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What's Wrong With My Truck?

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No doubt, the title line grabbed your attention. It is amazing how those sophomoric journalism tricks work every time. Got ya.

Seriously speaking, this article is based on information pulled from our sister company's website, the Turbo Diesel Register. You can download the complete 300+ page Turbo Diesel Register Buyer's Guide that covers 1994 to current year model Dodge/Cummins Turbo Diesel trucks.

To save you time, we asked the Turbo Diesel Register's editor if he would give us the "Cliff Notes" version of the 300+ page TDR Buyer's Guide, with an emphasis on how the Turbo Diesel owner can be aware of and prepared for problems that may arise. The following is his report.

INTRODUCTION

When you specialize in parts and accessories for Dodge/Cummins Turbo Diesel pickup trucks, there is a tendency to focus on the problems. The good: we are very qualified to discuss the Dodge/Cummins pickups. The bad: we are a "one trick pony."

For the non-Dodge diesel enthusiast, don't think that you are free from flaws that plague your marquee. We have the luxury of an owner-based club, the Turbo Diesel Register as a source for detailed information. Likely you can find information for your marquee by doing a web search on your vehicle.

So, without further delay, the staff at Geno's Garage (with help from our friends at the Turbo Diesel Register) presents a list of Dodge/Cummins Flaws and Fixes.

Before we begin our discussion you will want to understand some Turbo Diesel lingo. We refer to the trucks as First Generation ('89-'93), Second Generation ('94-'02), and Third Generation ('03-'09). Let's start the article with problems that seem to plague all year model trucks.

FOCUS ON ALL GENERATION TRUCKS

Flaw: My steering is sloppy or the tires are cupping.

Fix: This one can often be traced beyond pilot error, although we're certainly not ruling that out. It tends to be more of an issue on 4WD trucks, and newer models have fewer problems. A Borgeson steering shaft helps on almost any truck, and First Generation four-wheel drives often benefit from an adjustable drag link; a mild drop-pitman arm; or on really heavy front ends, an upgrade or replacement of the upper kingpin bushing—a much simpler job than it sounds. Two-wheel-drive versions benefit from a set of Moog ball joints. Later model 4WDs tend to wear out track-bars, and Luke's Link appears to have the fix for that one.

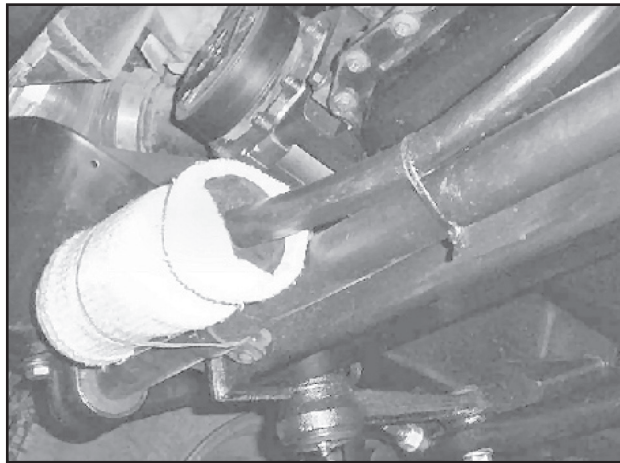
In some First Generation trucks ('89-'93) the steering box broke off the frame rail, or the box moved on the frame from elongated bolt holes. Like many '70s vintage GM 4x4s, adding a brace from the opposite side frame rail fixed it, but unlike the GMs, the aftermarket did not develop a kit for it.

For Second Generation ('94-'02) and Third Generation ('03-'09) worn front end parts could cause a phenomenon known among Dodge diesel owners as a "death wobble" that was set up by crossing a seam in the road that ran at an angle to the direction of travel. Cure: For the Second Generation owners Dodge issued approved service technique (also known as technical service bulletin or TSB) number 19-10-97. For Third Generation owners the TSB is 22-005-06. The parts include: steering dampener, tie rods, end links, and steering stabilizer boxes. We offer many suspension-related parts to freshen-up the truck's steering components.

Flaw: My truck's dripping oil.

Fix: Until the introduction of the '07.5 truck and the new 6.7-liter engine, all Cummins 5.9-liter engines were positively vented to the atmosphere by a breather tube. The oil would drip out the bottom of the breather tube. When Second Generation trucks came out, this problem also resulted in a lot of erroneous front differential yoke seal replacements because the engine oil (not differential fluid) dripped down in the same area. Of course, if Dodge hadn't moved the differential to the left side, this problem wouldn't have existed. Most people simply put a small bottle with holes in the side on the bottom of the vent tube. It could still "breathe" but the oil was trapped in the bottle.

Effective with the '98.5 year model and the 24-valve engines, the breather moved to the front. And any truck on a steep descent could lose a lot of engine oil as crankcase pressure pushed it out the tube. Cummins offers a fix that moves the breather inlet back alongside the engine where it is less affected by crankcase oil level on steep grades—right where it was on 12-valve engines (Dodge TSB 09-002-02).



