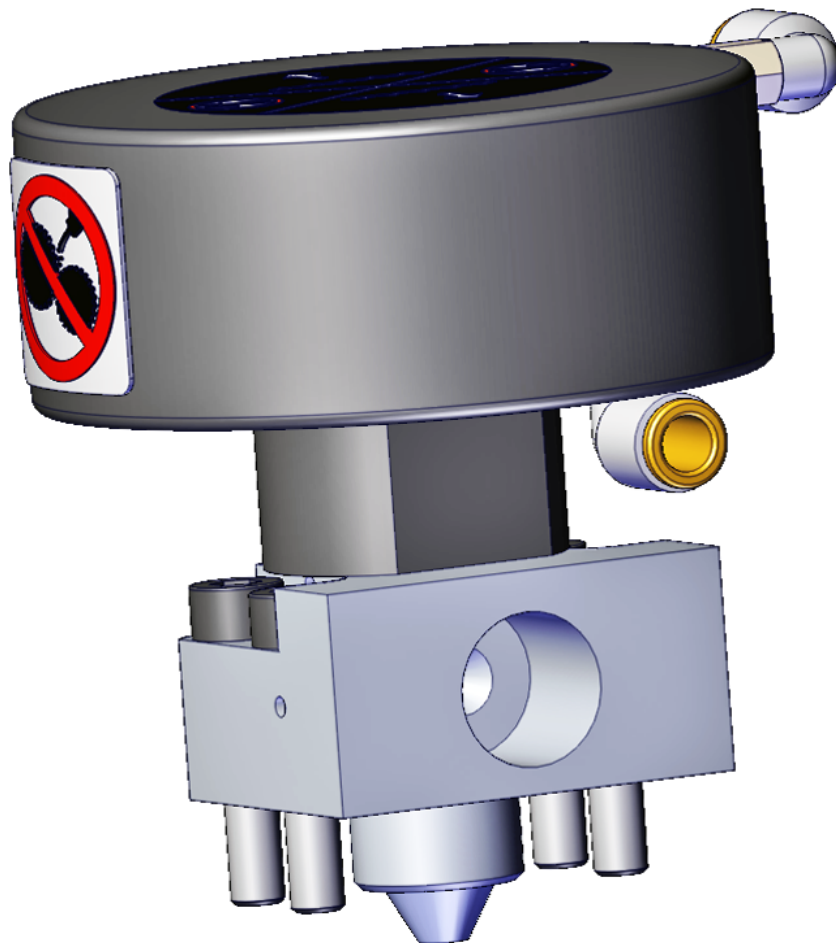


# OMAX<sup>®</sup>

## Rebuilding the Tilt-A-Jet<sup>®</sup> Pull to Open Valve



OMAX Corporation  
21409 72nd Avenue South  
Kent, WA USA 98032

**Information:**

253-872-2300  
1-800-838-0343

**Fax:**  
**Customer Service:**

253-872-6190  
1-800-298-4036

**E-Mail:**

techsupport@omax.com

**Web:**

<http://www.omax.com>

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Original Instructions in English

August 2015

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# Rebuilding the Tilt-A-Jet Pull to Open Valve

This document supports the repair of a faulty Pull to Open Valve installed on the OMAX Tilt-A-Jet accessory. This valve requires repairing whenever water drips from the nozzle with the valve closed, or small amounts of water appear in the abrasive feed tube.

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# Safety

The following safety instructions must be followed when installing, operating or servicing OMAX equipment. If ignored, physical injury or death may follow, or damage may occur to the equipment. Always observe applicable safety precautions when working with this equipment.



**WARNING!**

*Indicates the presence of life-threatening voltages. Never access areas labeled as such without first taking appropriate safety precautions: locking out power, verifying no voltage present on circuits prior to maintenance activities, etc.*



**WARNING!**

*Indicates potential health, physical and environmental hazards which, if not avoided, can result in serious damage to the product or injury or death. Always proceed using extreme caution.*



**MANDATORY ACTION!**

**Lock out power**

*Never do maintenance on your OMAX equipment with the main AC disconnect ON, unlocked, or with the pump in operation. Always follow standard lockout/tagout procedures.*



**MANDATORY ACTION!**

**Read the user's guide**

*Read your equipment's user's guide for specific operator instructions and additional safety requirements.*

