

Service Manual & Troubleshooting Guide for Hillyard C3[®]

1. Pump is not operating smoothly and seems to be pulsing the pressure switch repetitively or has the gun has a weak or irregular spray pattern on the rinse tip.

Normally this is caused by a restriction in the high pressure tip. This is the most common problem with C3 machines.

Step 1

Use a small paper clip or similar device to push through the tip opening or replace the tip with a new one HIL30855.

Occasionally, particles work their way through the system and get lodged into the tip. Once you remove the obstruction from the tip opening, rotate the tip assy. to the stainless steel tip and run for a few seconds to flush out debris. If problem persists, remove tip and flush with pump running. If that doesn't resolve the problem, the pump pressure switch set screw needs adjustment. Adjusting the pressure switch is described in remedying service issue 4 below.

2.Low pressure at gun:

Step 1

Remove back door and inspect aspirator tube for air while pump is running. If there are air pockets or excessive bubbles in aspirator tube, check the following. *Aspirator line is the 14" tube between the selector valve outlet and the inlet side of the pump.*

- A: Check to make sure bottle caps are on straight and tight. While running the machine, check to see if air bubbles appear above the cap in the pick up line. If so, the cap assembly needs replacement. If the cap replacement doesn't eliminate the bubbles above the cap, then replace bottle and the problem should be resolved. Repeat on all 3 selector valve positions.

Replacing the insert and gasket periodically can help the C2 and C3 machines run more efficiently by helping maintain a good airtight seal on the chemical bottle. Maintaining these seals which can become warped by chemical exposure will help prevent air leaks which can cause the machines to run at lower pressures and/or not draw chemical.

- B. If there are no bubbles at the cap, move up the pick up line to the check valve. Inspect for the same problem. If no air appears to be getting in at the cap or check valve, the air must be entering the system via the selector valve. Replace with chassis replacement kit HIL30849 if serial number is lower than 304000 if serial number is 304001 or higher than just replace the chemical mixing assembly HIL30843. Make sure you check for air on when the selector valve is on the rinse position also.

Step 2

If little to no air exists in the aspirator hose, check to make sure the water inlet supply is not kinked or the foot valve in the tank is not clogged. Any restriction of water flow to the pump will lower pressure. To check the foot valve, remove the cap on the tank and pull out the pick up line. Inspect screen, clean and re-install line and foot valve into the tank, making sure to get the weighted foot valve to the bottom of the tank. Check where the tubing comes into the back cavity to make sure it isn't kinked right before it connects to the selector valve. A starved pump will have less pressure but also have a slow shut off when releasing the gun. If that doesn't resolve the problem, the pump needs replacement. Order a pump assembly HIL30845.

3.C3 won't draw chemical up the pick up line from the chemical bottles.

This may happen at one or more of the selector locations. Normally this will cause low pressure at the gun and also encounter slow pump shut off. You will notice large volumes of bubbles and air in the aspirator hose as well. If the problem is due to a poor bottle and cap connection, large amounts of air will be streaming up the pick up line when pump is running and the selector valve is set for that line. If that is the case, replace cap assy. If not follow these steps

Step 1

Repeat the bottle cap and check valve diagnostics and replace check valve and cap if necessary.

Step 2

If excessive air bubbles are NOT visible, the problem is caused by a bad selector valve and replace with chassis replacement kit or chemical mixing assembly

depending on the serial number of the unit. Replace with chassis replacement kit HIL30849 if serial number is lower than 304000 if serial number is 304001 or higher than just replace the chemical mixing assembly HIL30843.

Step 3

After installing chassis replacement kit or chemical mixing assembly, check to make sure machine appears to be operating at normal pressure, pump shuts off quickly when gun is off and chemical injection appears normal.

4. Pump continues to run for a short period of time after the gun has been shut off.

Step 1

Remove back door and inspect for excessive air in aspirator hose. If air bubbles or air pockets exist while operating the machine, the pump will hesitate to shut off, it may not shut off, and it may be slow to prime.

- A. Identify source of where the air is getting into the line. That can be one or more of the pick up lines or the selector valve.
- B. Once you know the cause, replace the appropriate part. Test for normal operations. Some air in the line is acceptable and will NOT cause problems for the machine. Either of the two disinfectants create a small amount of air due to the small tips in the chemical bottles.

Step 2

If little to no air appears in the aspirator hose and the pump is slow to shut off or it won't shut off, then the issue is pump related.

- A. There is a pump pressure switch adjustment on the head of the pump. It requires a hex/allen wrench to adjust. While running the pump, rotate adjustment screw in either direction $\frac{1}{4}$ turn. Release gun to shut off and check for improvement. Continue in same direction for no more than 1 full turn. If pump shut off does not improve, try the other direction. If the set screw adjustment resolves the problem, listen to the pump to make sure it is running smoothly. If the pump appears to be working hard, a small adjustment to the screw will allow the pump to operate smoothly.
- B. If pump will not shut off after you have tried both directions, the pressure witch is malfunctioning and needs replacement. The item number for the pump pressure switch is HIL30872.

5. Battery Troubleshooting

Charging the Unit:

The charger will recharge a fully discharged battery (pump will not run) overnight (10-12 hours).

The charger is charging the battery when the 3-pronged plug is illuminated.

The charger is permanently connected to the battery. It should be left plugged into an outlet any time the cleaner is not in use. This will maintain the battery in the fully charged condition. If the cleaner is stored without being plugged in, the battery will drain over a 1 to 2 year period. If the battery is drained, it can be restored with the charger and no damage is done to either the charger or the battery

If battery will not take a charge, try a higher output battery charger to bring the battery up to a full charge. After bringing up to a full charge with the higher output battery charger, the onboard charger should be able to maintain the battery