** A. Slide the Mounting Flange onto the Conduit.
 B. Position the Conduit into the previously drilled hole in wall.
 C. Place the Valve Body Cover onto the Valve Body.
 D. From behind, thread the Conduit into the Valve Body Cover.
 E. Position the Mounting Flange against the wall and mark the two (2) mounting locations.
 F. Unthread the Conduit from the Valve Body Cover and remove the Valve Body Cover, Conduit, and Mounting Flange.



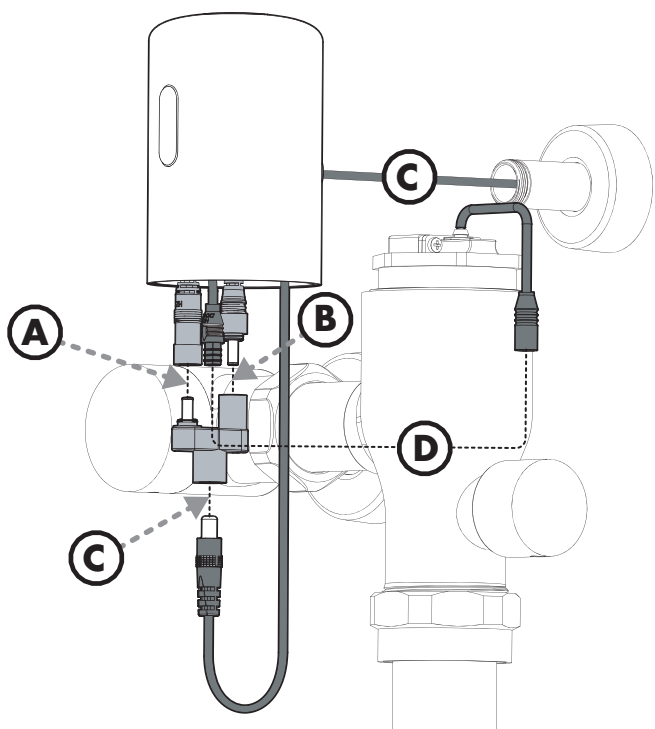
INSTALL MOUNTING FLANGE

- 19** A. In the previously marked locations, drill $\text{\O} 3/16''$ holes.
 B. Position the two (2) Anchors into the drilled holes.
 C. Place the Mounting Flange against the wall and secure into position using the two (2) Mounting Screws.
 D. Position the Escutcheon over the Mounting Flange.
 E. Slide the Conduit into the Escutcheon and Mounting Flange.



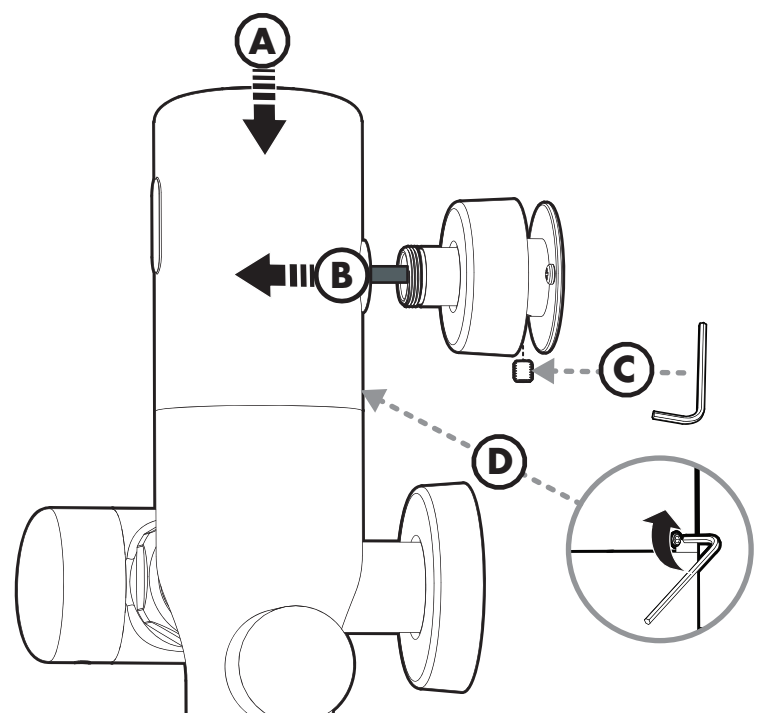
MAKE ELECTRICAL CONNECTIONS

- 20** A. Attach the Red wire of the Sensor Eye Assembly to the Red T-shaped Converter.
 B. Attach the Red wire of the Battery Box to the Red T-shaped Converter.
 C. Guide the included power cable through the Conduit piping, then through the hole in the Valve Body Cover. Attach this to the lower port of the T-shaped converter.
 D. Attach Sensor Cable to Solenoid Cable.



