

Authority22 Cleaning System Upgrade Program Replacement Instructions

14-860228-115/230 / 14-860227-000 /14-100126-000

Tools Required:

- SAE Allen Wrench Set
- SAE Combination Wrenches 5/16 to 3/8"
- Ratchet - 1/4" or 3/8" Drive
- Sockets - 1/4" or 3/8" Drive
- Clean Dry Container
- Clean Dry Cloths
- Wire Cutters

Warning !

Do not attempt to do this procedure on the approach area. If replacement is going to be done on the lane surface, run a clean only program with the Authority22.

After the lane has been cleaned, push the Authority22 onto the lane at least 2 feet from the foul line before beginning the procedure.



Description of Program Package

- There have been many reports of the Flojet cleaner and conditioner pumps leaking, primarily from the internal diaphragm of the pump.
- We are pleased to announce product improvements to the cleaning and conditioning system for the Authority22 lane machine. Brunswick will provide all current Authority22 customers with an upgrade package. This package will include a new pump with better quality fittings and tubing, along with updated software and firmware. This package will also contain a denser black squeegee blade for improved cleaning performance.
- Brunswick has thoroughly tested the new cleaner pump and it has proven to be more reliable and resistant to leaking than the Flojet pump. In addition to the replacement of the pump, the design team has also identified performance improvements by using polyurethane tubing with an increased 3/8" diameter for the pump inlet. The clear polyurethane tubing is more flexible and resists scuffing when inserted into the fitting for a better seal. New Prestolok Plus style fittings will be provided with an improved tube retention design and pre-applied thread sealant. **View next slide for upgrade packaging.**

Note:

This Upgrade Package will not need to be installed on machines SN# 820 and above. Authority22 machines #820 and above will have all upgrades already installed from the manufacturer.

Packaging

14-860228-115 /230

Cleaning Pump

14-860227-000 Service Upgrade Kit for Cleaning System

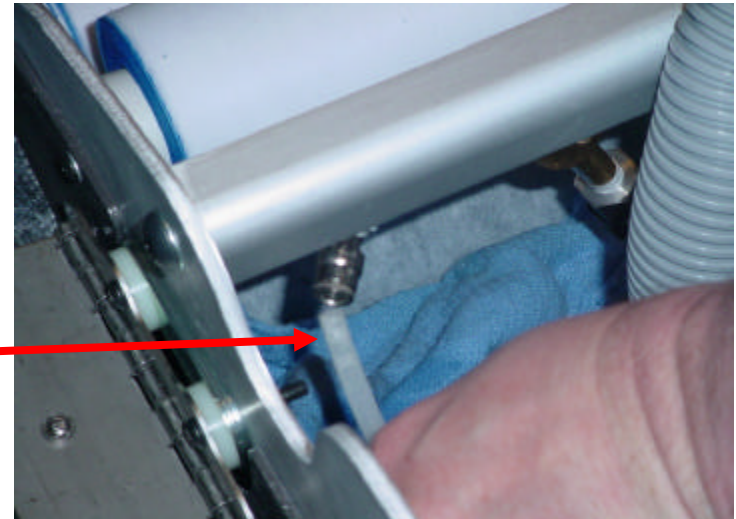
1 ea	11-655026-000	Fitting – 1/4” Tube, 1/4 NPT, 90 Swivel
1 ea	11-655028-000	Fitting – 1/4” Tube, 3/8 NPT, 90 Swivel
2 ea	11-655041-000	Fitting - 3/8” Tube, 1/4 NPT, 90 Swivel
2 ea	11-655048-000	Fitting - 3/8” Tube, 1/4 NPT, Straight
1 ea	11-655043-004	Tube – 3/8” OD Polyurethane, 27” LG
1 ea	11-655043-007	Tube – 3/8” OD Polyurethane, 6” LG
1 ea	11-655043-010	Tube – 3/8” OD Polyurethane, 3” LG
1 ea	11-655013-016	Tube – 1/4” OD Polyurethane, 50” LG

