OMAX®

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

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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

<table>
<thead>
<tr>
<th>1/4 in. open end wrench</th>
<th>1 - 1/4 in. spanner wrench</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2 in. box end wrench</td>
<td>5 mm Allen wrench</td>
</tr>
<tr>
<td>1/2 in. open end wrench</td>
<td>Vise with soft jaws</td>
</tr>
<tr>
<td>5/8 in. open end wrench</td>
<td>Torque wrench</td>
</tr>
<tr>
<td>3/4 in. open end wrench</td>
<td>Blue Goop®</td>
</tr>
<tr>
<td>11/16 in. open end wrench</td>
<td>Lubiplate®</td>
</tr>
<tr>
<td>1 in. open end wrench</td>
<td>Large snap ring pliers</td>
</tr>
<tr>
<td>1 - 1/8 in. open end wrench</td>
<td>Small snap ring pliers</td>
</tr>
</tbody>
</table>
Tilt-A-Jet Parts

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 or similar material under the nozzle to prevent any dropped tools or components from falling into the catcher tank.

7. Remove the abrasive feed tube from the nozzle.

Figure 1

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

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

10. Remove the red and blue air tubes.
11. Loosen and remove the **air actuator assembly** ① from the **valve body** ②.

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

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

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.

16. Remove the previously loosened **retaining screw** ①.
17. Remove the on/off valve seat ② from the valve body ①.

**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.*

18. Clean the valve body ① and inspect it for cracks and other defects.
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](image16.png)

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

![Figure 17](image17.png)

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

![Figure 18](image18.png)

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

![Figure 19](image19.png)
23. Apply a thin coat of Blue Goop to the **threads** of the **retaining nut**.

![Figure 20](image)

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

![Figure 21](image)

25. Pull the **stem assembly** ① out.

![Figure 22](image)

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.
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.

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.

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

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

6. Using a wrench on the inlet body to provide counter torque, tighten the brass retaining nut.
7. Make sure the retaining screw on the valve body is tight.

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

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.

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.
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.

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

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

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

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

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

19. Reattach the abrasive feed tube to the nozzle body.
20. Conduct a high-pressure test of the high-pressure system, checking for any signs of leakage.

**Troubleshooting**

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

**NOTE:**

*If a leak persists, call Technical Support.*