INSTALL CONDUIT TO VALVE BODY COVER

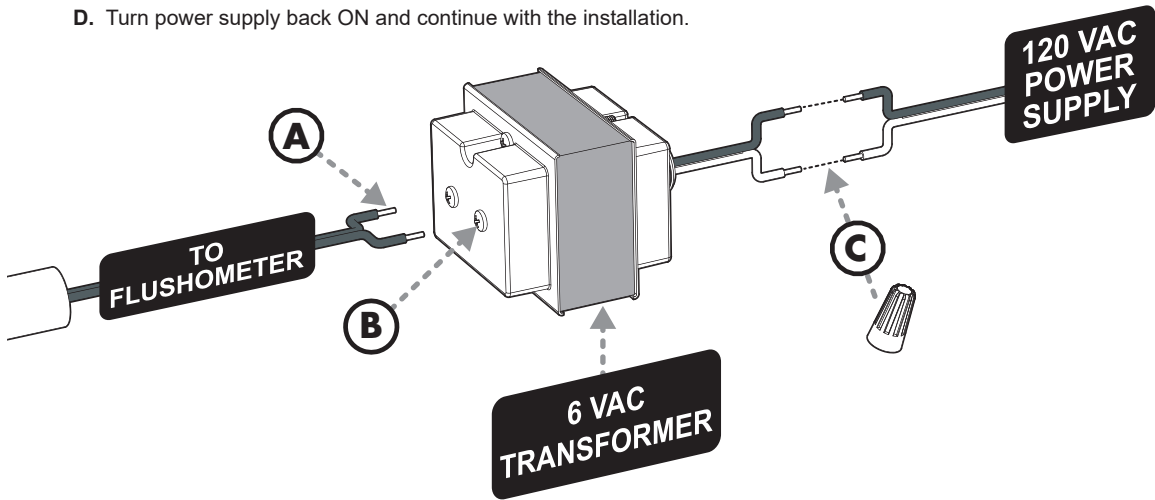
- 21** A. Place the Valve Body Cover into position on the Valve Body.
 B. Thread the Conduit into the Valve Body Cover.
 C. Slide the Escutcheon back to access and secure the Set Screw to the Conduit with the included 2.5mm Hex Key Wrench.
 D. From behind secure the Set Screw at the rear of the Valve Body Cover with the included 2.5mm Hex Key Wrench.



HARDWIRE ELECTRICAL CONNECTIONS

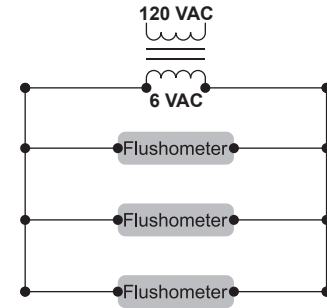
22 IMPORTANT! BEFORE MAKING ANY ELECTRICAL CONNECTIONS, VERIFY THAT THE INCOMING POWER SUPPLY IS OFF AND LOCKED OUT!

- From behind the wall, strip the ends of the Power Cable leading to the Flushometer.
- Make electrical connections from the Flushometer to a 6 VAC Class 2 Transformer (not included). Ensure all connections are properly protected within an electrical box and/or follow all local electrical codes.
- Make connections to incoming 120V AC supply.
- Turn power supply back ON and continue with the installation.



