



AeroBarrier Select Maintenance

Routine Maintenance Schedule

TASK	EVERY SEAL	DAILY	MONTHLY	DURATION
Clean Nozzle Assemblies	✓	✓	✓	30 MINS
Inspect/Clean U-Bracket Assemblies	✓	✓	✓	10 MINS
Charge Sealing Stations	✓	✓	✓	5 MINS
Inspect Sealant Condition	✓	✓	✓	1 MIN
Drain Compressor Air Tanks	✓	✓	✓	2 MINS
Inspect/Clean Compressed Air Manifold	✓	✓	✓	5 MINS
Inspect/Clean Seal Station Tubing	✓	✓	✓	2 MINS
Inspect/Clean Seal Station Connectors	✓	✓	✓	5 MINS
Inspect Seal Station Pump & Rollers		✓	✓	5 MINS
Clean/Inspect Sealant Buildup On Seal Station			✓	2 MINS
LAPTOP: AeroSuite UPLOAD			✓	2 MINS
LAPTOP: AeroSuite UPDATES			✓	2 MINS
Laptop: Windows 10 Updates			✓	20 MINS

GENERAL CLEANING PROCEDURES

Nozzle

Clean after every seal. Flush with warm water. If there are minor sealant deposits, the nozzle assembly can be soaked in Buckeye cleaner, then purged with an air hose and/or the nozzle clean-out tool.

Nozzles that have heavy deposits and/or air flow restrictions should be disassembled for soaking in Buckeye cleaner.

Once the nozzle parts are clean, reassemble the nozzle parts. Make sure the liquid tube is adjusted about 1mm from the front of the nozzle, the nozzle alignment template can help with this process.

Tubing

Clean after every seal. Flush with warm water. Clear lines of water with compressed air after flushing

Connectors & Manifolds

Clean when you observe buildup. Connectors will not require cleaning as long as CLEAN tubing is inserted. Also, be sure to insert tubing all the way into the connector so it is fully seated. Make sure tubing is clean every time you insert it into connectors. This reduces the chance of leakage and air bubbles in the system.



COMPONENTS HANDLING COMPRESSED AIR

Proper maintenance of all components handling compressed air is needed for correct spray atomization at the nozzle thereby avoiding sealant puddling and wet floors. Puddling is the result of improper interaction between the fluid stream and surrounding compressed air supply (air flow and air pressure) at the nozzle. When sealant droplets become too large, they fall from the surrounding air and create puddles on the floor.

The following list provides guidance on what causes, and how to prevent, sealant puddles from forming.

Potential causes of sealant puddling (in order of likelihood)

1. Air leaks at the nozzle assembly (Q-ring, ferrule, push to connect)

- Leaks in the compressed air system (anywhere from compressor to nozzle body) reduce the pressure and air flow from the nozzle tip, where it's needed to create sealant droplets that can be suspended in air. Lower pressure and air flow at the nozzle tip will create larger droplets or even drips that fall out of the surrounding air and create puddles on the floor.
- Applying the Pipetite-Stik to the threads before assembly will help reduce air leaks.
- Critical Areas for a Correctly Functioning Nozzle (pg3) provides more detail surrounding the nozzle.

2. Dirty nozzle bore and tip

- Dirt particles and other build-up in the compressed air gap at the tip of the nozzle (between the nozzle bore and fluid tube) restrict the opening for the compressed air. Restrictions of any type, especially in this area, will also create larger sealant droplets that will puddle on the floor.
- Nozzle Disassembly and Cleaning (pg 9) and Nozzle Reassembly and Inspection (pg16) provide more detail on this issue.

3. Air leaks at the compressed air manifold

- Leaks at the compressed air manifold have the same effect as leaks at the nozzle assembly. Although less common than nozzle leaks, care must be taken to ensure the compressed air generated at the compressor reaches the nozzle tip where it is needed
- Manifold Disassembly and Cleaning (pg 20) covers this component.

4. Air pressure setting at compressor (100 psi recommended)

- Increasing the compressor setting to 100 psi will help ensure the pressure and air flow seen at the nozzle tip is sufficient for proper sealant droplet creation (even if very small leaks are present in the compressed air lines)

5. Fluid tube position in the nozzle

- Correctly positioning the fluid tube within the nozzle tip helps create an ideal direction / path for the air flow to interact with the sealant stream. Using the Nozzle assembly template helps remove the guesswork out of alignment and creates a consistent position every time.
- Critical Areas for a Correctly Functioning Nozzle (pg3) and Nozzle Reassembly and Inspection (pg 16) cover fluid tube alignment needs.



6. Air leaks at any other place

- While the nozzle assembly and compressed air manifold are more common leak points, other fittings and even a cut air hose will cause air leaks. If leaks are suspected, the system can be tested with a spray bottle and soap water.