## Tools and Materials Required

1/4 in. open end wrench	1 -1/4 in. spanner wrench
1/2 in. box end wrench	5 mm Allen wrench
1/2 in. open end wrench	Vise with soft jaws
5/8 in. open end wrench	Torque wrench
3/4 in. open end wrench	Blue Goop <sup>®</sup>
11/16 in. open end wrench	Lubriplate <sup>®</sup>
1 in. open end wrench	Large snap ring pliers
1 - 1/8 in. open end wrench	Small snap ring pliers

# Tilt-A-Jet Parts

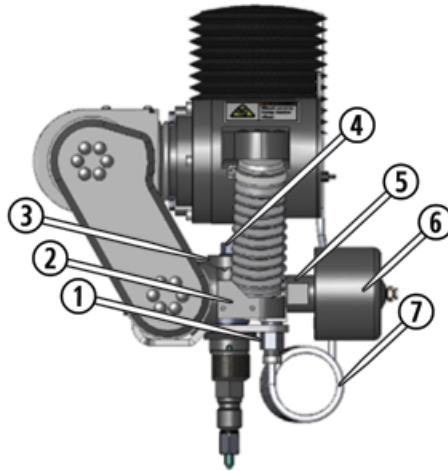


Figure 1

- |              |                |                        |              |
|--------------|----------------|------------------------|--------------|
| ① Gland nut  | ② Tilt plate   | ③ Brass retaining ring | ④ Inlet body |
| ⑤ Valve body | ⑥ Air actuator | ⑦ Coil nipple          |              |

## Removing the Pull to Open Valve

1. Position the **nozzle** at a location that allows easy working access.
2. Ensure the **tank** water level is below the level of the **slats**.



### **WARNING!**

**Always follow proper safety procedures when performing maintenance work on your equipment.**

3. Power **OFF** the **PC controller** and **pump**.
4. Shut **OFF** the equipment's air and water supplies.
5. Power **OFF** the main disconnect following approved lockout/tagout procedures.



### **WARNING!**

**Always bleed off any residual system air pressure prior to working on the Pull To Open Valve.**

6. Place a cardboard sheet ② or similar material under the **nozzle** ① to prevent any dropped tools or components from falling into the **catcher tank**.