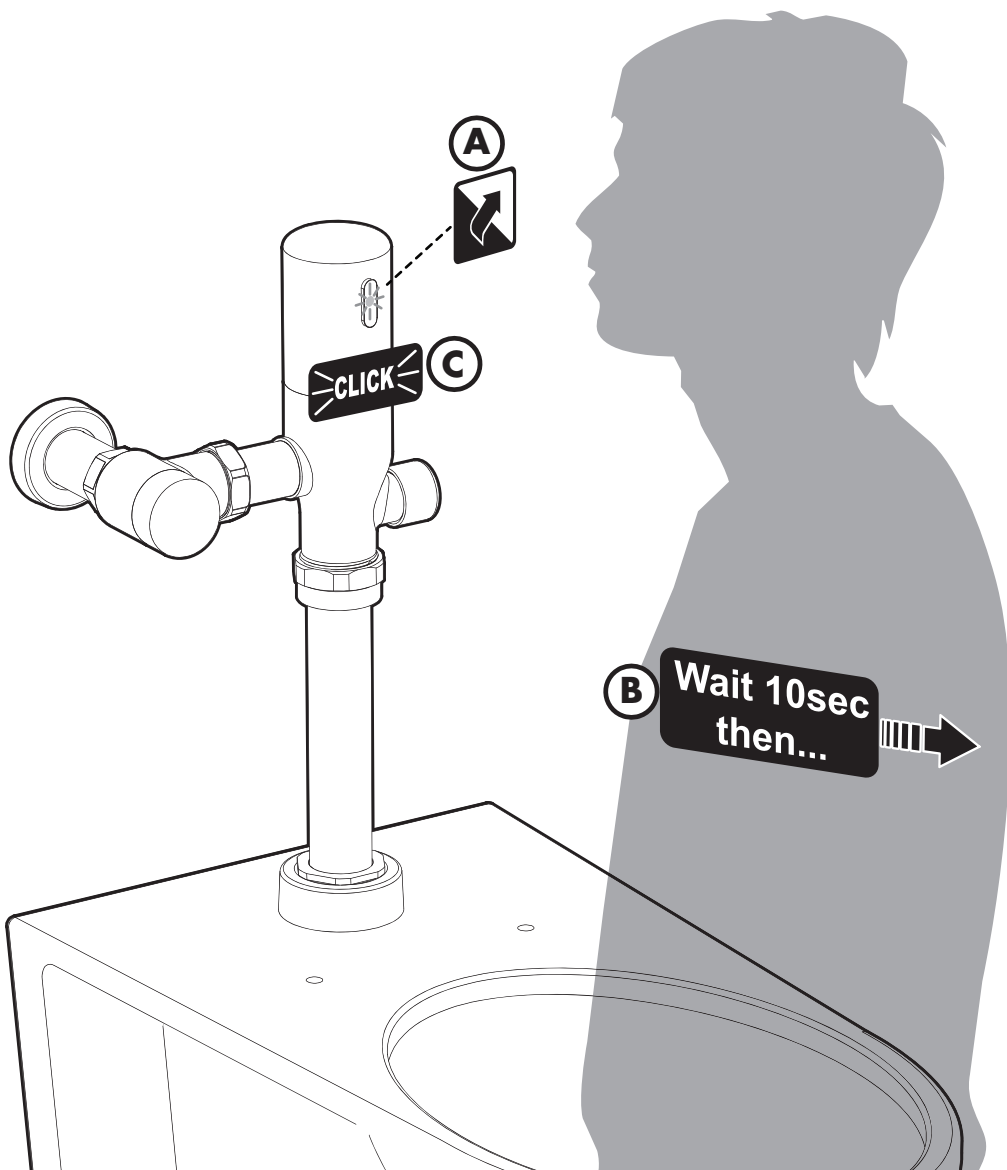
NOTE:

Each flushometer requires 6 VAC of power and a between 0.35A and 0.5A of current to operate properly. 18-gauge wire is recommended to connect units. The number of Flushometers that can be wired in parallel depends on the capabilities of the sourced transformer. Example wiring diagram is below. Consult local electrical codes before installing.