14-100126-000

Black Squeegee

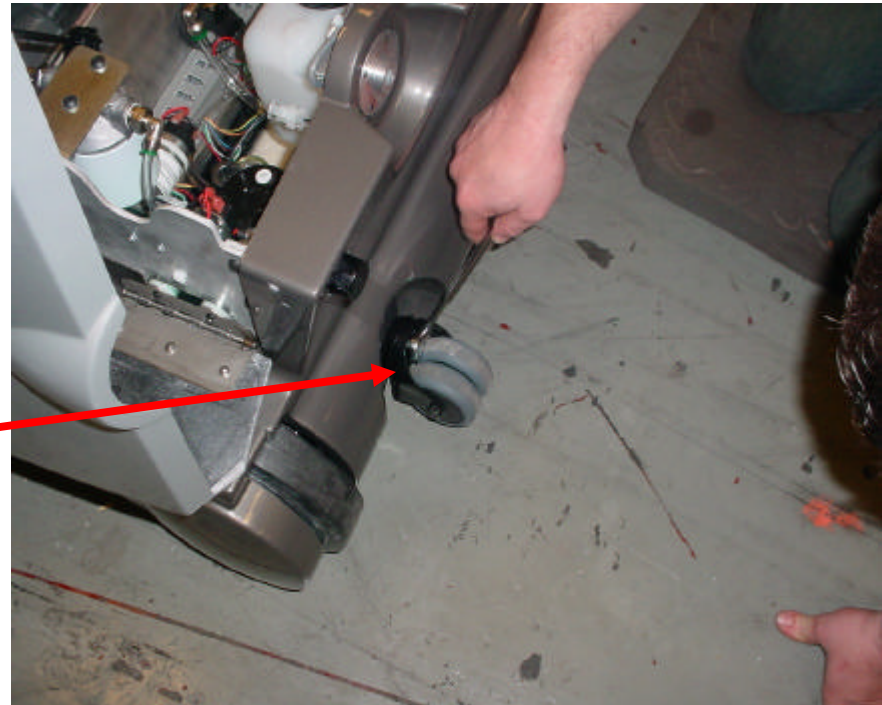
Draining Cleaner Solution

1. Disconnect Power to the Authority22, toggle the red power switch on the side of the Electrical Control Enclosure to the off position and unplug the power cord.
2. Place a clean dry cloth under the fitting on the 7 pin side of the cleaner rail.
3. Disconnect the cleaner supply line at the cleaner rail fitting.
4. Using the drain tube and 90 degree union elbow that was provided in your spare parts kit, attach union elbow and tubing to the supply line and route the tubing into a clean dry container.
5. Reapply power to the Authority22 by plugging in the power cord and toggle the red power switch back to the on position.
6. Using the Graphical User interface, navigate to "Maintenance" / "Diagnostics" / "Cleaning". Select "Cleaner Pump" and push "OK". Run cleaner pump until all cleaner has been removed from the Cleaner Supply Tank.



