

BIOCLEAN ACADEMY

WASH GUN INFORMATION AND TROUBLESHOOTING

Time is money in the fleet cleaning business-
Any steps you can do to shorten downtime
while washing is money back in your pocket!



277 LOCTITE

Threadlocker used throughout the assembly of the wash gun-especially where twisting of the components is necessary to complete work.

Not used on swivel fittings and frequently removed items-
nozzles,couplers

(stainless to stainless)



TRIGGER INFORMATION



WEEPY TRIGGER

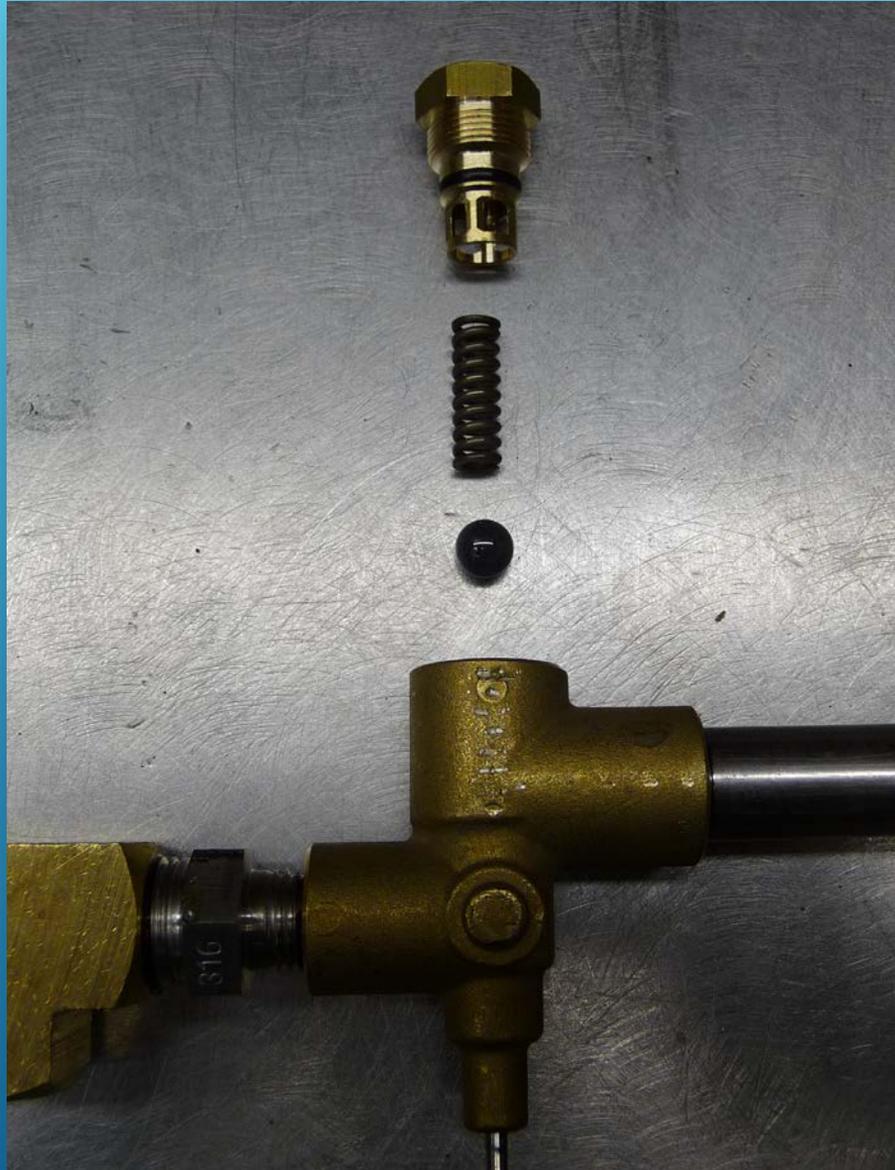


TRIGGER KIT

Replacement Optional-

Cheaper than a complete trigger but some hassle involved in replacing.

Stainless ball is included in kit-Can you reuse the ceramic ball the trigger came with?



TRIGGER GUNS

Ceramic Ball is already installed at Bioclean

Black in color-not shiny stainless



**STAINLESS STEEL TRIGGER NIPPLE
-CHANGEOUT AN OPTION**



**COMPLETED TRIGGER ASSEMBLY
WITH STAINLESS NIPPLE INSTALLED**



TRIGGER HANDLE BUTTON REPLACEMENT

Over time the striker button will wear out from hitting the trigger plunger

-You will notice a shorter off/on stroke of the trigger

-If the operator isn't careful, they could prematurely release the trigger and possibly allow the wash gun to strike the surface of the truck.



EXIT END OF TRIGGER

Notice that the plastic case is molded for a HEX FITTING.

By using the proper fitting, this adds strength to the trigger housing and minimizes premature breakage.



HEX NIPPLE INSTALLED

Trigger Case wraps securely around the hex nipple. No movement is allowed in trigger case.