Figure 2

7. Remove the **abrasive feed tube** ② from the **nozzle** ①.

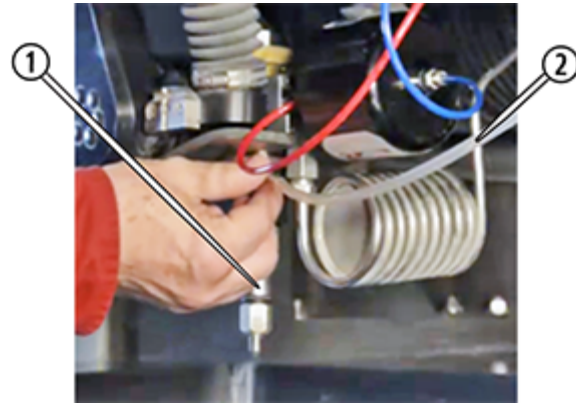


Figure 3

8. Loosen the **mixing tube gland nut** ① using a second wrench on the **nozzle body** ② to counteract torque.

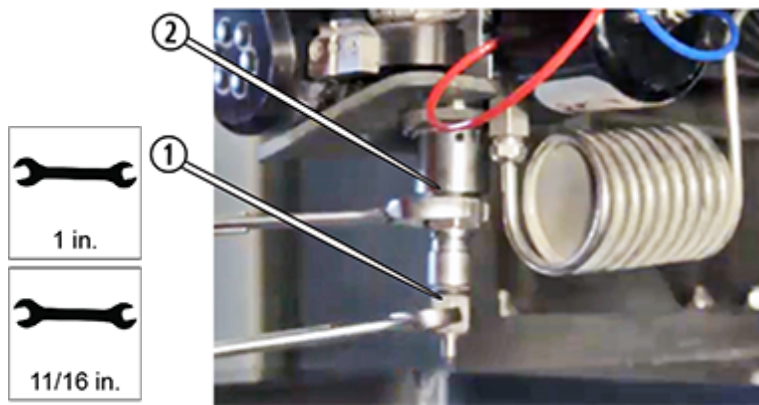


Figure 4

9. Place a wrench on top of the **inlet body** ② to counteract torque, then loosen and remove the **nozzle assembly** ①.

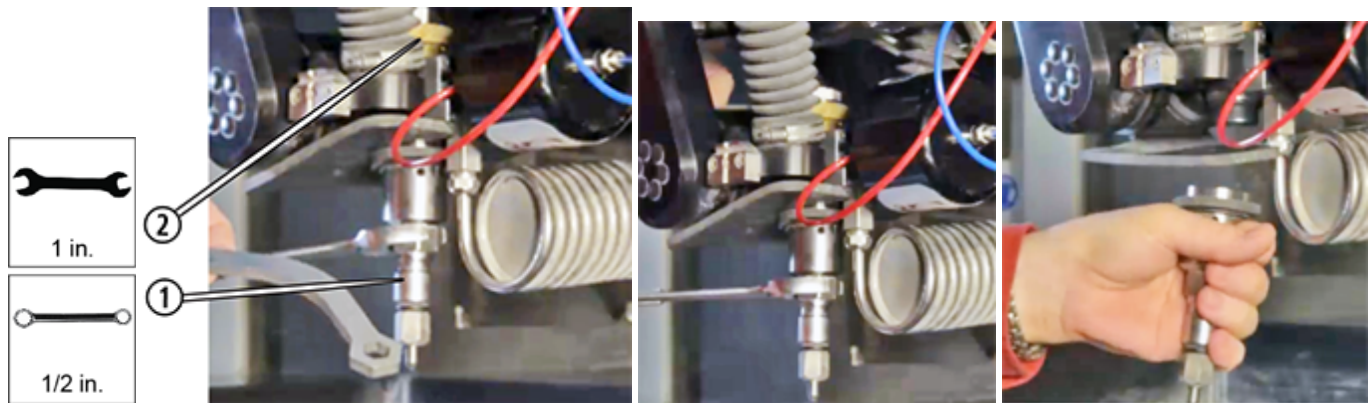


Figure 5

10. Remove the **red and blue air tubes**.

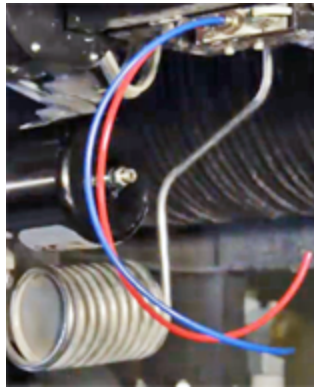


Figure 6

11. Loosen and remove the **air actuator assembly** ① from the **valve body** ②.

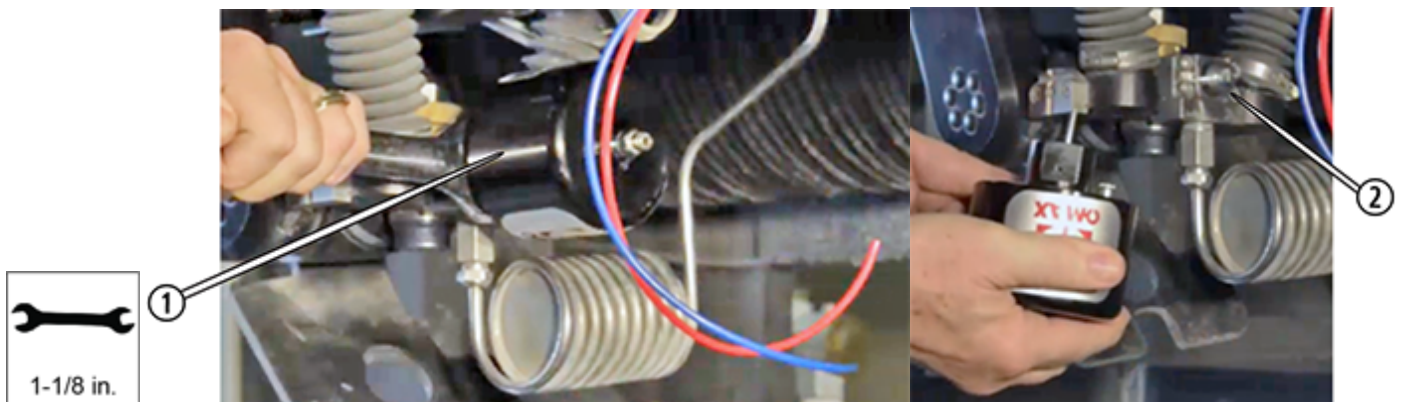


Figure 7

12. Loosen the **retaining screw** ② from the **valve body** ①. Do not remove the **screw** at this time.



Figure 8

13. Remove the **coil nipple** ② from the **valve body** ① using one wrench on the **upper nut** to counteract torque, loosen the smaller, **lower nut** first (do not remove). Remove the larger, **upper nut** and take off the **coil nipple**.