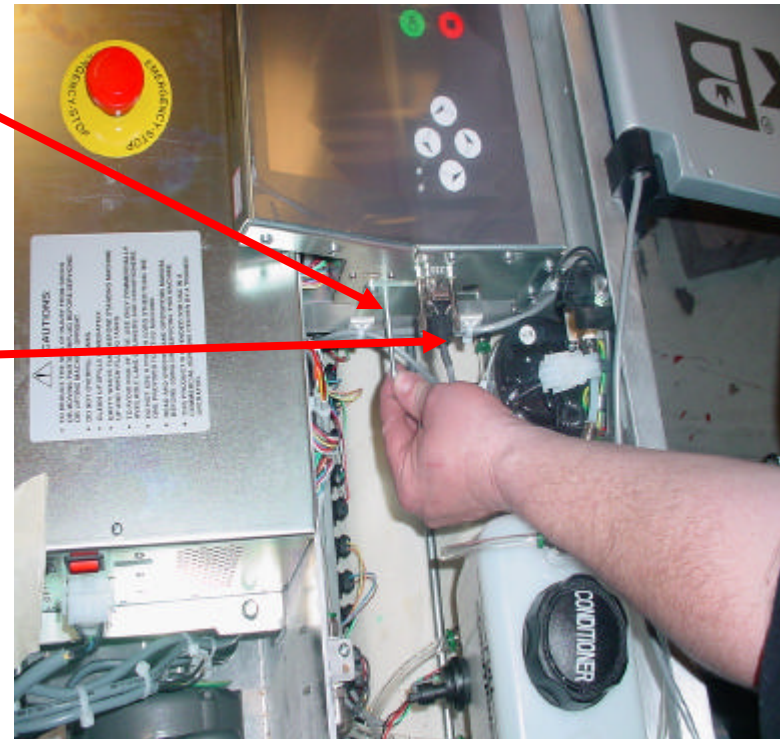
Removing Rear Cover

7. Disconnect Power to the Authority22, toggle the red power switch on the side of the Electrical Control Enclosure to the off position and unplug the power cord.
8. Using a 3/4" combination end wrench, remove the 4 transport casters located at the rear of the machine. The rear cover can now be taken off.



Removing the GUI

9. Remove the Graphical User Interface retaining pin.
10. Remove the Graphical User Interface by raising the display end a few inches up, and unplugging the power and handle keypad connectors from under the LCD display screen. Remove the communication cable on the left hand side of the Graphical User Interface by unscrewing the two thumb screws.



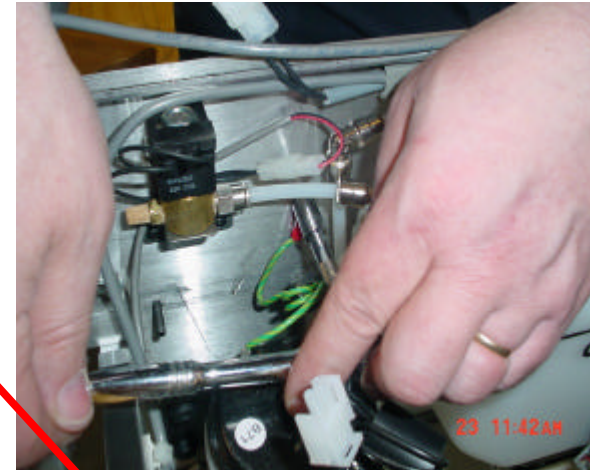
Removing the Cleaner Pump

11. Make sure there is no power to the lane machine. **If the new Brunswick Cleaner Pump is already installed, proceed to step 17 on the next page.**
12. Disconnect the power connector to the cleaner pump. Remove the ground wire screw that connects wire from the pump to the frame.
13. Using a 1/8" Allen wrench loosen the 4 pump mounting screws at the rear frame of the lane machine while holding the nuts in place with a 3/8" socket, short extension and ratchet.
14. Remove pump along with 1/4" tubing that routes to the cleaner rail fitting from the outlet of the pump. Remove the 1/4" supply line to the inlet of the cleaner pump that is routed from the Cleaner Bowl Strainer Filter.

Note:

Use a towel at the end of the 1/4" tubing to absorb the cleaner that may not have been drained in the line while removing the hose.

15. Reinstall the new cleaner pump and install the washers, nuts, mounting screws and tighten until the rubber grommet on the pump frame just starts to depress. Make sure there are at least 2 to 3 threads visible beyond the locknut.
16. Reconnect the ground wire to the frame and the power connector from the pump.



Removing the Cleaner Pump - continued

17. The pump in the upgrade kit will have a yellow rubber insert installed in the inlet to prevent the pump from leaking during shipment. When replacing the original Flojet pump, you must remove this insert to install the new 3" long, 3/8" OD tube, part # 11-655043-010, provided in the kit.