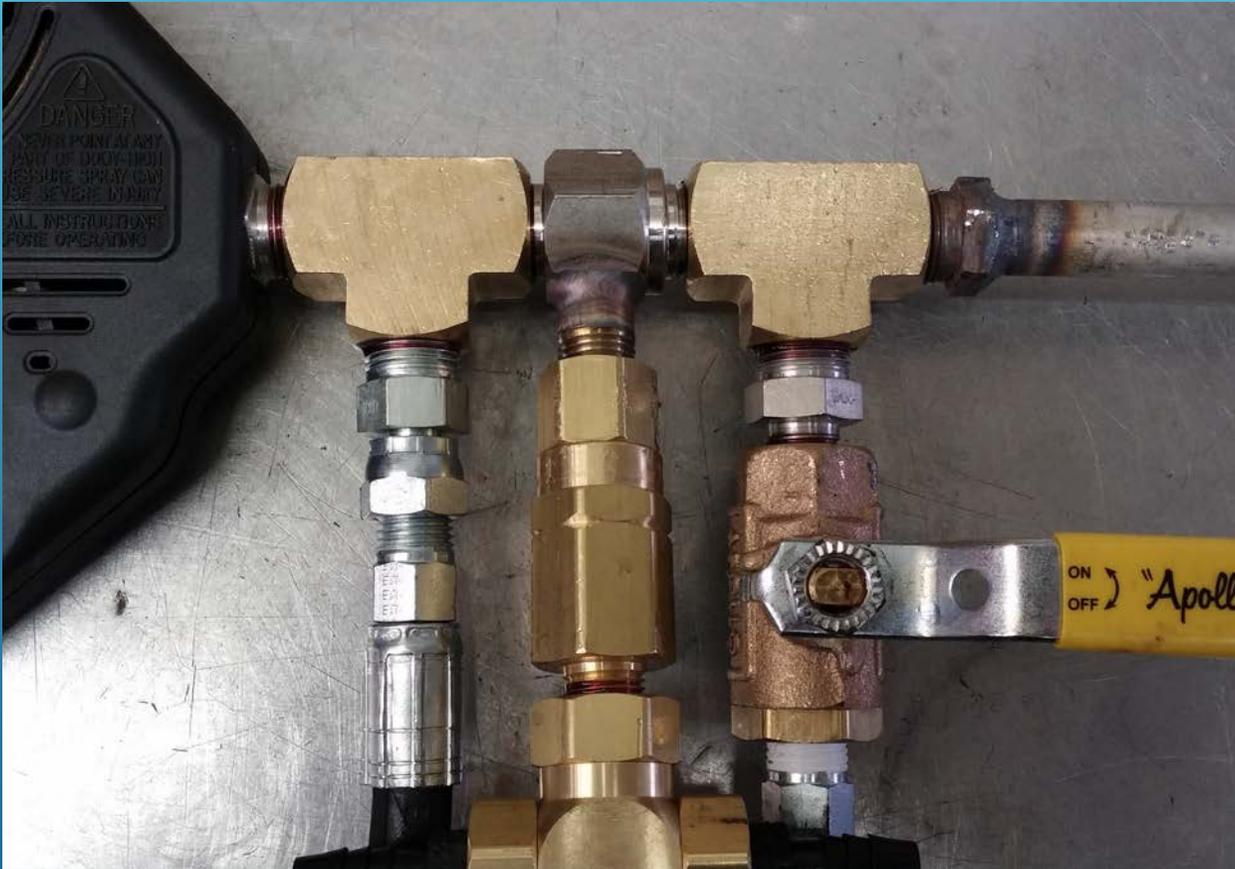


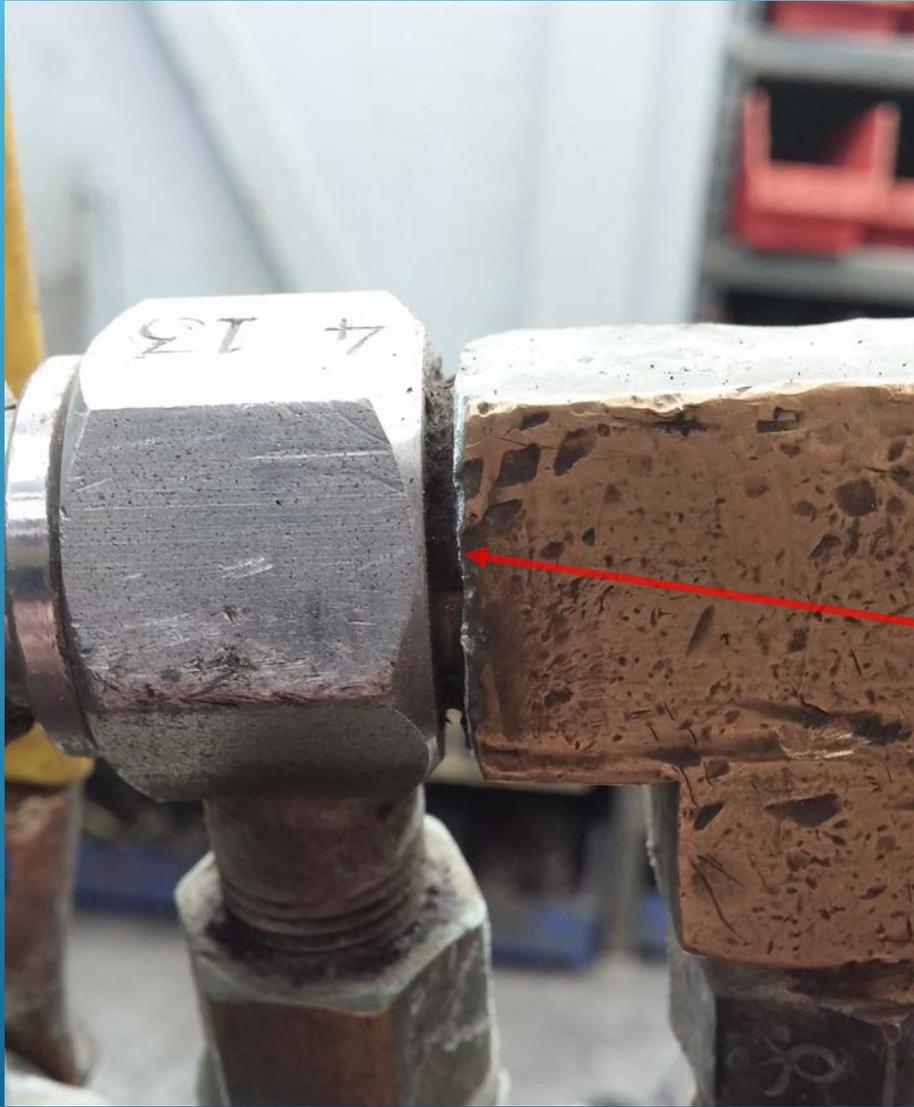
BASS TEE INFORMATION

WHY ARE BRASS TEES USED?

We have had problems fitting stainless to stainless together-They lock together destroying both parts.

Brass "gives" more than stainless, yet is still corrosion and chemical resistant.





BEING A SOFTER METAL IT HAS A TENDENCY TO STRETCH

Tee will widen out and eventually allow the tee to bottom out on the stainless fittings.

They can also be prone to cracking if over-tightened.



BRASS IS A POROUS METAL

It can develop pinhole leaks after a while. This can happen to new and old tees.

If this happens to you, it can be fixed while on the gun-DO NOT THROW IT AWAY!

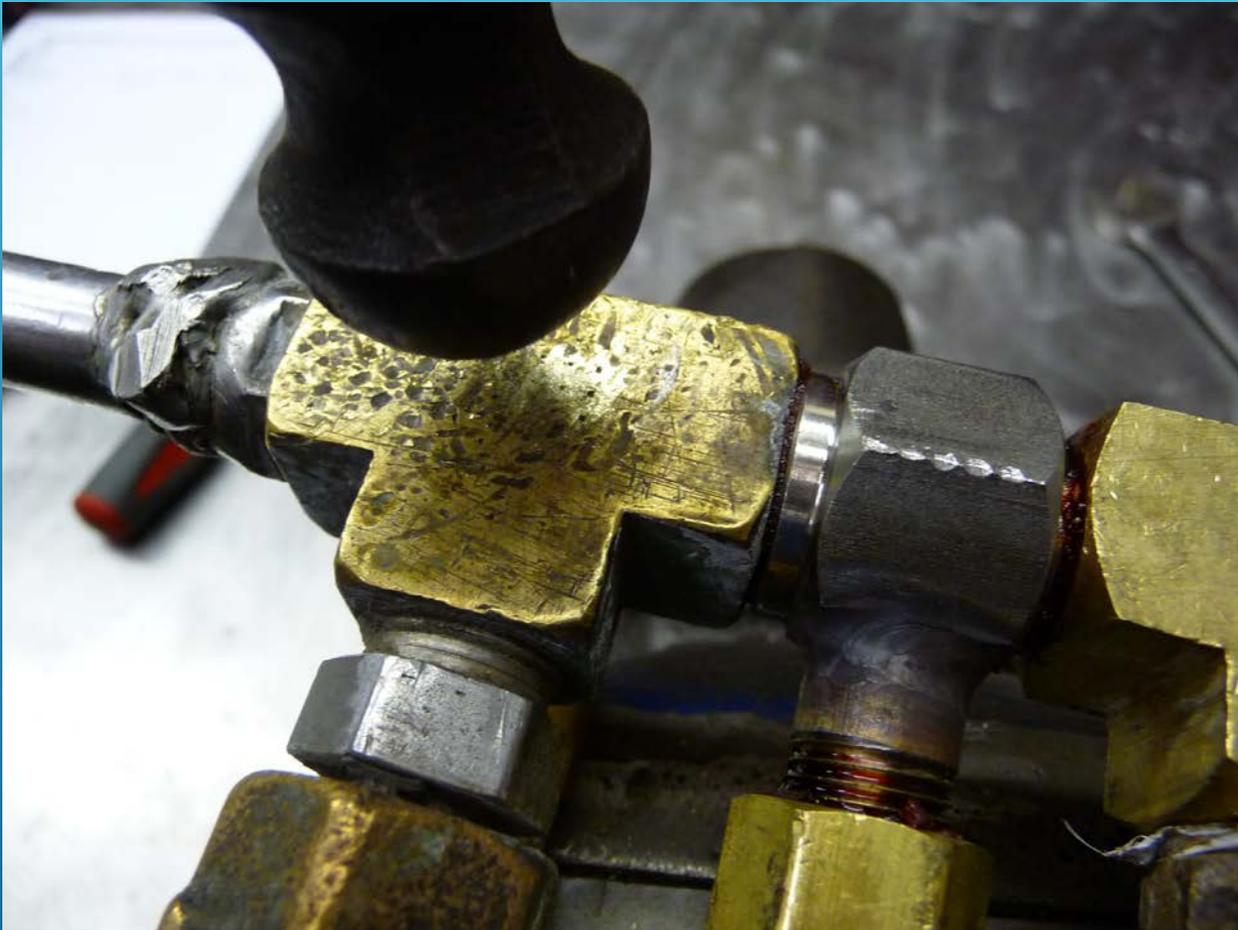


**STEP #1:
IDENTIFY THE
LEAK POINT**

STEP #2: PUSH THE MATERIAL TOGETHER

This can be accomplished by repeated movement with a screwdriver moved back and forth over the affected area from multiple directions.