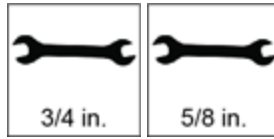


Figure 9

14. Unscrew all four screws from the **valve body** using a crisscross pattern to release pressure evenly.

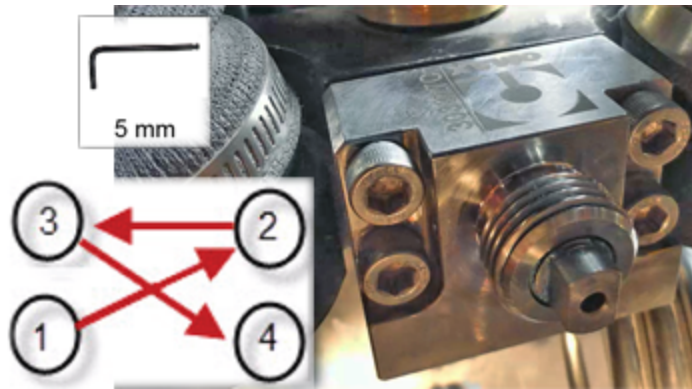


Figure 10

15. Once loose, remove the **valve body** and take it to a clean work area.



**NOTE:**

The on/off valve seat ① is not secure at this time and could easily fall out.

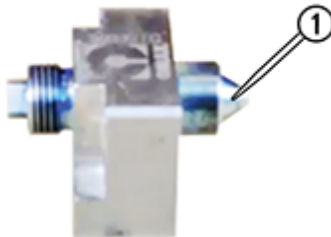


Figure 11

16. Remove the previously loosened **retaining screw** ①.



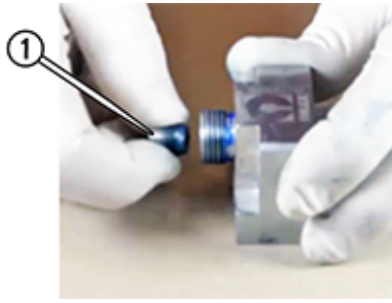


Figure 12

17. Remove the **on/off valve seat** ② from the **valve body** ①.

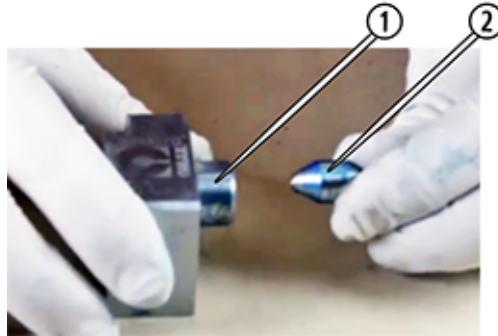


Figure 13



**NOTE:**

*If the seal assembly and backup ring assembly stick in the valve body, use the end of an Allen wrench or a similar long device approximately 3 mm in diameter to push them out of the valve body.*

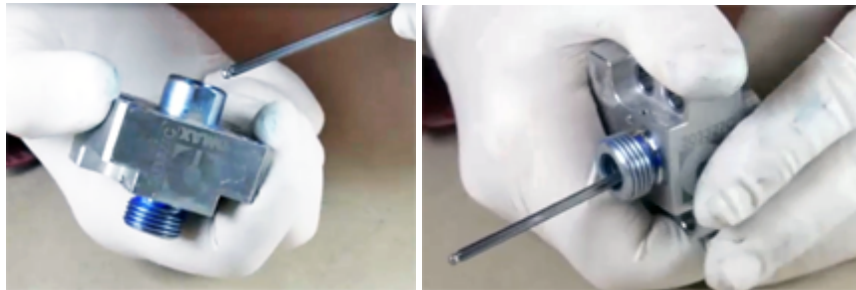


Figure 14

18. Clean the **valve body** ① and inspect it for cracks and other defects.

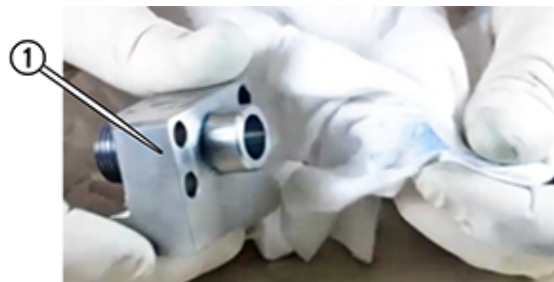


Figure 15



**CAUTION!**

Cracked and damaged parts must always be replaced.