For customers with machine SN# 750 and below that have already converted to the new Brunswick pump, you will need to remove the 3/8" to 1/4" 90 Elbow that was needed for the original 1/4" tube. This will allow the 3" length, 3/8" OD tube, provided in the kit, part #11-655043-010, to be installed directly into the inlet at the cleaner pump.



Removing the Cleaner Tank

18. Unplug the Cleaner Float Sensor connector from the side of the Cleaner Supply Tank.

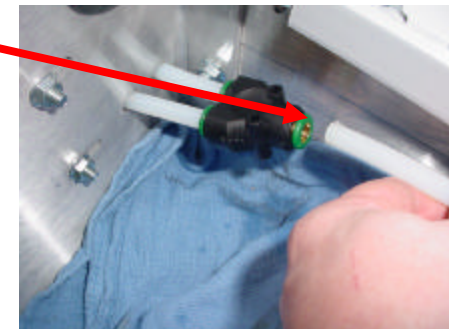
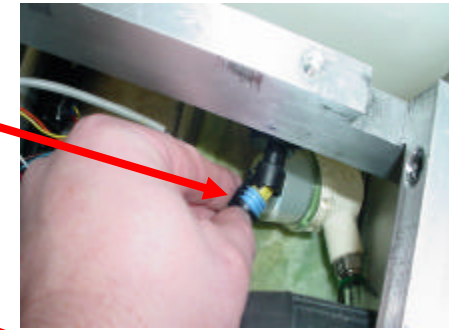
19. Using a 3/8" socket and ratchet, remove the 2 screws that attach the upper Tank Holding Plate to the rear frame of the lane machine and remove the plate.

Note:

It may be easier to remove the Cleaner Cap when removing the Tank Holding Plate. Install Cleaner Cap after removing Tank Holding Plate.

20. Disconnect the return line tubing at the Y fitting that routes to the Cleaner Supply Tank. Disconnect the 1/4" tubing supply from the Cleaner Bowl Strainer to the inlet of the Cleaner Pump. This should have already been removed in step 14. If not, disconnect the tube at this time.