CALIBRATE THE SENSOR

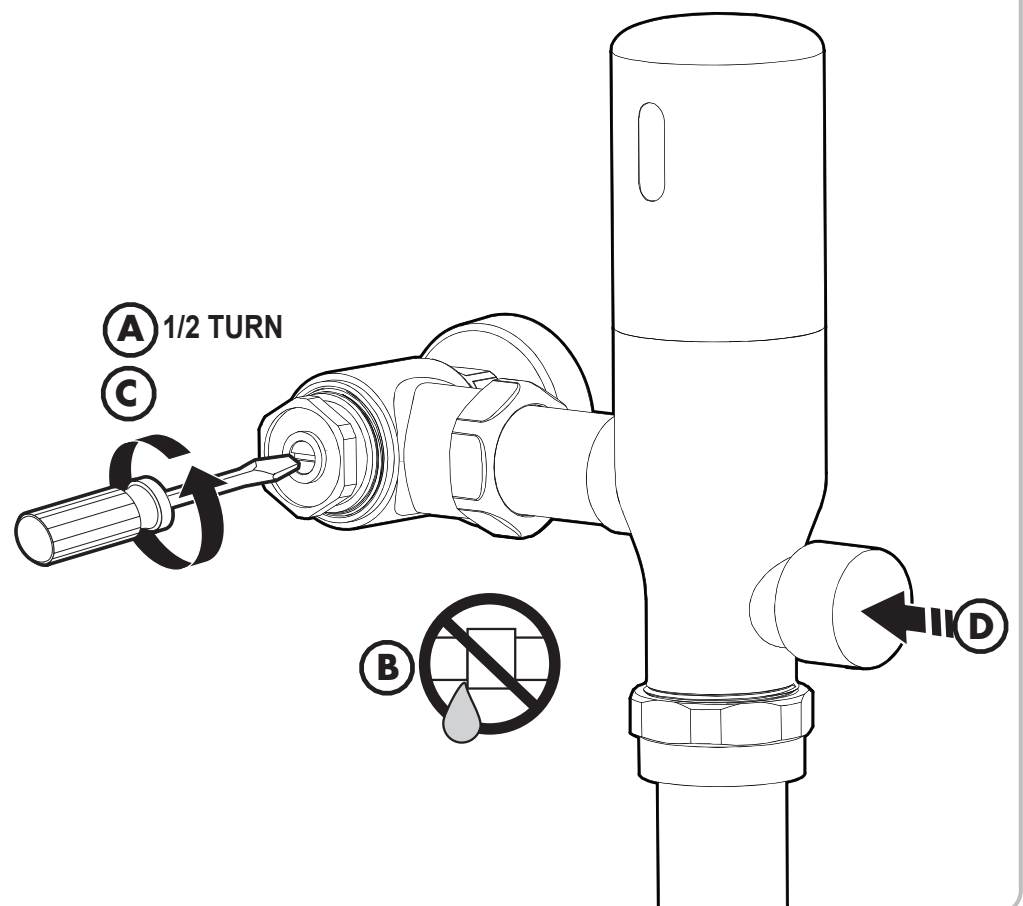
- Remove the protective film covering the Sensor Eye.
- Test the Sensor by standing in front the Flushometer for about 10 seconds, then stepping away from the Sensor.
- You should hear a click as the Solenoid actuates, and see a red-light flash in the Sensor Eye.



The factory set range is 25-1/2". Sensors in the wash closet models are pointed 15 degrees up, while urinal sensors are pointed 15 degrees down.

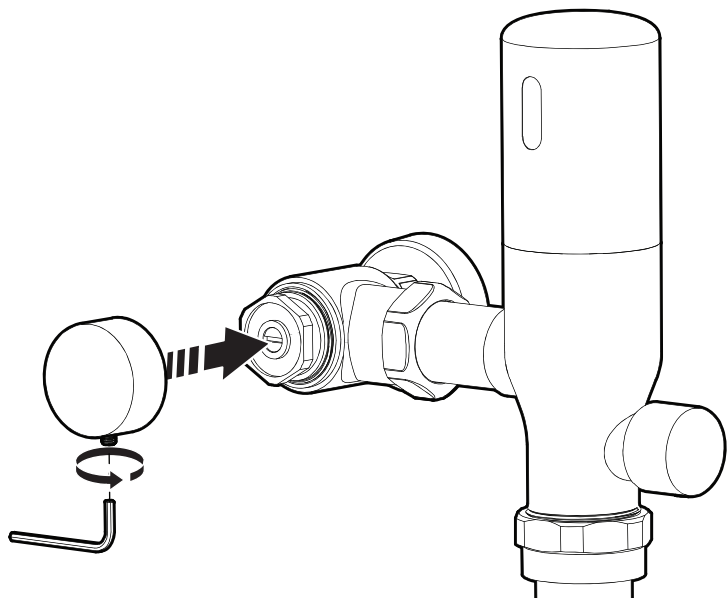
TIGHTEN CONNECTIONS

- Using a Flat Tip Screwdriver, slowly open the Control Stop by about 1/2 turn. A flush sequence should begin immediately.
- Use this time to check for leaks or any loose connections.
- Continue to loosen the Control Stop Adjustment Screw until desired flush sequence is achieved.
- Test the Flushometer by activating the Sensor, or by pressing the manual override button for 1 second.
 - A flush sequence should begin again.
 - Continue to operate the Flushometer until desired flow is achieved, it may take a few actuations for the flushometer to become hydraulically balanced, this is normal.