19. Slide the **retaining nut** ① onto the new **stem assembly** ② with the **threads** facing out.

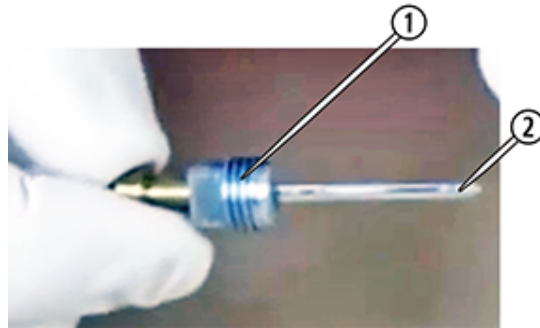


Figure 16

20. Slide on the **backup ring assembly** ① with the **tapered end** facing out.



Figure 17

21. Next, slide on the **seal assembly** ② with the **white end** ① first and the **O-ring** facing out.

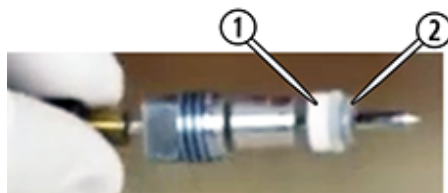


Figure 18

22. Apply a small amount of Lubriplate to the **seal assembly**.



Figure 19

23. Apply a thin coat of Blue Goop to the **threads** of the **retaining nut**.



Figure 20

24. Push the **stem assembly** ① into the **valve body** ② and then screw in the **retaining nut** ③.

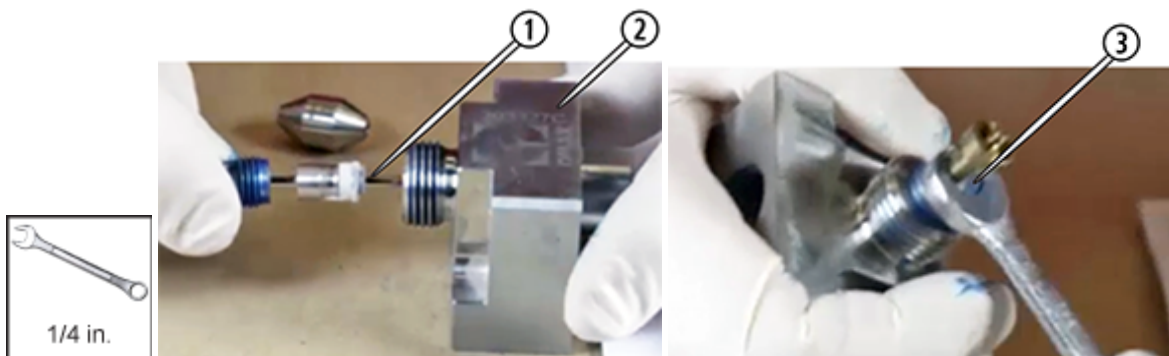


Figure 21

25. Pull the **stem assembly** ① out.

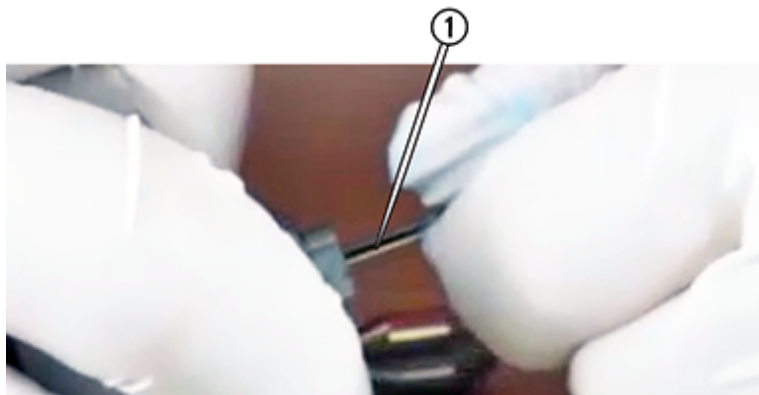


Figure 22

26. Apply a thin coat of Blue Goop to the **tapered surfaces** ① of the **on/off valve seat** and insert it into the other end of the **valve body** ② with the **larger hole** ③ facing outward.