Cleaning Tools

- Dental Picks
- Fluid Tube Ram Rod
- Buckeye Workout (cleaner)
- Soap water (for leak detection)
- Disposable Shop Towels
- Nitrile Gloves
- (2) Plastic Cups
- Hot (Tap) Water
- Nozzle Alignment Template

Brushes, picks, the fluid tube ram rod, Pipetite-Stik and Assembly Template are included in the Spare Parts Kit and can be ordered from the Aeroseal Store. Buckeye Workout Cleaner is also available at the Aeroseal Store.

CLEANING INSTRUCTIONS

Nozzle Tip

Build-up reduces air flow

- A small amount of sealant build-up on the nozzle is normal and expected during a sealing job.
- This build up is typically on the outside of the nozzle, away from the compressed air flow path
- If sealant or other contaminants get into the gap between the outside of the fluid tube and the inside bore of the nozzle, it WILL restrict airflow and increase the chance of puddling

Fluid tube alignment sets the direction of air flow

- The fluid tube must be positioned so the transition point of the angled tip aligns with the end of the nozzle body
- If the tube sticks out too far, the compressed air will blow away from the sealant stream – this will not break the stream into small droplets and the sealant will puddle
- If the tube is recessed, the compressed air will force sealant back into the nozzle and create blockage. This blockage will build and restrict air flow.
- Using the nozzle alignment template will help ensure that the fluid tube is in the correct position



Ferrule Seal

Leaks steal air pressure and flow from the nozzle tip

- The ferrule seals the rear of the nozzle to the fluid tube
- Damage from over-tightening, edge chips, or other surface damage can cause compressed air leaks (stealing air from the nozzle tip)

Q-Rings

- Q-Rings are used to seal the PTC adapter and nozzle to the nozzle bracket
- The cross section of the Q-Ring has 4 round lobes (making concentric circles). The inner surface creates the majority of the seal.
- Cuts and debris on surfaces will create air leaks
- Overtightening the nozzle to the bracket will squeeze the Q-Ring out of position where the seal cannot be maintained.

Push-to-Connect (PTC)

- The push to connect (PTC) both secures and seals the flexible compressed air tube to the bottom of the nozzle assembly
- There are 2 sealing surfaces on the part – both need to be clean and undamaged to prevent leaks:
 - O-ring on the exterior that seals to the threaded adapter
 - O-ring inside the PTC that seals to the flexible tube
- The PTC also has internal “teeth” that hold the flexible tube in position when its installed. The outer collar must be fully compressed to release the teeth before disassembly
- The flexible tube end condition (last 3/4”) is also critical to creating a seal.
 - The tube surface must be clean and free from scratches
 - The cut end of the tube must be perpendicular to the length and free of any burrs
 - The tube must be fully installed past the teeth and o-ring.



NOZZLE MAINTENANCE

Disassembly and cleaning

1. Remove flexible tubing
 - a. Slide clamps back and remove fluid tubing
 - b. Remove compressed air tubing from PTC
 - c. Remove insert tubes

2. Disassemble nozzle
 - a. Carefully remove the PTC / Threaded adapter from the lower section of the bracket, ensuring that the nozzle body remains stationary during the process.
 - a. Remove the Q-Rings
 - b. Fully remove the seal nut
 - c. Separate the fluid tube, ferrule, and nozzle body

3. Inspect parts
 - a. Inspect for build-up and debris in nozzle ID and inside the body. This must be removed during cleaning.
 - b. Inspect for damage on the Q-Rings. Replace the ring(s) if damaged.

4. Buckeye Workout soak
 - a. 5-minute soak in Buckeye Workout cleaner, Do not dilute (agitate during soak).

5. Scrub
 - a. Clean ALL interior surfaces with small spiral brushes
 - b. Using brushes reduces the chance of leaving debris / lint inside the nozzle components
 - c. Twisting the brush clockwise during insertion into the part can help pull debris to the outside edges where it can be more easily cleaned
 - d. A dental pick is also useful for removing debris from the interior of parts
 - e. Use the ram rod for reaming the ID of the fluid tube
 - f. Wipe the exterior surfaces with shop towels

6. Rinse
 - a. 2-minute rinse in hot water (agitate during soak)

7. Dry Parts
 - a. Blow dry (inside and outside) with filtered compressed air
 - b. If any surface is still tacky or has smeared sealant, repeat the cleaning process with fresh solvent and water rinse

8. Inspect Nozzle Body
 - a. The ID bore at the tip must be bright steel. Any build-up or film can restrict compressed air flow.