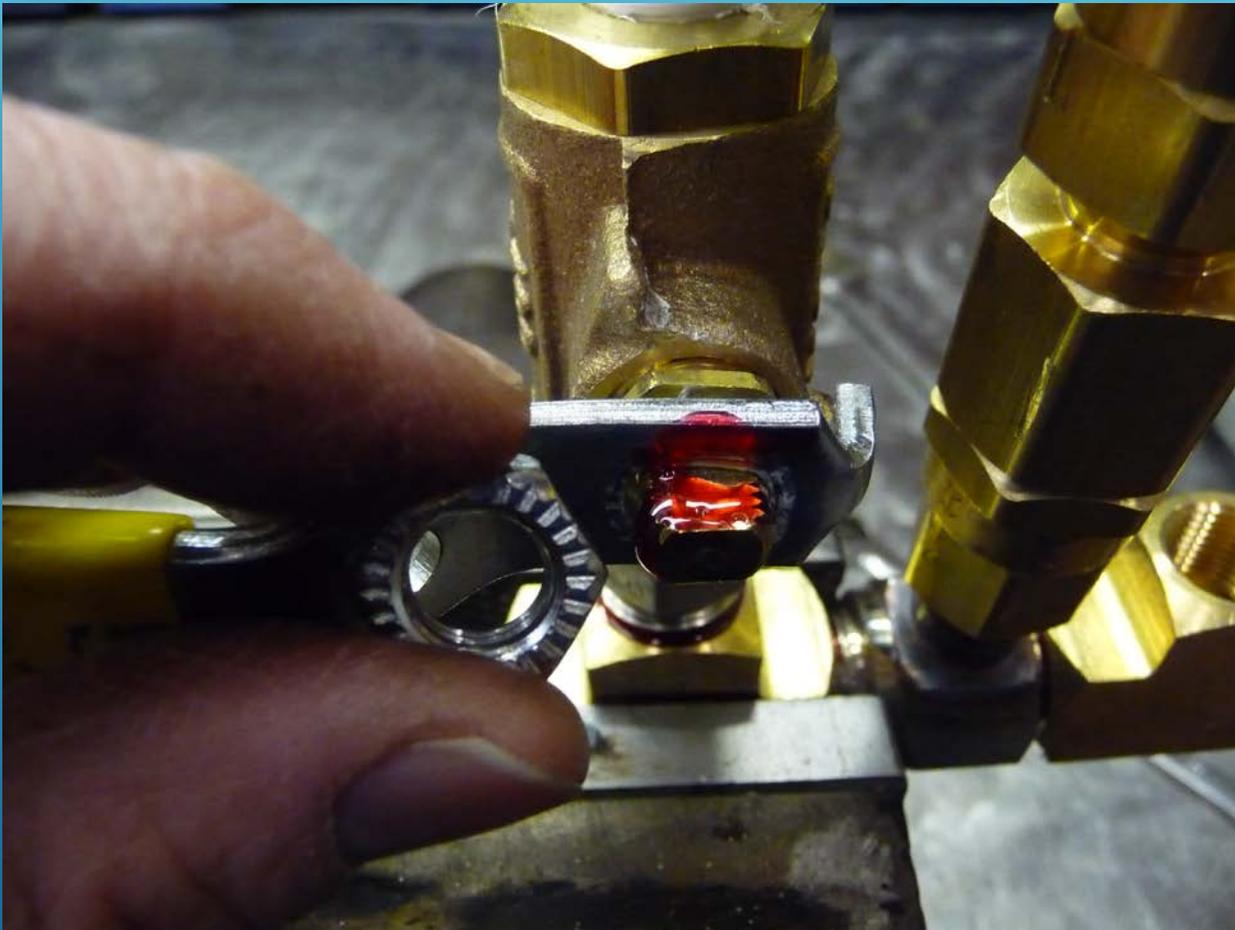


STEP #3: HAMMER TIME!

Take a ball-pein hammer and hit the affected area many times. This seals the porous area together and in 90% of the time seals the leak.

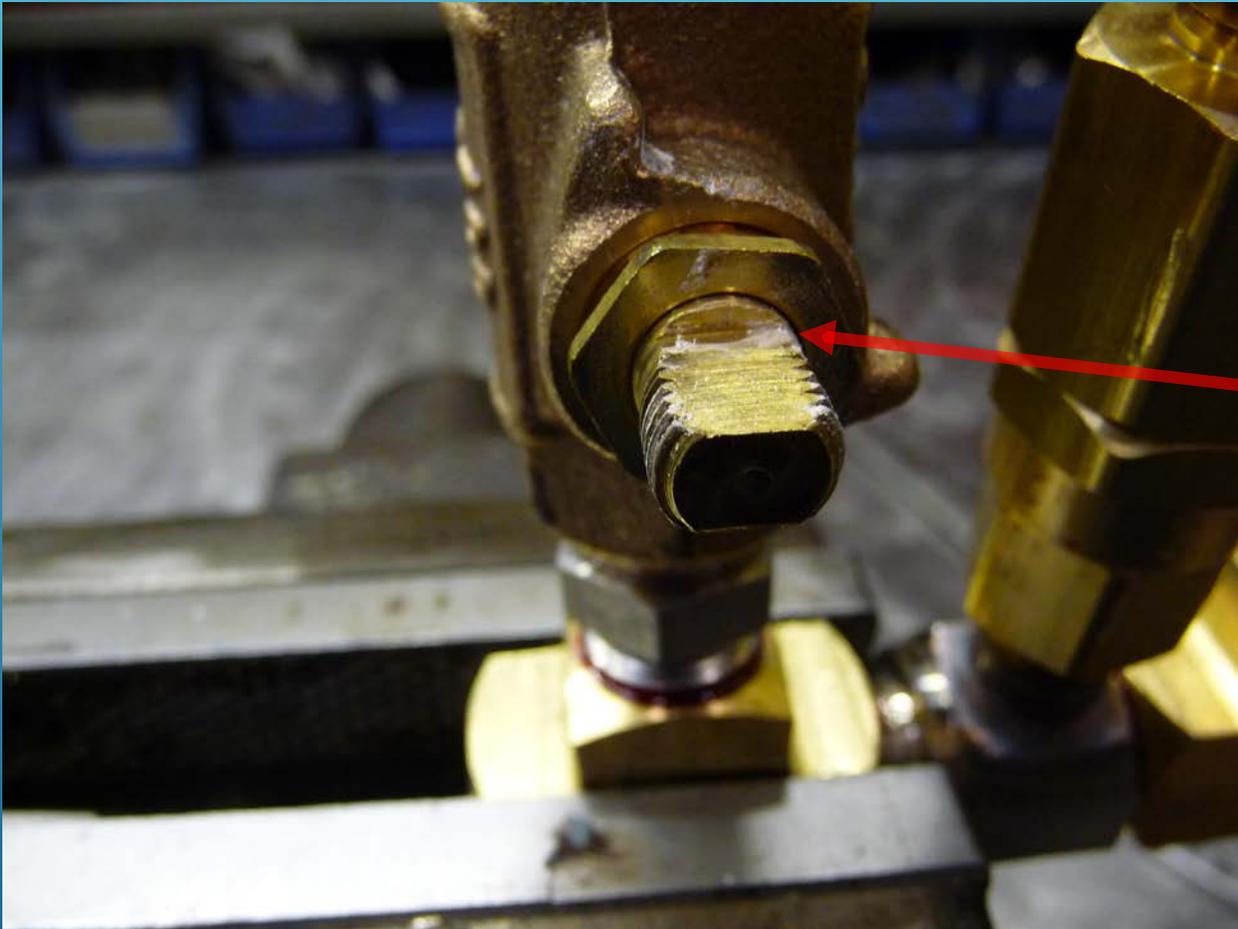


RINSE VALVE INFORMATION



LOCTITE NUT

This prevents the nut from loosening up and letting the handle move freely back and forth on the stem. Otherwise the steel handle will prematurely wear out the brass stem and lead to valve failure.



