1989-1993 DODGE

Cold Advance Operation - The KSB unit on the injection pump uses a temperature sensor in the intake manifold to advance the pump timing when the engine is cold, which reduces blue/white smoke.

1989 to early 1991 used a wax motor style KSB unit that voltage is applied to, via the cold start switch, once the intake air temperature is above 160 degrees.

1991 – 1993 used a solenoid style KSB. The intake air temperature sensor applies 12 volts to the KSB solenoid until intake air temperature is above 90 degrees.

Low Power

- Check for full throttle travel, worn levers or throttle spring on the injection pump can limit travel.
- Pump to engine timing off
- Bad AFC diaphragm, check to see if it will hold a vacuum
- Exhaust manifold leak (low turbo boost)

Slow to shut off

Remove the overflow valve and tap out onto a sheet of white paper, or remove the shutoff solenoid. If there are a lot of metal particles, the injection pump is coming apart inside (we see this happen frequently after approximately 150,000 miles) and must be changed along with the injectors (the metal will have been pumped through the injectors).

Miss-Rough run

- As above, if the pump has a lot of metal in it, the metal can plug some of the spray holes in the nozzle tip. If there are holes plugged in the nozzles, find and fix the cause before replacing them (if the problem is in the pump, the replacement nozzles will soon plug as well).
- If during cold start, see cold start operation
- Pump to engine timing incorrect.
- Idle speed too low, should be 700-800 rpm

Smoke, Blue-White

- Blue/White smoke, if during cold start, see cold start operation.
- Check intake air heater operation.
- Dirty fuel filter
- Low fuel supply pressure

Smoke, Black

- Dirty or restricted air filter

Supply Pump

- Supply pump pressure should be about 4-5 PSI at idle

Turbo

- The turbo is “powered” by exhaust gas velocity (expanding exhaust gases). Revving the engine up while in neutral will produce low boost. To accurately measure boost pressure you must have the engine under load, such as full throttle acceleration while driving.
- If you are lacking fuel (galley pressure) at the right time (timing) or have an exhaust leak (loss of exhaust gas velocity) the turbo will not produce the correct boost. Solve these problems first, before replacing the turbo.
- The turbo should spin freely while pushing the turbine shaft left, right, up and down while gently rotating the compressor wheel. The compressor wheel should turn freely by hand, if it doesn't replace the turbo.
- Visually inspect the compressor wheel. The blades should not contact the compressor housing and the blades should not be chipped, bent or damaged in any way.