



## Delphi Pump Diagnostic Troubleshooting

### **Start and dies, stalling**

1. Insufficient fuel supply, replace fuel filter. If equipped with a fuel supply pump check for minimum of 2-3 psi fuel supply pump pressure.
2. Restricted fuel return
3. Water in fuel
4. Air leaks on suction side of fuel system
5. Injection pump needs repair

### **No Start, fuel to injectors (smoke out exhaust while cranking)**

1. Cranking speed too slow
2. Pump timed incorrectly to engine.
3. Incorrect fuel (water, gas etc)
4. Insufficient fuel or restricted fuel supply, dirty filter etc.
5. Need starting aid for cold weather, or not working properly
6. Injection pump needs repair

### **No Start, no fuel delivery to injectors**

1. Electric Shut off solenoid failed or not getting power. Remove solenoid and pull out plunger and spring to bypass solenoid operation.
2. Shut off linkage in stop position.
3. Check for insufficient fuel supply, replace fuel filter. If equipped with a fuel supply pump check for minimum of 2-3 psi fuel supply pump pressure.
4. Water contamination can cause the metering valve to stick in the shut off position or the pumping plungers to stick.
5. Head and rotor in pump seized. This would be a catastrophic failure and the cause must be determined prior to installing a rebuilt or repaired pump on the engine or it could seize again.

### **Dilution, Fuel in Oil**

1. Worn driveshaft seals and or worn drive hube/shaft.
2. Fuel supply pump bad
3. If injectors are under the valve cover check injector return lines for leaking fuel
4. Injectors; will only cause minor amounts of engine oil dilution
5. Intake air heater, If diesel can leak into engine (thermostart)

### **Low Power**

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1. Replace fuel filter
2. Check for full throttle travel
3. Check for restriction in the fuel return line
4. Plugged or dirty fuel filters and or strainers
5. Dirty air filter
6. Air in fuel supply system
7. Engine overload, excessive load

### **Blue/White Smoke**

1. Pump to engine timing retarded. This would be more pronounced when the engine is cold or at wide open throttle with no load.
2. Low Compression
3. Coolant temperature too low
4. Air in fuel
5. Low supply pump pressure
6. Injection pump worn, need repairs

### **Black Smoke**

1. Dirty air filter or restricted air inlet
2. Pump to engine timing incorrect.
3. Injectors worn or malfunctioning
4. Over fueled, excessive engine load or lugging engine
5. Poor quality fuel
6. Valve adjustment
7. Exhaust restriction
8. Turbo, exhaust leak or turbo wastegate not operating properly

### **Miss, Rough Run**

1. Injector problem; crack the injection lines to pinpoint the injector, then remove and test the injector. If you can't get the injector tested then move that injector to a different cylinder and see if the miss follows the injector.
2. Possible problem inside injection pump
3. It is very un-likely that a rotary injection pump will deliver very little fuel on just one cylinder due to the design of the pump. Often one outlet that appears to have less fuel delivery could be an injector sticking open on the preceding cylinder in firing order or the way the line is positioned. We have tested dozens of pumps that visually had low output on a specific cylinder, but the fuel deliveries were even between cylinders on the test stand.
4. Air in fuel system
5. Low Compression, on one or more cylinders.

### **Fuel Knock**

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1. Starting aid malfunction, cold advance not operating correctly or on when warm
2. Air in fuel
3. Injectors worn or sticking open
4. Pump to engine timing incorrect

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