LEAKING AT STEM

Occasionally the rinse valve will start to leak out of the stem.



STEM LEAK FIX:

In most cases the fix is simple: Use a 9/16" wrench to tighten the nut that holds the stem in place. Too tight will make it difficult to turn the rinse valve handle.



RINSE VALVE FAILURE

Valve will either not fully open or fully close. When not fully closed (see example), this will prevent the injector from drawing detergent in the proper dilution or possibly not at all.



RINSE VALVE TEST

Disconnect bypass hose on swivel end. With rinse valve closed, suck on bypass hose to create a vacuum. Once vacuum is created, cover hose with tongue. It should be able to maintain that vacuum for a minimum of 5 seconds. If it does not, or if it is unable to hold a vacuum at all, the rinse valve is bad and due for replacement.



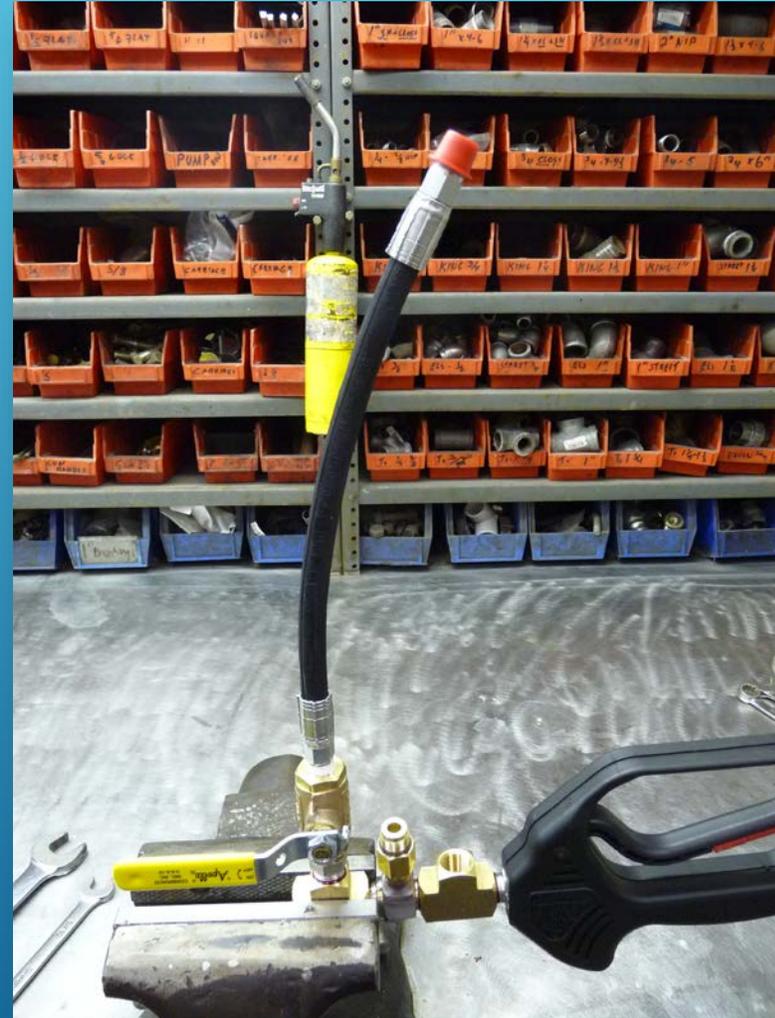
BYPASS HOSE INFORMATION

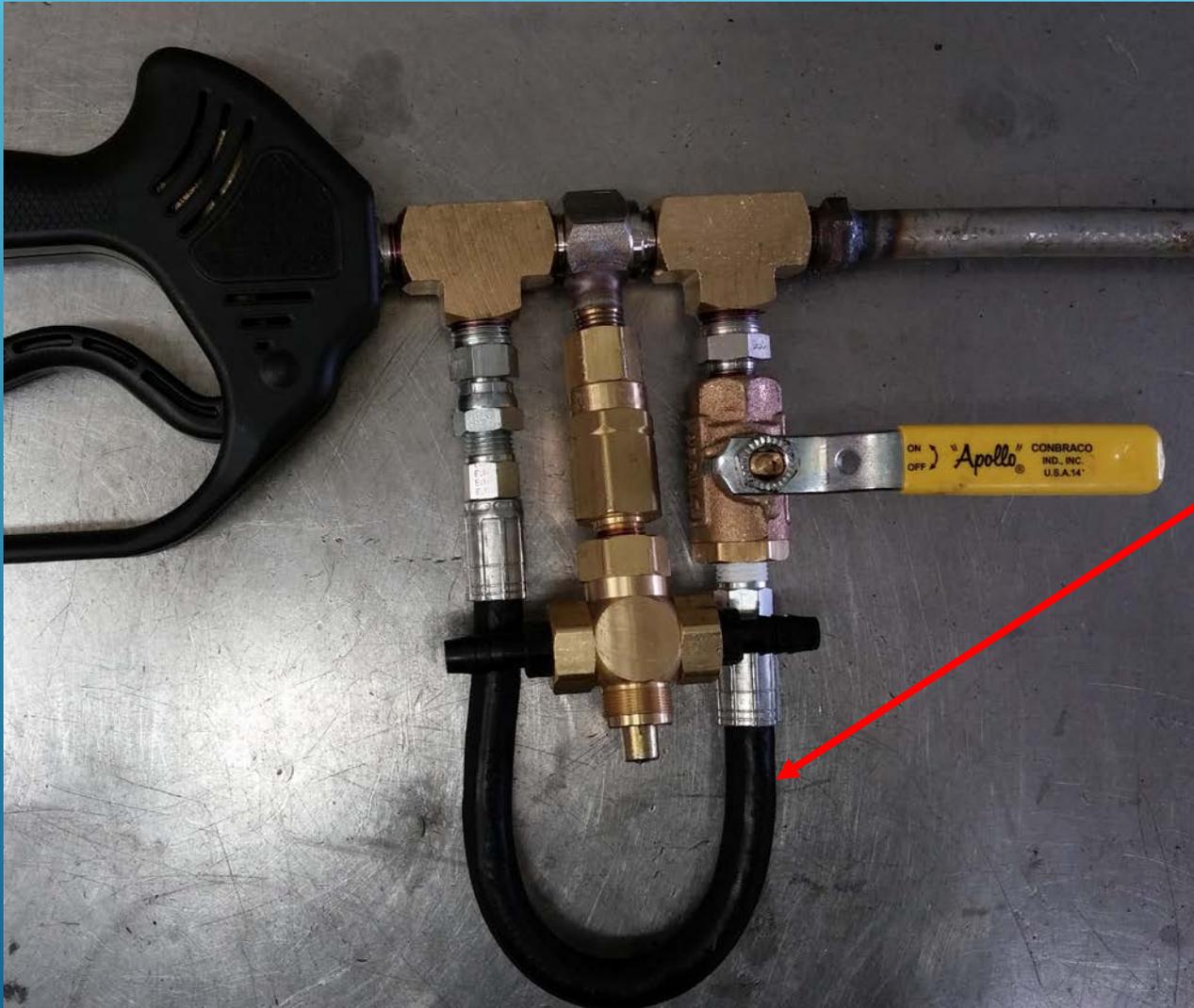
INCORRECT INSTALLATION OF BYPASS HOSE

Hose's natural arc is not pointing back towards the trigger- This results in hose twisting and premature internal wear and failure of hose.