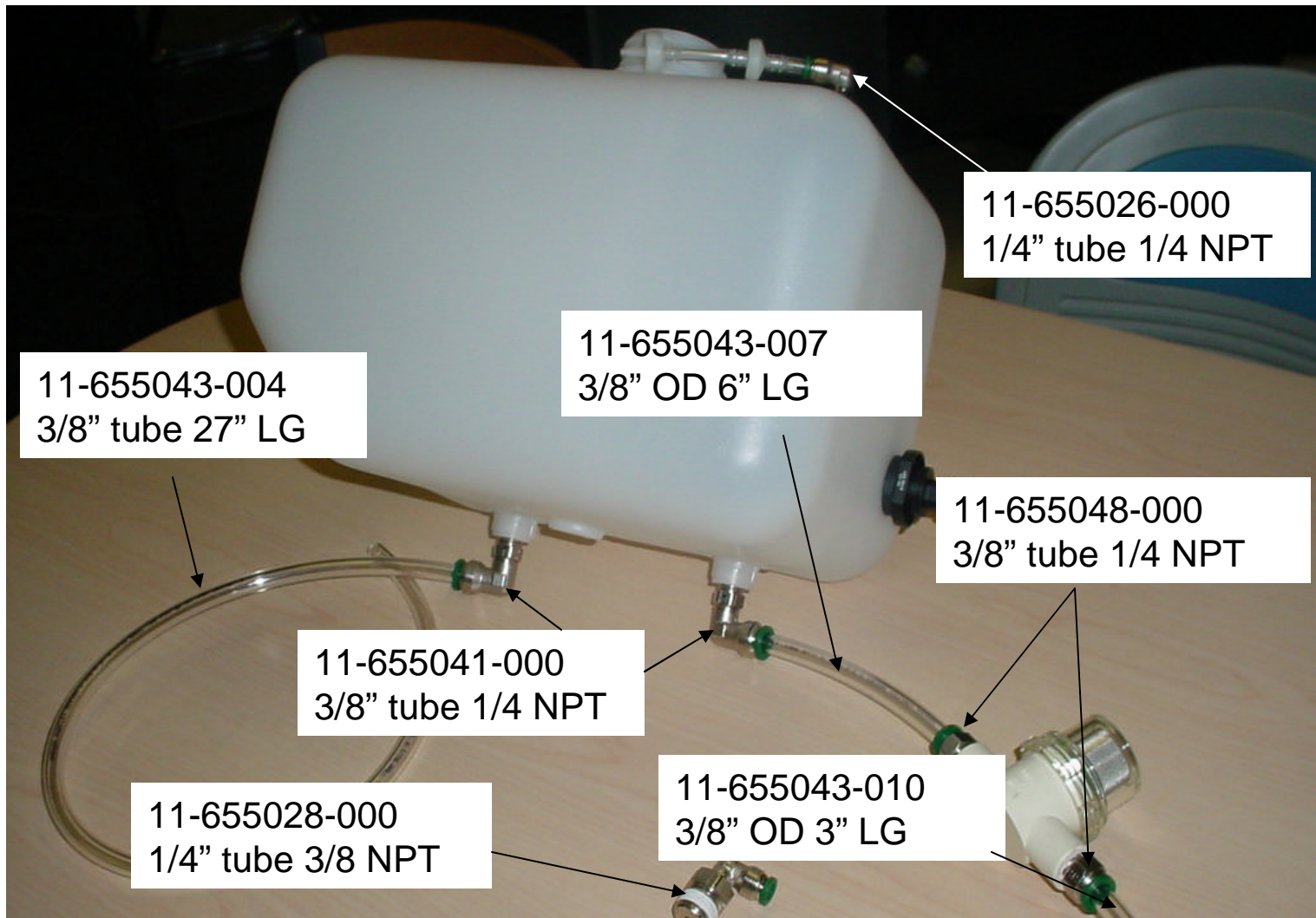
21. Remove cleaner tank along with fittings, tubing and bowl strainer.