- b. The internal cavity must be clean and free of any contamination that can break free and block the compressed air gap from the inside of the nozzle.
 - c. The ferrule mating surface must also be clean and free of contamination
9. Inspect Fluid Tube
- a. Fluid Tube – no debris, sealant build-up / film, or damage. The first 1/2” from the tapered end is critical (mates with the nozzle bore to create the compressed air path)
10. Inspect Ferrule
- a. The surface of the ferrule must be clean and smooth.
 - b. Pitting, ridges, or scratches will cause air leaks
11. Inspect the Push-to-Connect
- a. The center bore must be free of debris
 - b. The release collar must move freely with respect to the body (must fully compress to release the retention teeth)
 - c. After cleaning with brushes and Buckeye Workout, it may still be difficult to determine if the internal parts of the PTC have residue on them. One suggestion is to use a clean piece of 1/4” tubing – install and remove the tubing and feel for any resistance on the tube (sticking to the internal o-ring or dragging on the retention teeth)

Assembly

1. Assemble nozzle
 - a. Loosely assemble the nozzle body, fluid tube, ferrule, and seal nut
 - b. Ensure the tapered end of the ferrule mates with the back of the nozzle body
 - c. Ensure the tapered end of the fluid tube is inserted into the nozzle body

2. Adjust the Fluid Tube Position
 - a. The transition point between the tapered end and the full body diameter of the fluid tube must align with the tip of the nozzle body
 - b. Secure the fluid tube position by tightening the seal nut (finger tight + 1/4 turn MAX)
 - c. Verify the fluid tube remained in position after tightening the seal nut

It might be easier to use the Nozzle alignment tool in your spare parts kit (and is described in the next section).

3. Apply Pipetite to threaded adapter
 - a. Strike upwards on the threads of the adapter making sure to have a light amount of Pipetite covering most of the threads

4. Assemble PTC and Q-Rings



- a. Install the large Q-Ring fully onto the threaded adapter (push flush to the shoulder on the fitting)
 - b. The small Q-Ring on top of the nozzle bracket (push flush to the bracket)
5. Assemble Nozzle Body
- a. Keep the nozzle still and turn the PTC 2 full turns into it. (Turn the PTC, not the nozzle during assembly)
 - b. There is a thin edge at the bottom of the nozzle that can cut the Q-Ring if the nozzle is twisted
 - c. The nozzle assembly may not feel fully “tight” when correctly assembled. It should not rattle on the bracket, but over-compressing the Q-Rings (3rd turn on the inlet elbow) will create leaks and cause issues with droplet formation
 - d. NOTE: if the nozzle direction needs to be adjusted for setup on the job, loosen the PTC slightly prior to turning the nozzle body.
6. Align fluid tube using Nozzle Assembly template
- a. Pull back the fluid tube and align the template with the nozzle body
 - b. Push the fluid tube forward into the template and tighten the back by hand
 - c. The fluid tube should be at the end of the nozzle assembly template with little no gap between the nozzle body and template
 - d. Use the assembly template to tighten it an extra quarter of a turn

Compressed Air Manifold Cleaning

1. Wipe Exterior Surfaces
 - a. Wipe the exterior surfaces of the manifold body, large tubes and fittings, and gauge prior to disassembly (this will help keep contamination out of the internal surfaces)
 - b. Contamination inside of the manifold body may work its way out through the air lines and block nozzles from the inside.
2. Remove PTC from Manifold Body
 - a. Remove all 16 of the PTC fittings (1/4” NPT) from the manifold body
3. Buckeye Workout Soak
 - a. 5-minute soak in Buckeye Workout cleaner, Do not dilute (agitate during soak)
4. Scrub
 - a. Clean ALL interior surfaces with small spiral brushes
 - b. Using brushes reduces the chance of leaving debris / lint inside the nozzle components
 - c. Twisting the brush clockwise during insertion into the part can help pull debris to the outside edges where it can be more easily cleaned
 - d. Do not use dental picks inside the ptc or on the external o-ring seal



- e. Wipe the exterior surfaces with shop towels
5. Rinse
 - a. Rinse for two minutes in hot water (agitate during soak)
 - b. Multiple rinse cycles may be needed
6. Inspect
 - a. Inspect the interior and exterior of the push to connect.
 - b. There should be no damage or contamination on the O-ring seals, retention teeth, or other surfaces that can cause an air leak.
 - c. The retention collar must move freely (able to fully compress and will return to extended position)
7. Reassemble
 - a. Reassemble the PTC fittings into the manifold body.

Note: It is difficult to fully clean PTC fittings – preventing contamination is easier and more effective. Covering the compressed air manifold during a job (plastic bag, pillowcase, etc.) will keep sealant from settling on the components and make clean up and maintenance much easier.

Test for Leaks

1. Leak Testing
 - a. The entire compressed air path can be leak tested using a spray bottle of soap water. Bubbles will form at any leak (threaded fittings, tube ends, push to connects, etc.)