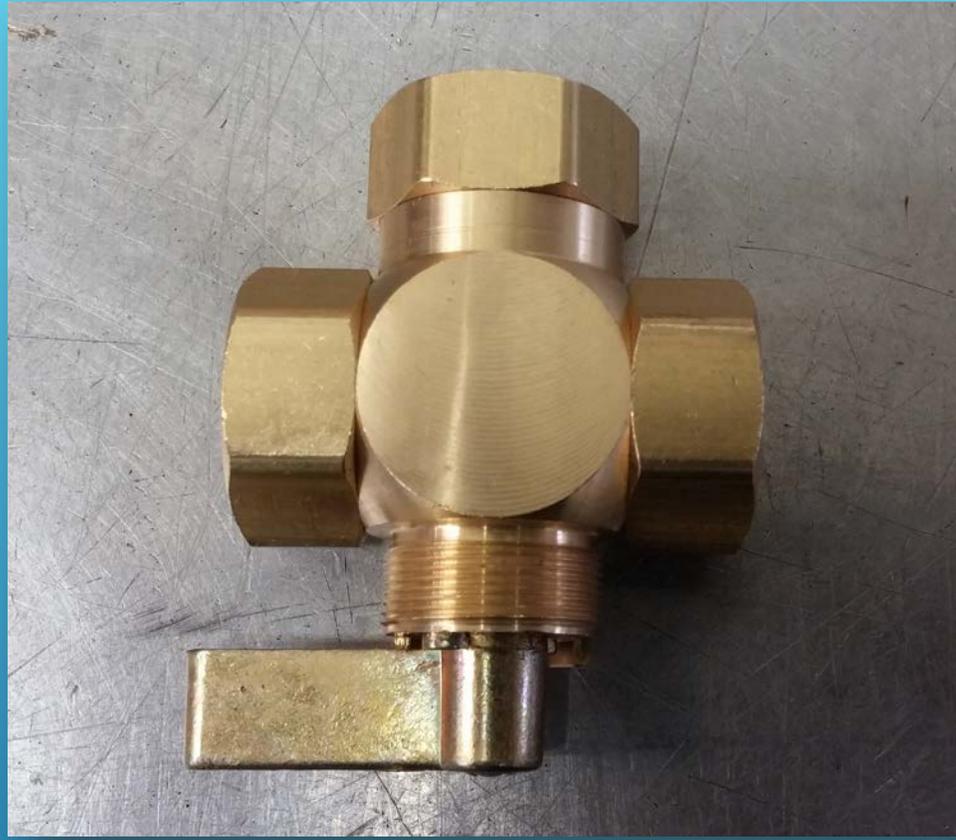
Correct Installation-Follow the Natural Arc of Hose





COMMON FAILURE

Bypass Hose typically fails ahead of fitting located at entrance end to bypass valve. Internal turbulence of water wears away the hose and compromises its integrity until it finally fails.



CHEMICAL SELECTOR VALVE INFORMATION

Valve Assembly-Handle
direction in line with ball
opening



Valve Kit-Handle, O-Ring,
Brass Ring, & Ball-Brass
Ring only fits one way on
ball(recessed side down)



CHEMICAL SELECTOR REBUILD



SECURE THE HANDLE TO THE BALL ASSEMBLY

Once you have confirmed that the handle is facing the correct location, tighten with a screwdriver so it does not come apart. You can gently tap on top of the screwdriver while you tighten it. You may also want to dab a small amount of Loctite 277 on the screw before installing. If the handle is accidentally installed backwards, the operator will apply prewash when switched to soap, soap when switched to prewash and it will not clean properly.



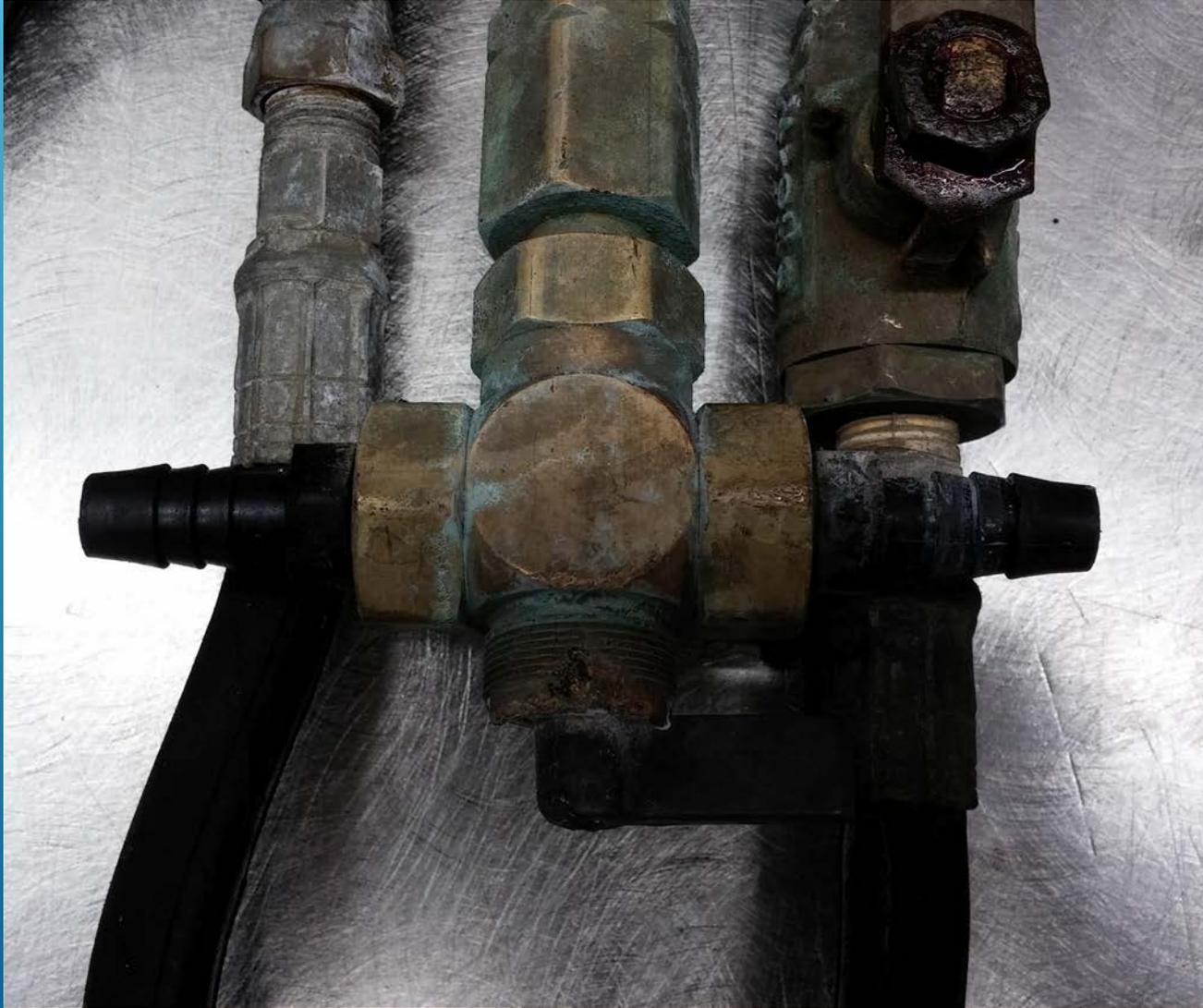
VALVE CAP REBUILD

It is recommended that if you install a valve rebuild kit in the valve that you also consider replacing the Teflon inserts and outer o-rings. The old Teflon caps were molded to the old original ball and may not fit tight against the new ball.



DEBRIS CLOGGING THE PORTS?

If the injector is not drawing the proper dilution, it is possible that the port leading up to the ball of the check valve has debris in it. Dis-assemble the chemical selector valve and bottom half of the check valve and look inside the assembly. You should be able to see down to the valve ball port.



WORN OUT VALVE BODY

As the valve gets used, the body will eventually erode and allow fluids to bypass internally. When all other options have been exhausted and it still doesn't pass inspection, this has probably happened and the valve should be recycled.



CHECK VALVE INFORMATION

CHECK VALVE GUTS



The check valve has been designed to work within guidelines of the Bioclean gun assembly. It is fairly trouble free with a stainless ball and spring to minimize the effects of the concentrated detergents.

Due to its smaller inlet ports, it serves to screen out garbage before it makes it to the injector.