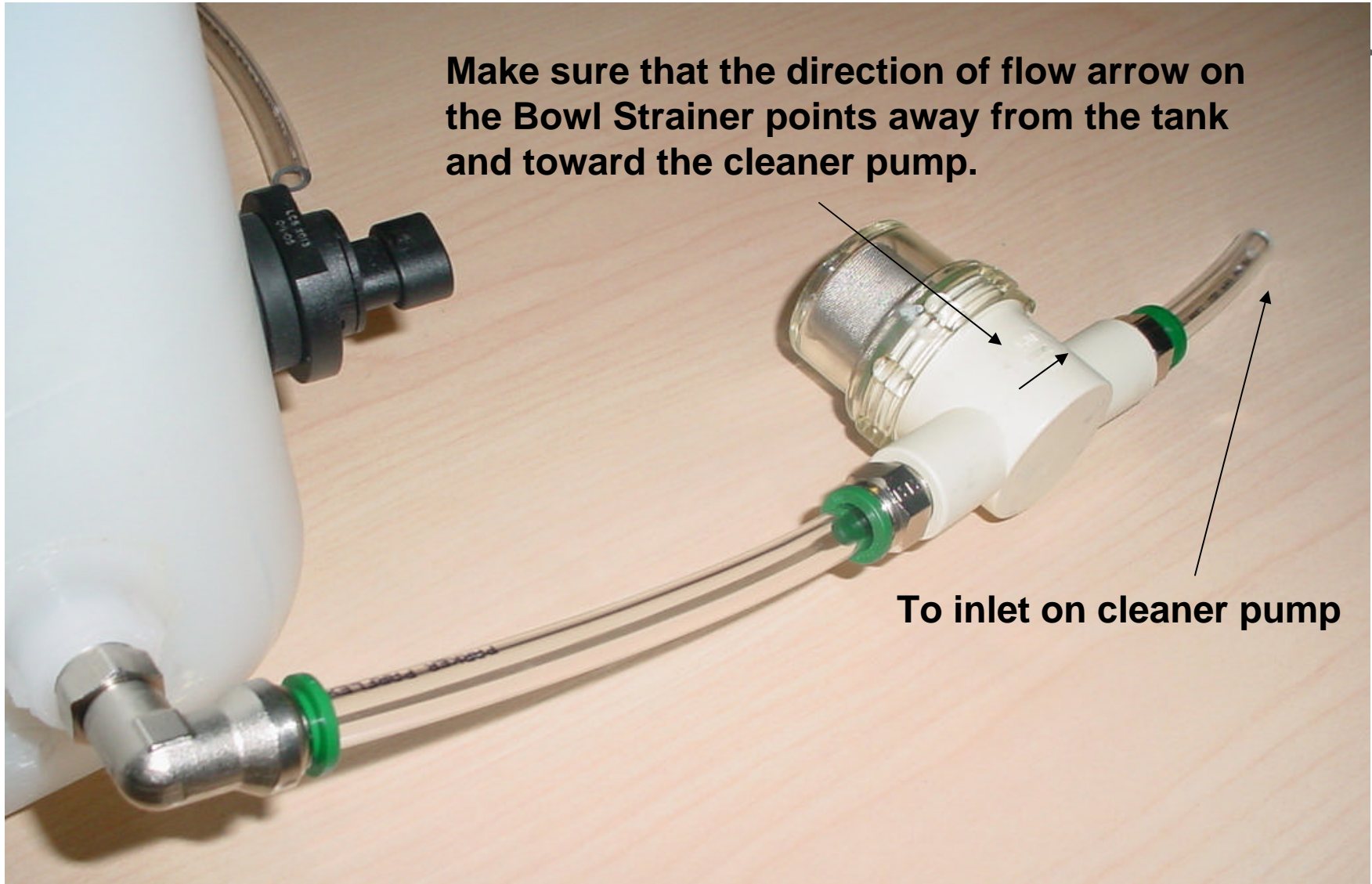
Replacing Tubing and Fittings

22. Remove all fittings from tank, clean the threads in the cleaner tank with alcohol, and make sure the threads are clean and dry before installing the new fittings into the tank.
23. Remove the fittings from the Cleaner Bowl Strainer. Clean the threads with a dry cloth. **Do not use alcohol on the threads of the Cleaner Bowl Strainer.**
24. Insert all new fittings until they are hand tight and turn 2 additional turns with the proper size wrench. Insert the 3/8" tubing lengths as shown on the next page.
25. Use the 50" long, 1/4" OD tube, part # 11-655013-016, and route it from the outlet on the cleaner pump to the replacement fitting, part number #11-665028-000, on the cleaner rail.
26. **Refer to the Next Page for tubing and fitting locations on tank and Cleaner Bowl Strainer.**

Tubing and Fitting Connections to Tank



Make sure that the direction of flow arrow on the Bowl Strainer points away from the tank and toward the cleaner pump.



To inlet on cleaner pump

Replacing the Cleaner Tank

27. Install the Cleaner Supply Tank with the new fittings and tubing back into the lower mounting plate.
28. Insert the 3/8", 3" long tube, part # 11-655043-010, into the inlet at the cleaner pump.
29. Insert the 3/8", 27" long tube, part # 11-655043-004, from the cleaner tank into the Y fitting that routes back to the Cleaner Pressure Control Valves.
30. Reinstall the top mounting plate and secure with the two original mounting screws that were previously removed.