The old cotton sock idea is an easy fix with no drips or oily film on anything but the outer sock. Replace the sock while you are under the truck changing oil. Extend the tube and drip catch bottle down to the anti-sway bar and secured it with a couple of wire ties.

Flaw: The truck started, but the starter won't stop.

Fix: Worn and pitted starter solenoid contacts will cause the truck not to start, or the starter won't disengage after the engine fires. To save money, a starter rebuild kit with heavy duty contacts is available. So, pocket about \$300 and do-it-yourself. Geno's Garage offers a Starter Solenoid Rebuild Kit.

Flaw: The fuel level reading is inaccurate.

Fix: On '89 to '02 trucks the Dodge-only fuel tank sending unit fails, either by becoming stuck at a certain fuel level or by reading low level at all times. The only solution is to drop the fuel tank and replace the sender. The barrel strainer the level sender attaches to may also develop a Flaw where it doesn't move up and down with fuel level, thus leading to erroneous level readings. While the tank is accessible, replace the barrel strainer too.

Read more about fuel tank sending unit repairs in the TDR Buyer's Guide.

Flaw: Driveline vibration based on road speed.

Fix: It sounds like a worn out driveshaft universal joint or unbalanced shaft, but may also be caused by a bad carrier bearing or bearing support in a two-piece driveshaft system. The bearing cannot be re-lubricated by the owner, and the entire sealed carrier bearing assembly must be replaced. This is presently a Dodge-only part. A heavy load in the lower gears will cause driveline windup as well, leading to vibration that lessens with road speed or less torque applied to the axle. On Third Generation trucks, the driveline alignment should be checked as well.

FOCUS ON FIRST GENERATION '89-'93

Flaw: My windshield squeaks.

Fix: All trucks squeak, but this problem applies only to First Generation trucks and involves the bodywork cracking—more literally breaking apart—at the cowl near the lower corners of the windshield. TSB 23-63-94 showed the parts (steel stampings) and procedure for repairing the problem. The adhesive mentioned in the TSB has been discontinued and 3M Panel Bonding Adhesive recommended as the substitute. Other owners have cut metal reinforcement pieces and welded the bracket(s) to the cowl.

Flaw: My automatic is too automated.

Fix: If your automatic transmission truck changes its mind a lot about which gear to use, don't start with the gearbox, but check the throttle position sensor. The letters TPS are as well known to readers, as this infamous part could be a major nuisance. The TPS failure is characterized by a 100-200 rpm swing as the torque converter clutch locks and unlocks repeatedly while the transmission remains in 4th (overdrive) gear. Clean it and the connectors yourself or get a new one; chances are if it hasn't gone bad, it will.

Do not confuse a TPS failure with a TTS (Transmission Temperature Sensor) failure, which is characterized by a 200-400 rpm swing as the transmission cycles between 3rd and 4th gear. Replace the TTS and check the connectors for corrosion. The downshift is made when the failed TTS sensor says the outside temp is below -5° (zero volts). The upshift is made when the TTS again sends a signal (+1 to +5 volts) to the PCM saying the outside temp suddenly climbed to ambient temp, thus allowing overdrive to be engaged.

Flaw: '89-'91.5 truck runs hot.

Fix: This version of the engine was turbocharged, but not intercooled, and long uphill climbs at full throttle caused the engine to overheat due to hot turbocharged air, particularly if the fueling had been turned up for more power. Many owners routed a fresh air duct from the front of the truck to the turbocharger area to cool the turbo, thus cutting the heat load on the engine, and the aftermarket developed intercoolers that usually came with a new grille for clearance.

Another solution to the '89 to '91 run hot problem was the retrofit of the larger radiator and fan used in the '91.5 to '93 trucks. Way back in the fall of 1994 a TDR member, Bruce Burney, presented four pages of step-by-step instructions as well as a detailed parts list (approximately \$750 in 1991) to do the conversion. From pictures in our archives, the '91.5-'93 radiator looks to be about half-again as large. Should a reader desire a reprint, we will be happy to fax the article to you. Call us at (800) 755-1715.

FOCUS ON SECOND GENERATION '94-'02

Flaw: My gearbox is a nut short.

Fix: One of the most infamous flaws in Second Generation trucks with the NV4500 gearbox was the mainshaft nut backing off and making fifth gear useless or gone altogether. Dodge TSB 21-10-98 Rev A from 9/25/98 addresses this issue in 13 pages of detail. The replacement nut has a set screw to lock it in place, after you've installed thread locker and torqued it to 350 ft-lbs. The Dodge fix didn't always work, since the original nut was cheaply made. Sometimes a new gear was needed due to internal gear spline wear, or a new transmission output rear shaft was needed due to external spline wear. Sometimes the Dodge revised nut didn't work, but the similar-appearing Standard Transmission and Gear ((817) 625-7109) nut did. Welding the nut onto the shaft didn't work, as it crystallized the surface steel on the shaft and it later broke at the weld point. There was no Dodge recall on this problem. An avoidance tactic on 12-valve engines is to downshift from 5th to 4th gear when at full throttle at a minimum of 1,800 RPM to avoid excessive torque and engine vibration that causes the nut to loosen. And remember to use GL-4 lubricant as called for by New Venture Gear and your Owner's Manual. GL-4 lubricant is not easy to find. Vendors that advertise in the Turbo Diesel Register are your best bet.