STUCK CHECK BALL

Ball seals on O-Ring and brass ring at inlet of valve

New Valve-Usually a sign of system pressure set too high which forces the ball into the seat. Tapping on the valve with a wrench will dislodge it. I have seen this happen on 5 GPM setups even though pressure is set correctly. This will cure itself after the first couple of uses.

Older Valve-Typically a sign that the valve is wore out and is now in need of replacement.



INJECTOR INFORMATION



OUTLET END VIEW

For the injector to work properly, it must be installed properly. The output(conical) end must be opposite of the trigger.

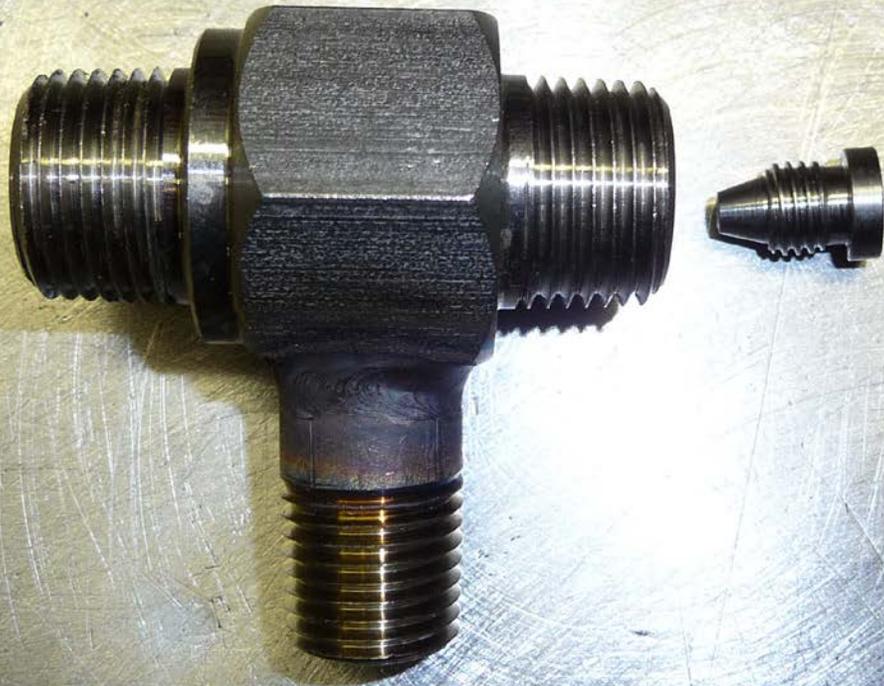


INPUT END VIEW

The input end is the side with the removable nozzle inserted into it and faces the gun trigger. Improper installation will result in the injector not working properly.

NOZZLE INSTALLATION

The nozzle can be removed and installed using an allen(hex) wrench and should be coated with Loctite 277 before installation. This prevents the nozzle from unscrewing on its own and causing the injector to not draw detergent.





NOZZLE INFORMATION

A normal nozzle lifespan is in excess of 12-16 months. Of course, this is dependent on usage levels, water quality, and detergent strengths.

Bioclean recommends (1) nozzle change out before the end of the injector lifespan.

The 5 GPM and 8 GPM nozzles are **NOT** interchangeable. Use the correct nozzle size for the injector rating.



WASH GUN TROUBLESHOOTING

You will need to test the wash gun under flow and pressure. Reconnect to your pressure washing rig if you do not have a test station available.





VISUAL CHECK:

Operate the gun with the rinse valve in the open position and look for obvious problems: leaks, broken parts, blown or leaking bypass hose, leaking rinse valve lever, cracked or broken plastic barbed fittings.



Turn the chemical selector valve to the soap position while pulling the trigger.



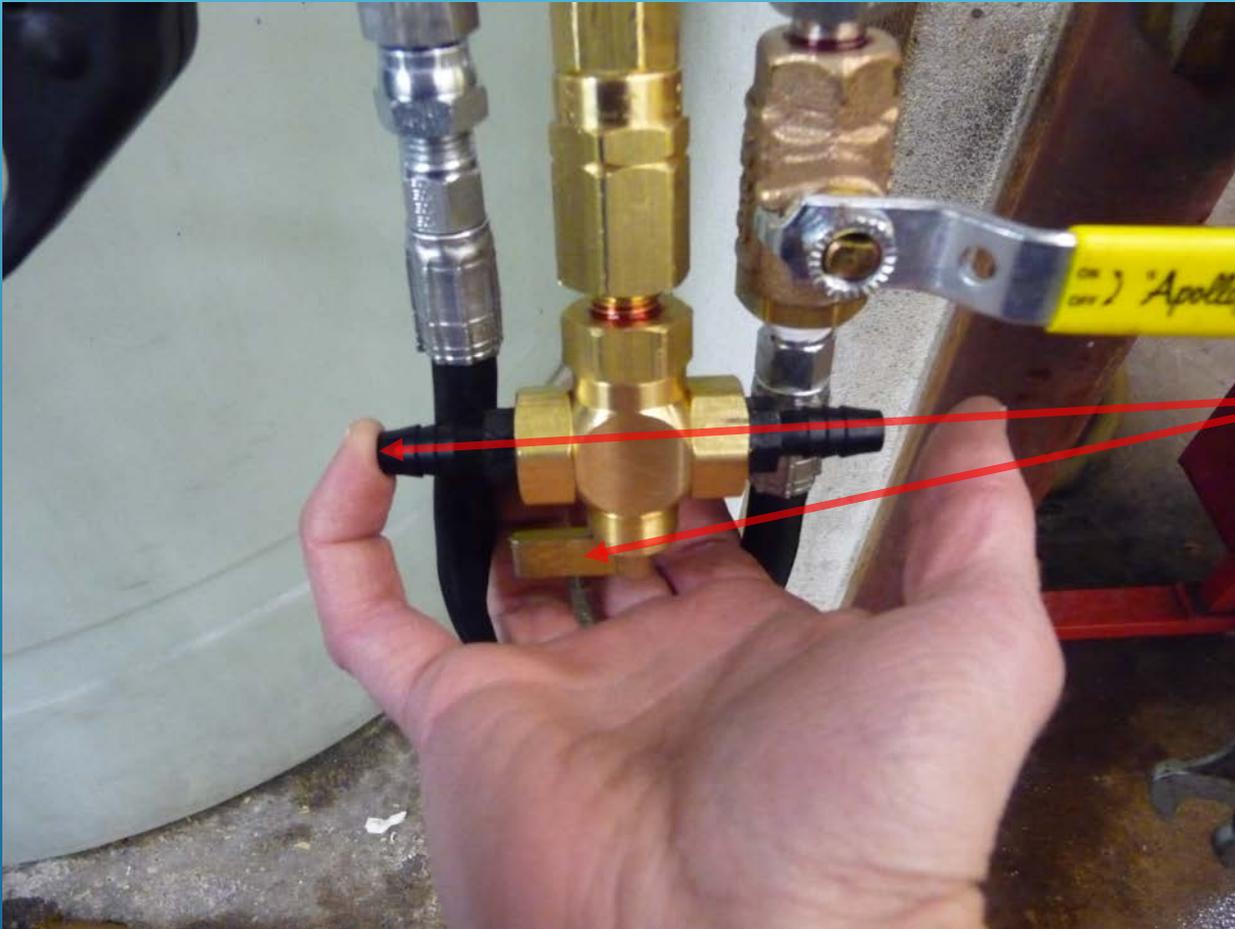
If water sprays out of chemical selector valve while trigger is pulled, your check valve has failed or is sticking.

Disassemble check valve and look for broken spring, lost sealing o-ring, or possible garbage stuck inside check valve.

(reference check valve information)



Close the rinse valve while still actuating the gun.