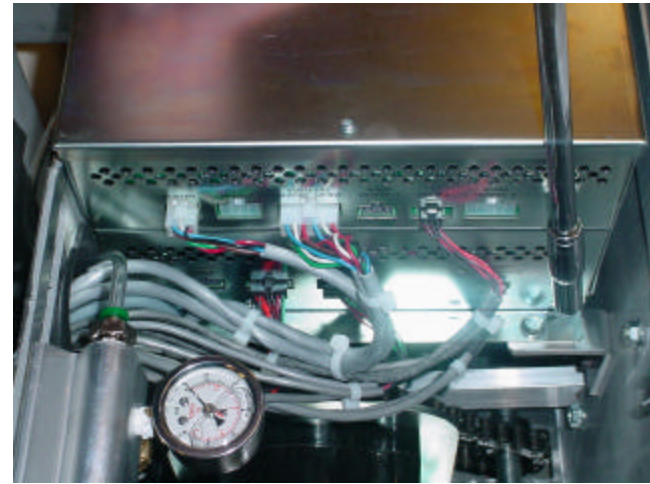


Reversing the Squeegee Motor Direction

Note:

The rotation of the Squeegee Lift Motor should be reversed when installing the stiffer black squeegee blade to assure that it will hold in the full down position when pushed onto the front of the lane. The geometry of the squeegee lift linkage and the stopping position on the cam lobes are optimized when the squeegee lift motor lead wire terminals are reversed in the connector body as detailed below.

1. Remove the Electrical Control Enclosure by disconnecting all connectors at both sides of the enclosure and the injector cables at the rear.
2. Remove the 4 screws that mount the enclosure to the frame of the machine. Locate and unplug the cable connector with the black and red leads that is routed to the Squeegee Motor.
3. Using a Molex Round Extractor, push the terminal out of the connector and switch the black and red leads.



Replacing the Black Squeegee Blade

Tools needed:

11/32" Wrench, 1/2" Wrench, 3/16" Allen Wrench

Parts needed:

New Squeegee Blade (Part Number 14-100126-000)

1. Toggle squeegee head assembly to the down position through diagnostics.
2. Place the machine in transport position with the power supply disconnected.
3. Remove squeegee head assembly from machine by taking out the 2 squeegee head attachment bolts using 1/2" wrench and 3/16" allen wrench and place on work bench.
4. Remove all 11 nuts on underside of squeegee head assembly using 11/32" ratchet or wrench.
5. Remove clamp strap.
6. Remove old squeegee blade.
7. Replace the old squeegee blade with new black blade.

Note:

The squeegee blade is 2-sided. After one side has reached the end of its useful life, rotate the blade to place the opposite edge in use. Expected life is 6 months for a 40 lane bowling center. However, squeegee wear is dependant on the lane surface.

Replacing the Black Squeegee Blade - continued

8. Align studs to holes in squeegee blade.
9. Replace clamp strap.
10. Pull squeegee blade down so 5/8" of the blade extends beyond the squeegee head casting.
11. Tighten all 11 nuts to clamp the squeegee blade snugly against the head assembly.

Note:

The top of the clamp strap can be used as an initial guide to straighten the squeegee blade.

12. Place squeegee head assembly on a flat surface and put slight pressure on the squeegee blade.
13. Push the squeegee blade down so it becomes flat along the surface the assembly is sitting on. Loosen some of the nuts slightly if necessary to reposition sections of the squeegee blade.
14. Tighten all 11 nuts 1/2 turn past snug.

Note:

Do not over-tighten nuts. Doing so may distort the leading edge of the squeegee blade.

