

WARNING!

****Read before installing Common Rail pump and injectors****



Five concepts everyone must understand about Common Rail fuel systems

1. Do not restrict the return line.

It is fairly common knowledge that on the earlier (89-98) Cummins injection pumps you could restrict return fuel flow from the injection pump to increase the fuel pressure going to the injectors. They could get away with this because of the types of pumps available then and the pressures those older pumps were limited to. This is NOT true for CR. If you restrict the return of fuel from the CP3 injection pump it will blow the seals and inspection plugs out of the pump. This catastrophic pump failure is caused due to the fact that the CP3 will continue to build rail pressure until failure occurs.

If you have an aftermarket lift pump make sure you are not teeing the lift pump return in with the engine fuel return. Trying to force this much fuel through the stock engine return will overwhelm the return system and cause damage. Return line rule: The bigger the CP3, the bigger the return systems need to be! Industrial Injection now offers a CP3 return line kits for Dodge and GM, call an authorized Industrial Injection dealer for pricing.

2. Do not over pressurize the fuel entering the CP3.

The same failures caused by restricting the return of the CP3 pump can happen if you feed the pump with too much pressure. Some people have been told to supply 100-120psi to the CP3 pump.

This will over whelm the Cascade Valve and FCA (Fuel Control Actuator) which causes the front seals to blow out of the CP3. It will also increase the high pressure going to the rail by up to 40,000PSI which can cause CP3 pump and injector damage. We have seen certain aftermarket lift pumps produce too much pressure from the factory. We recommend supply pressure gauges for this reason.

Here is a list of lift pump pressures as it relates to application. We require customers to stay within these ranges on Industrial Injection products!