REINSTALL CONTROL STOP COVER

- Reinstall the Control Stop Cover using the included 2.5mm Hex Key Wrench.



PRODUCT WARRANTY

This product is warranted to be free of defects in material and workmanship for the period listed below from the date of installation.

Consumer/Residential: Limited Lifetime Warranty
Commercial Use: 5 Year Limited Warranty

Speakman warrants to its purchasers only ("Buyer") that goods are sold free from defects in materials and workmanship and conform to Speakman's specifications at the time of manufacturing, provided the goods are properly installed and maintained. Buyer's sole and exclusive remedy for any goods that may prove to have had a non-conformance within the Warranty Period shall be, at Speakman's sole option, the repair or replacement of the non-conforming goods. For additional information please go to www.speakman.com.

CALIFORNIA PROPOSITION 65



CALIFORNIA PROPOSITION 65:

WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Wash hands after installation, repair, or removal of this product.

ROUGH-IN DIAGRAM

COMPLIANCE

ASSE 1037/ASME A112.1037
 ASME A112.18.1/CSA B125.2
 WaterSense (1.28 GPF model only)

CONNECTIONS

Inlet: 1" NPT Female
 Outlet: 1-1/2" NPSM

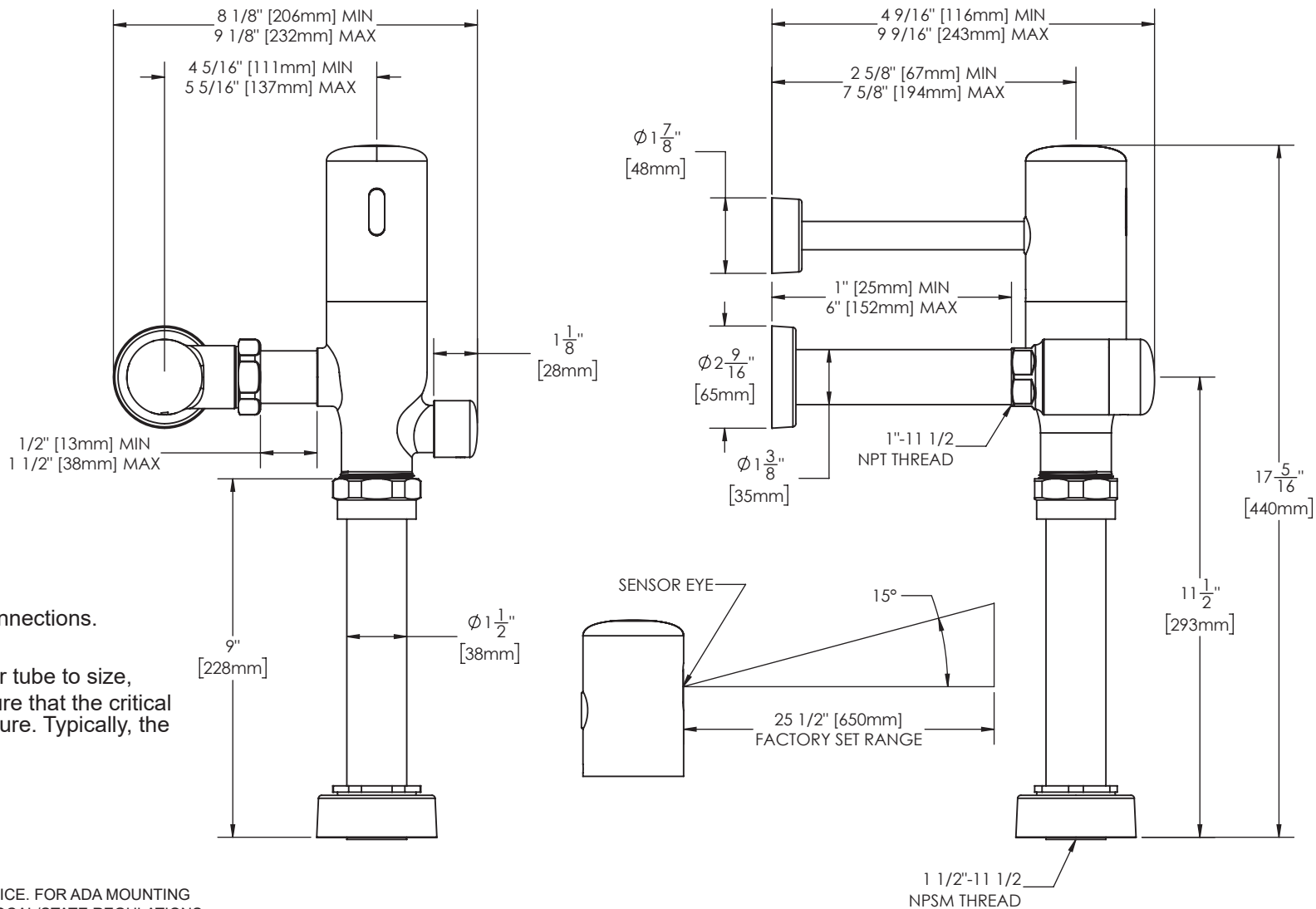
FLOW RATE

SV-4128 1.28 GPF
 SV-4116 1.60 GPF

NOTES

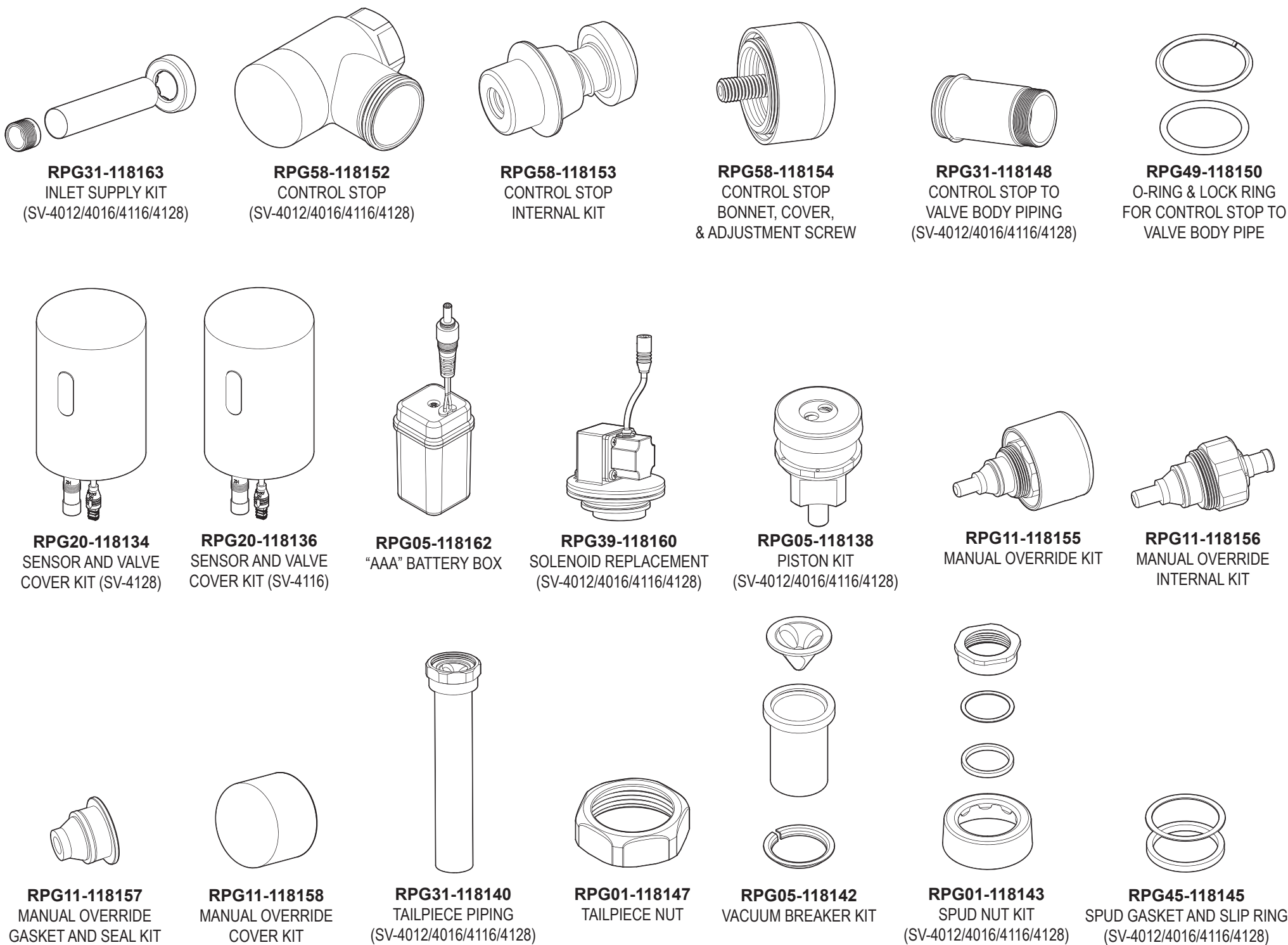
Installer to supply necessary inlet connections.