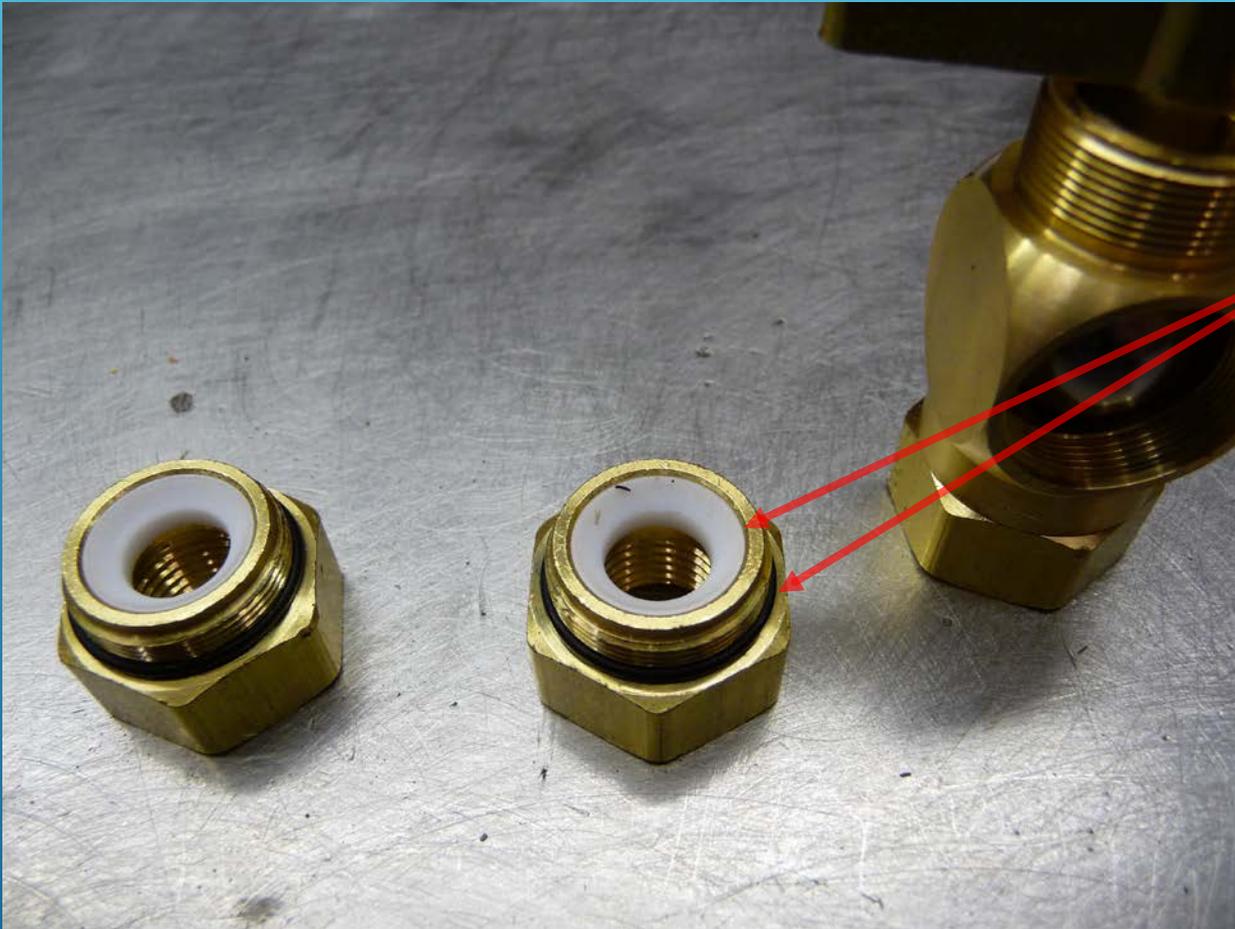
With the other hand switch the chemical selector valve to the prewash selection and cover the barbed fitting on the prewash side, feeling for vacuum.



With that side blocked, use another finger and feel for vacuum on the other barbed fitting.

YOU SHOULD NOT GET A VACUUM ON THE OPPOSITE SIDE OF SELECTED SIDE!

If you do feel a vacuum on both sides, the gun will draw detergent from both sides at the same time, neutralizing the detergents and not cleaning effectively.



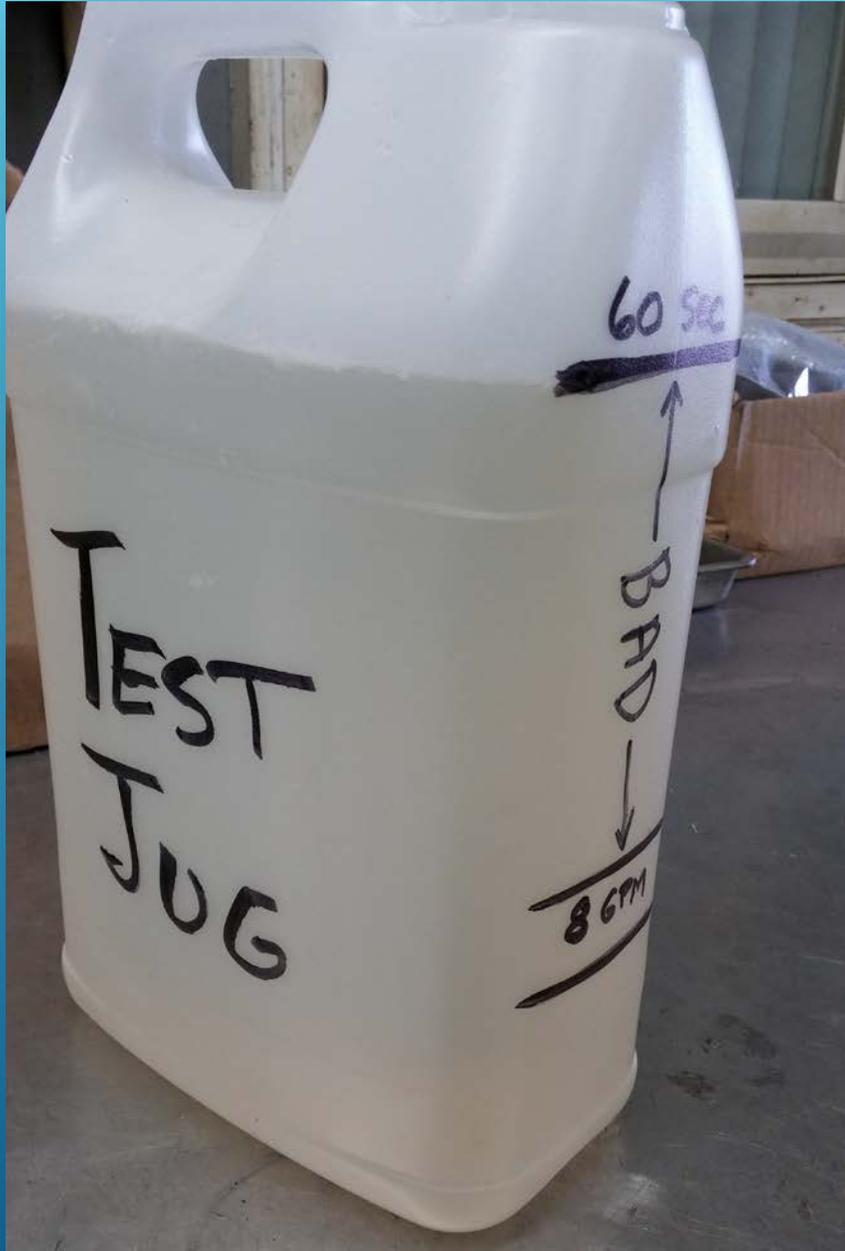
If it has failed, replace the o-rings and white Teflon rings on the caps of the chemical selector valve.

Also inspect the brass ball and lever of the chemical selector valve and replace as needed.

(reference chemical selector valve information)



If this checks out, switch the chemical selector valve to the soap position and repeat these steps.



THE "DRAW" TEST:

Next, fill your test jug to the "FULL" line.