Duramax = 8 to 10psi

Dodge 12V = 45psi

Dodge 12V heavily modified pump = 75psi

Dodge 24V with VP44 = 10 to 20 psi

Dodge CR 5.9L and 6.7L = 8 to 15 psi

Ford 6.0L Stock Injectors = 45-55psi stock without regulated return

Ford 6.0L Modified Injectors = 65psi with regulated return set at 65psi

Ford 6.4L = 3 to 7psi

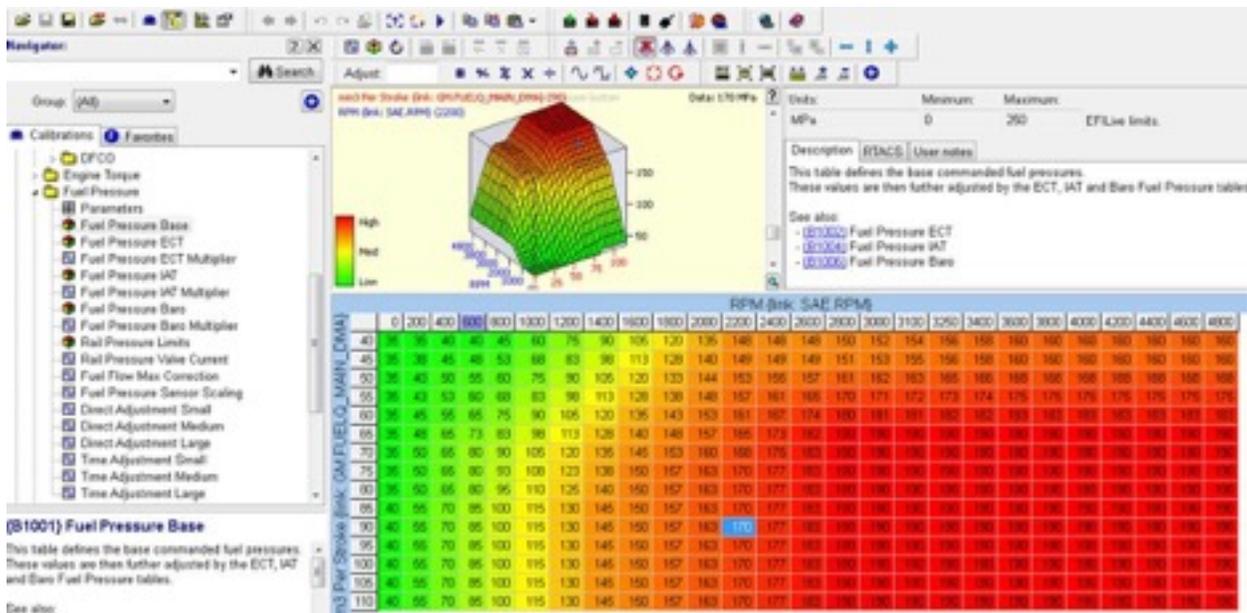
Ford 6.7L = 65 psi Minimum

Dual CP3 = 8 to 10psi all Dodge and Chevy CR

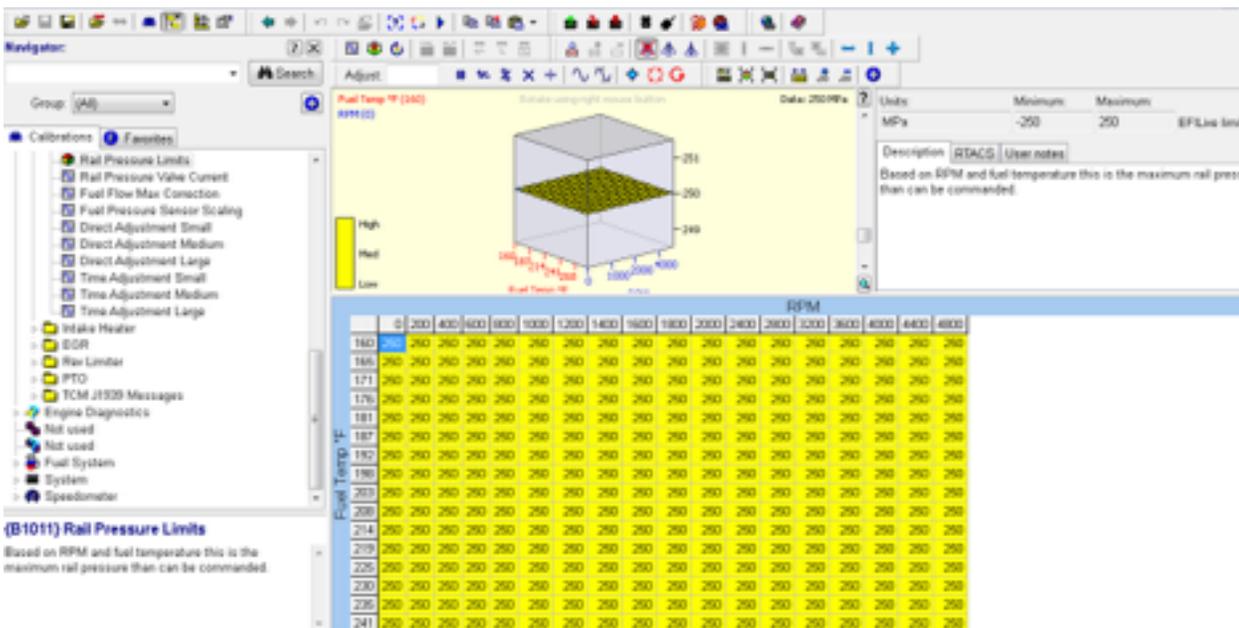
3. **Do not install a Hobbs disconnect switch or ground switch on the FCA.**
Some drag racers and sled pullers have been known to ground out the FCA with an in cab switch or Hobbs disconnect switch. The end result of using one of these devices will result in pump failure 100% of the time. If tuned correctly there is absolutely no need for one of these devices.
4. **Change fuel filter and clean fuel system/ tank.** The number one reason for diesel fuel system failure is contamination. You just spent good money on a new fuel pump and/or injectors. **Take a little extra time upon installation along with changing your fuel filter, make sure you have all contamination cleared from your fuel lines and tank.** Water creates rust and “Rust kills!”
It takes only 28 days for water to form in the fuel tank of a truck that hasn’t been started. In that amount of time rust and algae will start to form in your tank and injection lines. Change your fuel filter every other oil change or if the truck has been sitting for a long period of time.
5. **Use caution when custom tuning.** Custom tuning has really taken the diesel performance industry to a whole new level. There are many wonderful products that allow you to tinker with the tuning of your truck. These are all great, well engineered products, but in the hands of the wrong or untrained person it can ruin an engine and its components within seconds. Here are a couple examples of what not to do with custom tuning as it pertains to CR fuel injection.

Two examples of tuning errors

This first example is a common yet very destructive custom tuning error because it is asking the computer to deliver more fuel than the computer can measure. That means as the FCA keeps opening more and more, and pressure goes higher and higher - until failure occurs! The factory sensor (which EVERYONE has) can only read to 180 MPa (26,200 PSI). Asking for MORE than this will force the FCA to continue building pressure beyond a safe level. The computer only ever “sees” 180 MPa on the sensor... meaning the computer has a ‘target’ of 190 MPa, and sees that it’s not getting there (stuck at 180 MPa because that is the sensor limit) - so the computer keeps opening the FCA trying to meet the target Pressure.



Second, here is a limiting table that is supposed to LIMIT what the fuel pressure can be raised to. Again, the stock sensor can only read to 26,200 PSI (180 MPa) - so setting a limiter above that value basically defeats the sensor and allows the pump to keep building pressure beyond a safe level. Setting it high like on the map below (to 250 MPa) effectively defeats the sensor. NEVER set the desired rail pressure higher than the pressure sender can read. If you want to tune higher you MUST install a higher rated pressure sender. The Duramax LML, Dodge 6.7L, Ford 6.7L all have 30k pressure senders. These senders can be used by a knowledgeable tuner to map the correct pressures. There usually is no reason for going over the stock pressure senders rating. Horsepower can be made below the stock sender rating, however when the application calls for higher pressure - SAFETY steps must be taken to ensure that your hardware remains within its limits. Blindly raising pressure to unknown levels will almost certainly cause damage to your fuel system (CP3, injectors, lines, etc.)



Industrial Injection will not honor warranty in case of damage or malfunction due these causes. If you have further questions please contact Industrial Injection at 1-800-955-0476

