

Service Bulletin: MART Power Washer

MART Tech Services

MART Power Blast Manifold Nozzles

For optimum performance, it is important to inspect the nozzles in your MART Power Blast Manifold on a weekly basis. Nozzle performance can be impeded by erosion, alignment, clogging, caking, improper assembly and accidental damage. A decrease in nozzle performance will result in a loss of cleaning performance and may cause quality control problems, increased operating costs, wasted energy and failed equipment.



Clean nozzle



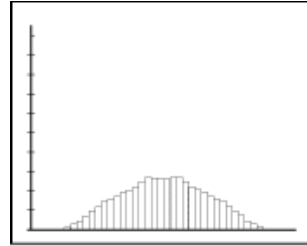
Clogged nozzle

Three out of four times you cannot see the conditions that cause spray nozzle problems. Clogging and wear can often take place internally and may not be visually apparent. Improper re-assembly and misalignment after cleaning, can pose problems too. Misapplied Teflon sealing tape on nozzles threads can clog nozzles. Nozzles that are not aligned properly in a parallel arrangement can interfere with each other and neutralize the blast from other nozzles in the system. Note also that damage can occur if a wash load shifts and slams into the nozzles, or from negligence while loading and unloading the parts.

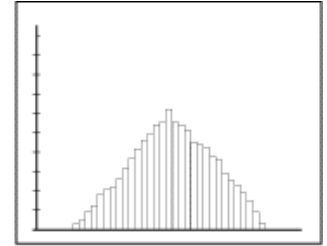


These photos show little detectable difference in spray pattern. However, the spray collection graph on the right provides dramatic evidence of a 30 percent

increase in flow capacity. The effect is an uneven spray pattern which results in erratic cleaning.

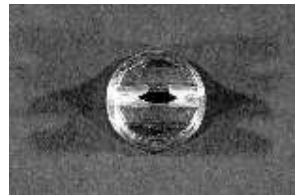


Good spray

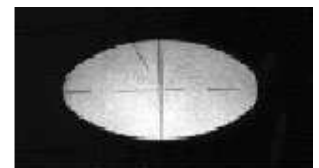


Defective spray

In the photo below the worn nozzle is the one on the right. Photographs like this dramatize how difficult visual detection can be. Not only is the cause of the problem (a worn orifice) hard to see, but its effect (a 30 percent flow rate increase) is visually undetectable. When the orifice is viewed through an optical comparator, evidence of internal wear becomes more noticeable. The 30 percent increase in flow rate can only be confirmed by conducting a spray collection test or by measuring the amp draw of your pump motor. A 30 percent flow increase will result in the overloading of your pump motor.



New



Worn

Clogged nozzle orifices are usually easier to detect than a change in flow rate. However, in the MART Power Washer the spray pattern is hidden from view inside the cabinet. A spray pattern should never be allowed to reach this stage of distortion.

Service Bulletin: MART Power Washer

MART Tech Services



Clogged nozzle



Clean nozzle

Spray nozzle maintenance and inspection frequency depends on a number of factors including the washing application, the incoming water supply, the chemical used, and soils removed. MART recommends that a visual inspection for clogging or damage, be performed every week of operation. A monthly test of the amp draw on the pump motor is recommended to track nozzle wear. In determining replacement frequency, the cost of the new nozzle must be weighed against the costs of wasted electricity and chemicals, as

well as deteriorating cleaning results and unexpected shutdowns, due to motor overloading. The following procedure explains how to inspect and monitor the nozzles:

Power Blast Manifold Nozzle Inspection

Inspect the PBM wash-and-rinse nozzles for clogging and alignment and realign as necessary. Inspect each nozzle orifice with a flashlight to verify that nothing is blocking the wash solution flow. Verify that the “V” slots of the flat-spray nozzles are aligned with the punch marks on the manifold to ensure uniform coverage of wash solution with maximum impact energy for the best cleaning results. When you check for clogging, be sure to check that all the nozzles are correctly aligned, as indicated in the figure below. Monitor the amperage draw of the wash pump to check for worn nozzles (if your Power Washer has a Duplex Pump System, check each pump separately): A higher amperage draw than normal (check your baseline readings) indicates that the nozzles may need replacement. Remember that a worn nozzle is not always visually apparent – nozzle tips can look fine, but actually be quite worn. Since a worn tip can spray at up to 30% over its rated capacity, amperage draw will be higher. In addition, the nozzle will lose its pattern control and cleaning results will be worse.

If nozzles need to be cleaned or replaced, follow this procedure:

WARNING! Do not stand or walk on the internal reservoir cover inside the cabinet.

1. Turn off the main power supply.
2. Remove each nozzle with a 9/16-inch (14 mm) wrench.
3. Remove any debris.
4. Apply 3 to 4 turns of Teflon tape clockwise on the threads.
5. Re-install the old nozzle, or install a new one. Thread the nozzle “finger tight” and snug up with wrench 1 to 1-1/2 turns. Align its “V” slot with the punch marks on the PBM. Do not over tighten. Refer to the following figure.



Fig. 1: Cleaning and Replacing the Power Blast Manifold Nozzles

For further information or cleaning assistance please contact MART Tech Services from 8:00am to 5:00pm (central) or visit our website 24 hour 7days a week.