

LB7 INJECTOR LINE CORROSION



If you have ever worked on a LB7 Duramax engine, this may not be the first time you have seen the inlet of an injector that looked like that. A lot will ask themselves where this debris and rust comes from and how did it get past the fuel filter? What kind of damage did that do to my injectors? How do I clean my fuel system if there is that much rust in it?

Well, the good news is that it did NOT come out of your fuel system. It's not in your tank, past your filter or anyplace that needs to be concerned with. The buildup is something that found its way into the injector inlet during line removal. Let's first see where this comes from.

When Duramax engineers were designing the LB7 fuel system, one concern they had was that since the injectors were completely under the valve covers, how would they deal with a leak should it develop at the high pressure fitting? This fitting is under the valve cover and would leak diesel fuel into the crankcase if it was to leak. To prevent contamination, they added a small o-ring at the base of the threads to seal to the line. If the fitting should leak, the o-ring would keep the fuel out of the crankcase. A series of small grooves was then put in the end of the line under the nut. The nut would push down on the line forcing the seal at the injector. You can see the small grooves in the backside of the fitting. These small grooves would allow any fuel leaked to get past the nut and out side of the engine. The downside to this is that it also would allow water and debris down to around the fitting. Over time, contamination would collect. This is evident by the amount of rust and pitting on the line.



You can see the amount of rust right up to the very tip of the fitting. What is very important to note is that the tip of the line is still relatively clean and free of any rust or damage. This is the point where the line actually seals to the injector body.

Here is an actual line removed from an engine in for service. You can see again the amount of rust and corrosion present in side the line, but the tip is still clean and rust free. This line is still completely usable after a cleaning process. We need to make sure to remove all of the loose rust and thoroughly clean the inside of the line so that it will make a proper seal again. Below is this same line after it has undergone the cleaning process. Perfectly good and ready to reinstall.



All of the rust and corrosion is removed. The sealing area of the line at the bottom of the taper is in good condition.

So, we know we can reuse the line with a little bit of work, what about that injector that is full of that crap? Well, we can save that too with a bit of delicate cleaning. The injector must be removed from the engine for best results. Layout a rag or towel on your work bench and turn the injector upside down so that the inlet is facing the ground. Tap the injector against the cloth repeatedly. It's not a hammer, just some gentle taps on the bench to allow the debris to fall out of the inlet.



Continue this process until you find that you're not getting any more debris out. Be careful to avoid the temptation to want to spray the inlet out with brake clean or other solvent. That could easily wash the contamination right down past the edge filter and into the body of the injector. Cleaning it at that point will require disassembly of the injector.



This is what the injector should look like as you keep tapping it upside down. There is still more clean up needed on this one, but you get the idea. Once you have the inlet as clean as it will get, I like to take a bit of alcohol or brake clean in a small container, a contact cleaning case works well, dip the injector inlet in the solution upside down and then continue tapping, this will help rinse out the

debris. Again, DON'T spray into the inlet. A bit of scotch brite will help clean up the threads from the rust. All of the loose rust and debris has been removed and the inlet is clean. No debris is visible in the edge filter at the bottom of the inlet either. This injector is ready to reinstall.



The most important thing you can do once reassembled is to make sure to prevent this

from happening again. How? Actually, it's pretty simple. Put a small bead of silicone sealer around the top of the line between the nut and the line. This will keep all the debris from falling into the fitting. Don't worry, the silicone won't be able to overpower any fuel that may need to come up from a leaking fitting.