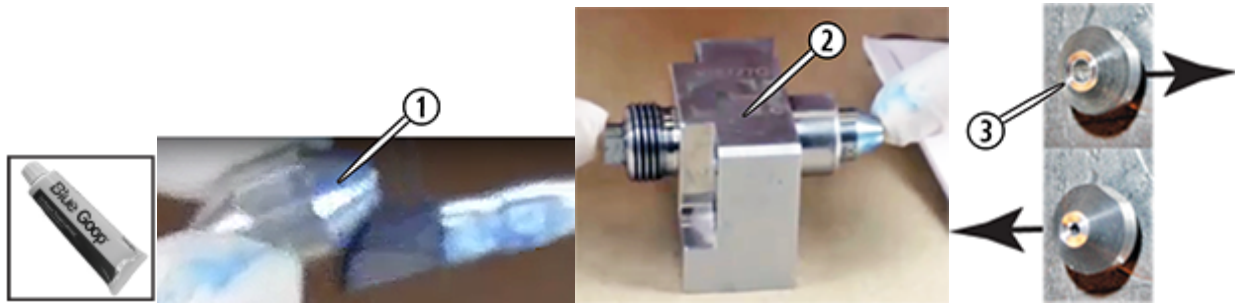


Figure 23

## Assembling the Pull to Open Valve

1. On the **Tilt-A-Jet**, hold the **inlet body** in place with a box end wrench and loosen the **brass retaining nut** ①.

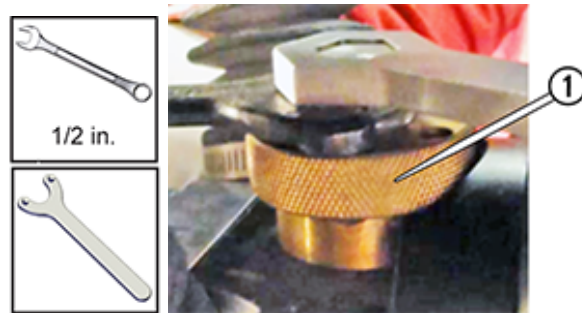


Figure 24

2. Turn the **brass retaining nut** ① to align the **inlet body** ③ so the **hole in the on/off valve seat** ② is centered.

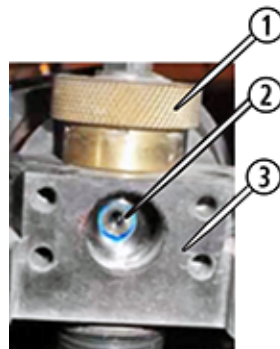


Figure 25

3. Install the assembled **valve body** ① using the four screws that were previously removed. Apply a light amount of Blue Goop onto each screw and insert them into the four screw holes.

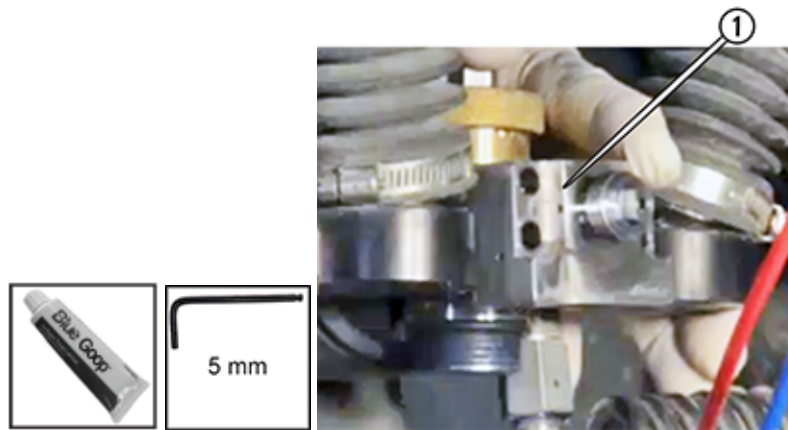


Figure 26

4. Tighten the screws using a crisscross pattern to close the **valve body gap** ① evenly. The gap should be even, top to bottom and side to side.