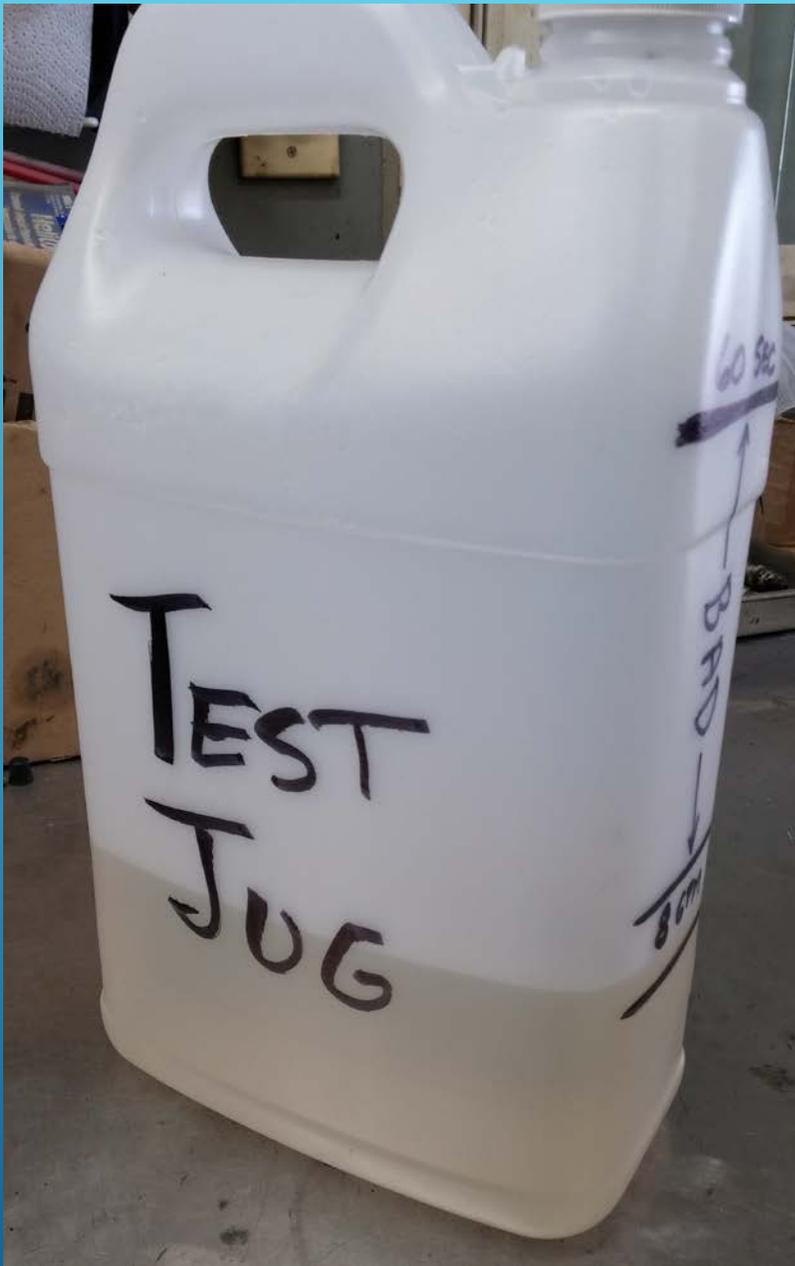


Connect the test jug to the soap side of the chemical selection valve.

Turn the chemical selection valve to the soap position.



FOR EXACTLY 60 SECONDS,
pull the trigger on the gun
while watching the
chemical draw on the test
jug.



After 60 seconds the water line in the test jug should fall within acceptable guidelines.

If it does not draw an acceptable amount, the detergent will be weak in strength and will not clean properly.

DRAW TEST FAILURE:



Rinse Valve Failure-Perform rinse valve test

Injector Failure-Depending on age of injector(less than 10 months), replace injector nozzle. If injector is replaced, the spray tip should be replaced at the same time!

Tip failure-Inspect spray tip for wear or possible plugged or cracked condition. If it is worn, replace.

TRIGGER TEST:

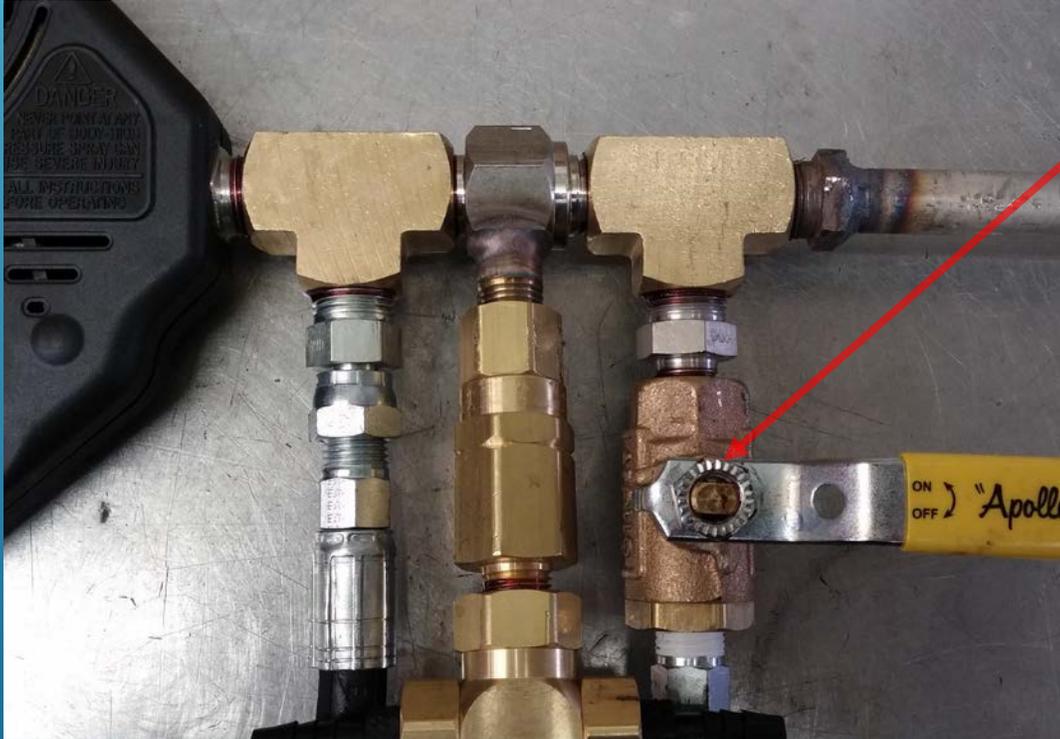


Check to see if water is spraying out of the end of the gun
WITHOUT THE TRIGGER BEING PULLED.

If it is, or if water is leaking out of the trigger plunger itself, either
replace trigger or install a new trigger kit.

**Excessive leakage can cause your water heater to prematurely
ignite by triggering your flow switch. This creates a safety hazard
and can potentially damage your equipment!*

RINSE VALVE LEAK TEST



With trigger pulled, watch for water possibly leaking from behind rinse valve handle. Alternate the valve handle between the “open” and “closed” position. Allow this test to take place in excess of 1 minute. If water is leaking from behind rinse valve handle, tighten stem nut according to instructions found under the rinse valve instructions.

Perform test again to see if that has fixed the leak. Repeat as necessary.

It may become necessary to replace the valve completely.

KEEP A WATCHFUL EYE:



As you are performing these other tests, continue to observe the wash gun to see if it starts leaking in other locations. Sometimes it takes vibration and the hot/cold water running through the gun for a period of time before leaks start to manifest themselves. It is better to catch those leaks while the gun is being tested than when you or your employee is attempting to “beautify the city” through the wash process.

DON'T FORGET THE TIP!



As you perform your tests, don't forget to watch for leaks in the tip area. They can also develop in the "stainless-to-stainless" connections at the end of the wand. We recommend using Teflon tape to fasten these two areas together. This decreases the affect of the stainless connections fusing together and helps with disassembly. Also observe the spray pattern of the tip. If it doesn't spray in a uniform "fan", this might indicate a cracked or plugged tip.

FINAL STEP:



When your wash gun passes inspection, Bioclean recommends swiping the swivel and with anti-seize before returning the gun to service. This will assist in the disassembly of the gun from the hose the next time you need to make repairs.



We are Equipped with the

BIOCLEAN System

TRUCK WASH

Your Environmentally Safe Cleaning Solution

AUTHORIZED OPERATOR

THANK YOU FOR CHOOSING BIOCLEAN!