15. Replace squeegee head assembly back into machine with the 2 squeegee head attachment bolts using 1/2" wrench and 3/16" allen wrench.
16. Verify the height and pitch of the squeegee head assembly on an actual lane as follows:

Replacing the Black Squeegee Blade - continued

Tools needed:

10" #2 Phillips screwdriver (part number 11-112133-000, included with spare parts package)

17. Lower the lane machine into the operator position.
18. Open the top covers and remove the cleaner waste recovery tank.
19. Place the machine on the lane surface and visually check the squeegee blade for even deflection away from the vacuum head.
20. Loosen, but do not remove the 4 flat head bolts on the front frame division wall of the machine.
21. Using the 10" Phillips screwdriver on the squeegee height plate adjusting screw, raise (turn counter-clockwise) or lower (turn clockwise) the adjusting plate so the front edge of the blade contacts the lane surface at about a 45 degree angle.
 - If it's too high, the bottom of the squeegee blade will just contact the lane surface with very little deflection.
 - If it's too low, the front face of the squeegee blade will contact the lane surface with too much deflection (~90 degree angle).
22. Tighten the 4 flat head bolts.

Replacing the Black Squeegee Blade - continued

23. If the squeegee blade deflection is not even between the center and the edges of the lane, adjust the squeegee blade pitch as follows:

Tools needed:

3/8" open-end wrench, 7/16" open-end wrench.

24. Loosen, but do not remove the two mounting bolts for each of the squeegee adjustment guide blocks on the 7 and 10-pin sides.
25. Adjust the guides:
- Moving the guides towards the front of the machine forces more pressure on the center of the squeegee blade (for lane depressions).
 - Moving the guides towards the rear of the machine releases pressure from the center of the squeegee blade (for crowning lanes) and applies more pressure to the absorbent wiper.
26. Tighten the bolts for the squeegee adjustment guide blocks.
27. If the squeegee blade deflection is not even across the width of the lane, adjust the two squeegee arm pivots as follows:

Tools needed:

1/2" open-end wrench.

Replacing the Black Squeegee Blade - continued

28. Pull the lane machine back onto the approach.
29. Loosen but do not remove, the 4 flat head bolts on the front frame division wall of the machine.
30. Using the 10" Phillips screwdriver on the squeegee height plate adjusting screw, turn the screw clockwise until it reaches the end of its adjustment range.
31. Loosen the two mounting bolts for each of the squeegee arm pivots on the 7 and 10-pin sides.

Note:

It may be easier to remove the electrical enclosure to improve access to the mounting bolts for the squeegee arm pivots.

32. With the squeegee head assembly resting evenly on the flat approach surface, tighten the two mounting bolts for each of the squeegee arm pivots on the 7 and 10 pin sides.

Note:

The squeegee arm pivots should drop towards the center of their adjustment slot, but may not be exactly even, depending on the necessary side-to-side correction.

Replacing the Black Squeegee Blade - continued

33. Using the 10" Phillips screwdriver on the squeegee height plate adjusting screw, turn the screw counter clockwise about 10 full turns until the bottom of the squeegee blade is 1/4" above the flat approach surface. Tighten the 4 flat head bolts.
34. Place the machine back on the lane surface and visually check the squeegee blade for even defection away from the vacuum head.
35. It may be necessary to readjust the above squeegee height and pitch adjustments.

Note:

With severe lane depressions, it may be necessary to adjust the length of the blade extending beyond the squeegee head casting to match the lane depression instead of using the normal flat 5/8" setting.

36. After successful squeegee head assembly adjustments, pull the lane machine back onto the approach.
37. Replace the cleaner waste recovery tank, restore power to the machine, and toggle squeegee head assembly to the up position through diagnostics.

Finish

1. Place Authority22 onto the lane surface. Place a large dry cloth under all 5 cleaner spray nozzles.
2. Fill Cleaner Supply Tank with cleaning solution.
3. Using the Graphical User Interface navigate to “Maintenance” / “Diagnostics” / “Cleaning”, select “Cleaner Pump” and press “OK” to run the pump.
4. With the covers open, make sure all the nozzles are spraying cleaner onto the cloth. Adjust cleaner spray pressures by using the valves and set high pressure to 22 psi and low pressure to 18 psi.
5. After the adjustments are performed, select a clean only pattern and run a few lanes. Make sure the machine is cleaning correctly. Check for leaks at the tanks, fittings and tubing that were replaced.