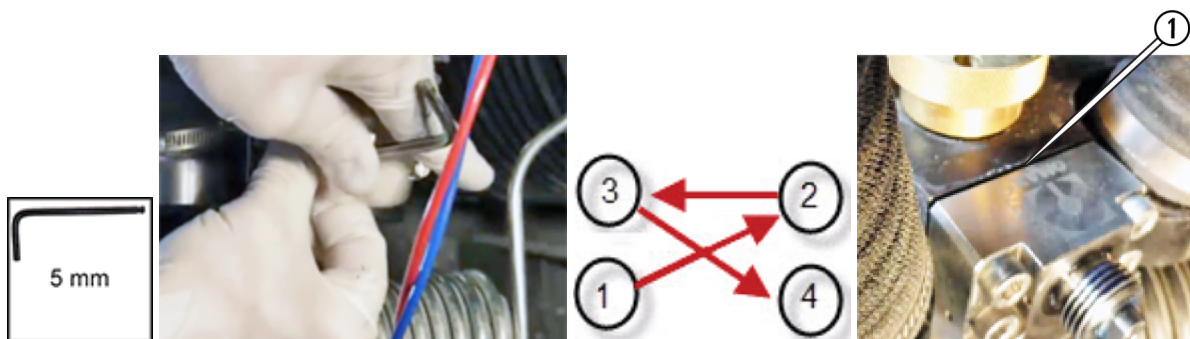


Figure 27

5. Torque each **valve body** screw to 60 in-lb. (6.8 N·m). Do not exceed 100 in-lb. (11.3 N·m).

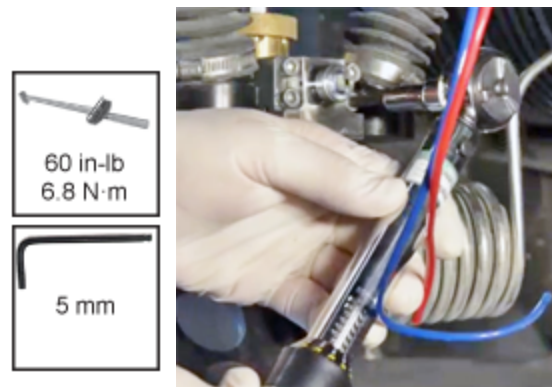


Figure 28

6. Using a wrench on the **inlet body** to provide counter torque, tighten the **brass retaining nut**.

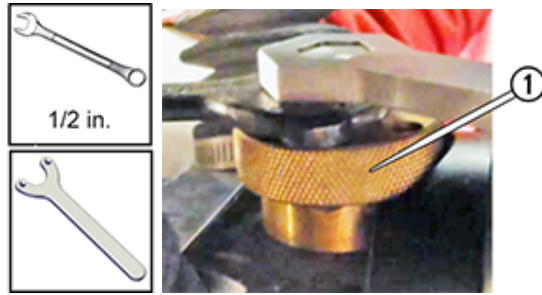


Figure 29

7. Make sure the **retaining screw** on the **valve body** is tight.

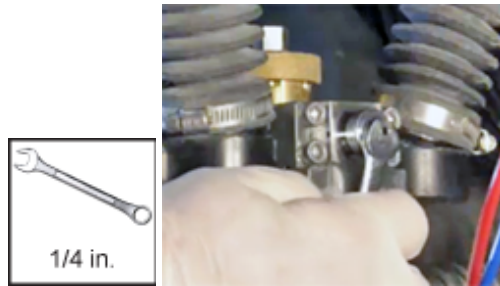


Figure 30

8. Apply a thin coat of Blue Goop to the **threads** of the **coil nipple** ①.

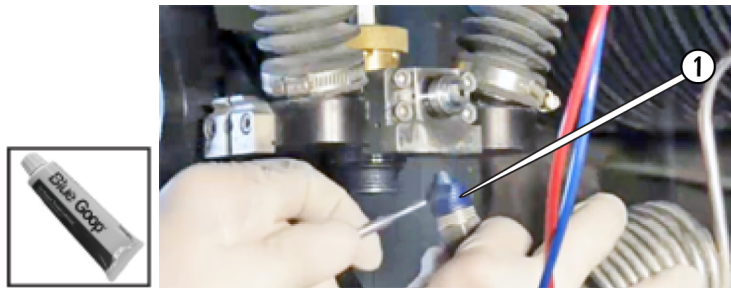


Figure 31

9. Pivot the **coil nipple** approximately 1/2 in. to the left to neutralize the tension and counteract the torque while the **nut** is being tightened.

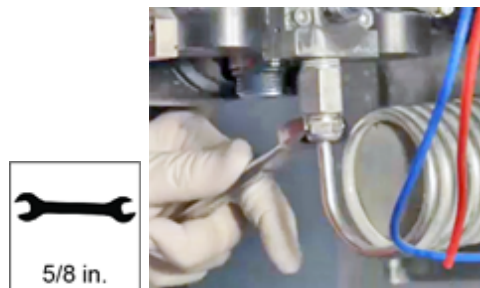


Figure 32

10. Tighten the **nipple** between 50 ft-lb and 75 ft-lb (67.8 N·m and 101.6 N·m) to ensure the seal. Hold the high-pressure **coil** firmly in hand while tightening to bring the **coil** to its running position as the **gland nut** is tightened.



