

## Bus Deionizer System

We all have fought water spots at some point and I have had enough when it came to washing something as big and beautiful as the bus. I've decided I wanted a method of washing without drying which meant using deionized water or water so pure it has no dissolved solids in it to create those dreaded water spots. The first thing I had to do in this project was to find the de-ionizing system I liked. Cost was somewhat of a factor because the system has to be maintained once it is being used. Being able to recharge it at a good dollar per gallon amount was important so with that criteria my search for a system was in full swing.



After looking at several systems, I decided on the CR Spotless system, model DIC-20. I choose this system mainly because it was built to withstand Heavy residential or small business use, capable of making hundreds of gallons of de-ionized pure water between recharge cycles and easy enough to recharge when needed. Shopping around, Costco.com was by far the best price leader for the system. The initial price of the system was \$369.00 which included a complete recharge kit as well as a total dissolved solids (TDS) meter built in. The TDS meter tells you if the system is dispensing spot free water or if it needs to be recharged.

After using the system for several months in my shop, it had met or exceeded all of my criteria. Now it was time to start looking at how to put it on the bus without taking any of the bus's precious storage space as well as making it easy to use when I get the whim to wash something. This took considerable thought and planning and to make matters worse, I was distracted by possibility of adding a high pressure washing system to the bus too. I use one in my shop and love it but after thinking on this for a couple of days I decided the pressure washer would have to be another project. During this analysis of a



location I set several criteria it had to meet. First, It had to be located where I could recharge it without removal, then it had to be easily useable, meaning it had to feed the existing bus wash port and finally I decided it should be close to the existing water filtration and softening system to match the theme of the bays.

When the dust settled, I decided to locate the de-ionizer right in front of the power cord storage in what I call my water treatment bay. This bay is located just forward of my water utility bay where the bus wash port is so that made installation easy as well. The problem with this location was it didn't have enough room to install it and close the bay door initially. I had already planned to tear the Glendenning power cord reel and F/W hose reel area apart so I could see if all was working well so now was a good time so I could see if I could rob a few inches to make it fit while I was in there. Luckily I found if I moved the power cord storage front panel inward a few inches there would be enough room for the deionizer. As an added bonus I was able to enhance the performance of my power cord reel and renovate my fresh water hose reel. With the area all prepared, the next step was to prepare the deionizer for installation.



I removed the de-ionizing components from the mobile cart since it was going to be permanently mounted and plumbed into the bus. I then got out the PEX tools and supplies and made up a manifold for the system to interface with the bus water system. I had to create a bypass plumbing manifold since I want both filtered water and de-ionized water to dispense from the bus washing port. I also had to fabricate a couple of steel 6 inch L-brackets for the deionizer to hang on.



With the deionizer mounted to the existing power cord front panel and all the plumbing set, it was time to cut into the bus plumbing. I had already taken a look at where I would tap into the fresh water line feeding the bus wash port while I was analyzing where to put the deionizer system. I determined it would be best to cut the bus line and splice it in behind the auto power cord reel. I choose this as the splice location because it would make the plumbing straight forward and hide it

from site once the deionizer was installed. Now it was a matter of simply extending the lines out to where it would secure to the new deionizer manifold. I wanted the panel the deionizer was mounted on to be removable for maintenance or repair on the fresh water hose reel or the Glendenning without disassembling the deionizer manifold, so I made the water lines with a easy swivel disconnect at the deionizer manifold.



The final installation of the deionizer and front power cord panel was very straight forward. The panel was now located now two inches inward in the bay. That left less room for the power cord storage compartment but a quick test of the cord reel revealed this would not be a problem unless I want to double the length of the 50 amp power cord.



When the plumbing connections were all made and a leak test was conducted, no leaks were present, I love PEX plumbing! I then tested the deionizer system to determine if

the system was working properly.

Everything works easily and just as I planned it. The bus wash port now will dispense either filtered/softened water or de-ionized water, zero parts per million as shown on the system gauge.



We will be at the POG 9 rally and with the bus so feel free to come by and see this system. I'll be the one washing a bus but not drying it afterwards!