If you are cutting the vacuum breaker tube to size, consult local plumbing codes to ensure that the critical line is properly located above the fixture. Typically, the critical line is 6" above the fixture.



DIMENSIONS SUBJECT TO CHANGE WITHOUT NOTICE. FOR ADA MOUNTING LOCATIONS, CONSULT ADAAG, ANSI A117.1, AND LOCAL/STATE REGULATIONS.

REPAIR PARTS



NOTE: Regulations prohibit using replacement parts for this product that would increase the flushing volume beyond what is stated on the label. As such, replacement parts are not designed or intended to be interchangeable with parts that would cause this product to exceed said flushing volume.

TROUBLESHOOTING

Note: Before performing any service or troubleshooting, turn off the water supply at the control stop and if possible, flush out remaining water in the flushometer.

1. The Sensor is Not Detecting a User, or the Valve is Not Flushing.

- a. The batteries may need to be replaced – check to see if the sensor light is blinking. If it is, replace the batteries before proceeding with the below.
- b. The electronic sensor module may need to be replaced. A repair kit is available to do this. See repair parts section of this installation manual for the part number.
- c. Try replacing the potentially faulty sensor module with a working one from another unit first as a test.
 - i. If the replacement works, then the problem lies with the sensor module and a repair kit should be ordered.
 - ii. If the replacement does not work, then the problem may lie with the solenoid. Follow below troubleshooting steps to diagnose.
- d. Listen for an audible click from the solenoid after obstructing the lens for 6 to 7 seconds.
 - i. If there is an audible click, then there may be debris in the valve body that is preventing the piston from moving. Wash the piston and valve body under running water.
 - ii. If there is no audible click, then the solenoid may be stuck in the closed position. Order a replacement solenoid. See repair parts section of this installation manual for the part number.

2. The Red Sensor Light is Blinking Once per Second.

- a. The batteries are running low. We recommend replacing the batteries.

3. The Red Sensor Light is Blinking Twice per Second.

- a. The batteries have been used up. The batteries must be replaced.

4. The Flush Valve is Flushing Continuously or Does Not Shut Off.

- a. Check for an audible click from the solenoid.
 - i. If there is an audible click, proceed with troubleshooting step 4.b
 - ii. If there is no audible click, order a replacement solenoid.
- b. The bypass in the valve body is likely clogged with debris or build-up from the water supply. Remove the valve body and all internal components. Note that there is a small spring which acts as a filter inside of the bypass. Remove this by turning the valve body upside-down. Wash the filter under running water. Wash the inside of the valve body, including the bypass, under running water.

5. Not Enough Water is Being Supplied to the Ceramic Fixture.

- a. Ensure that the correct model of flushometer has been installed. (e.g., ensure a 1.28 GPF flushometer has not been installed to a 1.6 GPF toilet)
- b. Ensure that the control stop is adjusted properly. Open the stop further to allow for more water flow.
- c. Ensure the supply has enough pressure to support the flushometer.

6. Too Much Water is being Supplied to the Ceramic Fixture.

- a. Ensure that the correct model of flushometer has been installed. (e.g., ensure a 1.6 GPF flushometer has not been installed to a 1.28 GPF toilet)
- b. Ensure that the control stop is adjusted properly. Close the stop further restrict flow.

7. Flushometer Performs a Flush Cycle on its Own With no User Present.

- a. The flushometer is designed to perform a courtesy flush once every 24 hours. This behavior is normal.
- b. If the behavior happens more frequently, ensure there is nothing obstructing the sensor lens. Try wiping the lens clean if no physical object is creating an obstruction.