Figure 33

11. Refer to document, *Installation and Maintenance, Air Actuator*, P/N 401060A-EN, for instructions on rebuilding and installing the **air actuator** ① onto the **valve body**.

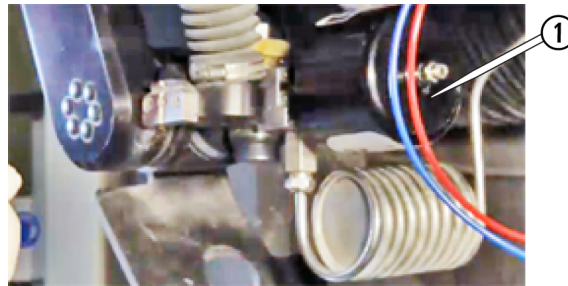


Figure 34

12. Reattach the **red air tube** to the **inside port** of the **air actuator**.

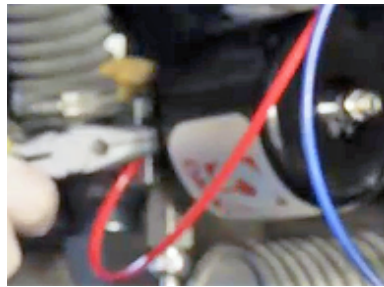


Figure 35

13. Reattach the **blue air tube** to the **outside port** of the **air actuator**.

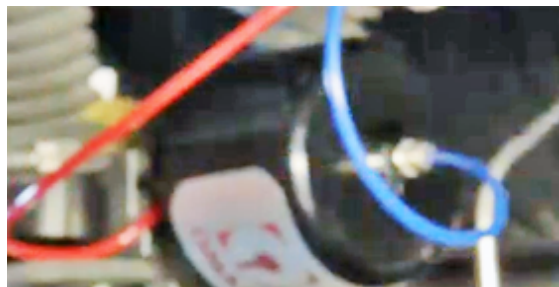


Figure 36

14. Flush the **high-pressure plumbing** prior to installing the **nozzle**.
15. Apply a light coat of Blue Goop to the threads of the **nozzle body** and screw it in the **inlet body**.



Figure 37

16. Using a box end wrench at the top of the **inlet body** to counteract torque, tighten the **nozzle body**.

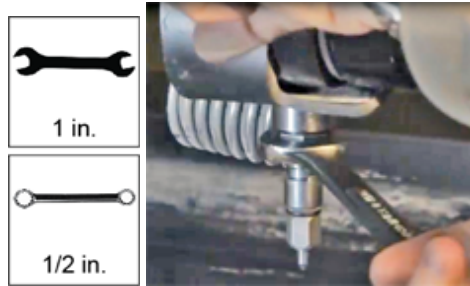


Figure 38

17. Using a second wrench to counteract torque, tighten the **gland nut** holding the **mixing tube**.



Figure 39

18. Use the **nozzle gauge** to ensure the **mixing tube** is inserted correctly.



Figure 40

19. Reattach the **abrasive feed tube** to the **nozzle body**.



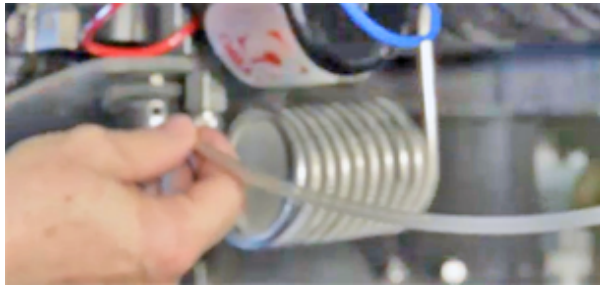
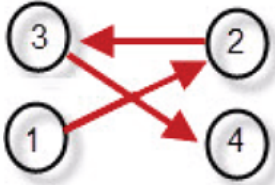


Figure 41

20. Conduct a high-pressure test of the high-pressure system, checking for any signs of leakage.

## Troubleshooting

Problem	Solution
Leak between the valve body and tilting plate.	Tighten the four screws in a crisscross position. 
Limited water pressure	Ensure that the correct end of the valve seat is inserted in the valve body.
Leak at the actuator plunger	Check that the stem, backup ring, and seal are properly aligned and in the correct order.
Leak at the actuator plunger and actuator	Check that the snap rings are within the slot and that the O-rings are correctly lubricated and inserted.
Leak at the brass retaining screw and the inlet body	Tighten the brass retaining nut using the provided spanner wrench.



**NOTE:**

*If a leak persists, call Technical Support.*