Flaw: The headlights don't work anymore.

Fix: A problem common to many versions, this is usually caused by running too many trailer lights. The parking circuit in your light switch was never designed to run 40 clearance lamps on the trailer and it failed in protest. Replacing the light switch does not solve the problem, but adding a relay to take all the added load does. If you use a camper or pull a trailer, you might consider adding a "ground switch" to the rear lights on your truck, so that they do not reflect in your mirrors when backing up or when the camper is onboard.

In late 2001, there was a recall issued for '94 to '96 model year trucks covering problems associated with the ignition circuit and the truck's blower motor.

The recall involves installing a blower motor relay and overlay harness to remove the blower motor circuit from the ignition switch. In addition, the ignition switch and electrical connector must be inspected for damage and replaced if necessary.

Note: the primary parts package for this repair does not include a replacement ignition switch assembly, but rather provides a blower motor relay and overlay harness; if necessary, an ignition switch wiring pigtail; clips, screws, washers, etc., to install the blower motor relay. Details of this recall as well as others that have been issued are found in the TDR Buyer's Guide.

Flaw: Go with no throttle.

Fix: With all the racing antics and double-clutching gear jammers, it's no wonder the throttle cable on '94-'96 trucks tended to wear out. It might be the worn spring, ball joints, or the cable itself, but a lot of Turbo Diesel owners had trouble getting the throttle response desired. This became Safety Recall 970 (part # CANZ9700).

If your truck has throttle but low power/excessive smoke, it's quite possible that one or more of the rubber boots connecting the turbocharger and intercooler piping has slipped under its clamp, allowing your turbocharger's pressurized air to leak. Properly replace the boot under the clamp, retighten the clamp and inspect the rest of the rubber boots of the system for holes in boots or slipping under clamps to restore full manifold boost pressure.

Flaw: Can you say diet?

Fix: No recall, service bulletin or advisory has ever been published on this subject, but some Ram owners found that the seat cushion collapses and the problem is common to all Second Generation trucks. Repair options include an aftermarket seat or new replacement seat, both of which may cost as much as the truck's Blue Book value at this point; a local reupholstery shop; or since the seats have springs at the bottom, a home-made remedy of restuffing for a few bucks. Alternate fixes include new shock absorbers, more weight in the bed, or cutting back the calories.

Flaw: The brakes don't work (no power assist). No 4WD. HVAC acting weird. (vintage '94-'96 trucks)

Fix: Any time the brakes and HVAC act strangely simultaneously, suspect the vacuum source. Typically the problem occurs where the hose connects to the 4WD shift collar. Of course your diesel engine doesn't draw a vacuum, but a pump generates it to power some brake boosters, most HVAC systems (which default to Defrost as a safety issue) and on Second Generation and later 4WD models, the front axle disconnect system. The vacuum hose is cheap and easy to find, regardless of the size.

Flaw: ATF drools/leaks.

Fix: Although a number of things could be to blame, the first place to look was always the plastic fittings on the transmission fluid cooler lines on '94-'96 trucks. Sooner or later, these get brittle from being overheated and expired, allowing the transmission to pump its fluid all over the road. The fix involves changing the plastic line retainers to Weatherhead fittings. In subsequent years (starting in '96) Dodge also offered an upgraded set of lines with metal clips.

On '94-'98 models the transmission lines crossed on the bellhousing. At the cross point, the metal lines rubbed together and wore a hole in one line thus causing loss of all ATF fluid. After replacing the lines, owners installed rubber hose over the lines to keep them apart and prevent vibration rubbing.

Flaw: My truck's dripping . . . fuel this time, and it's hard to start.

Fix: Fuel out often means air in, and most diesels will be hard, if not impossible, to start with air in the fuel lines. The hoses around the lift pump, mostly on P7100 trucks, degrade over time and develop leaks. And the clamps used tend to distort and often lead to their own leaks; better to get some screw-type band clamps when you do the job.

The TDR Buyer's Guide has a complete article on fuel system related problems.

Flaw: Shut-down solenoid is shut down.

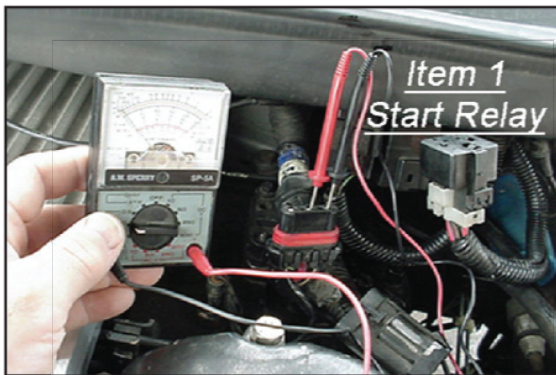
Fix: The fuel shutdown solenoid on '94-'98 12-valve trucks has caused its fair share of difficulties, leaving trucks that won't start, won't stay running, or won't shut off. In some cases a "manual" approach to fixing it (much like tapping an old starter solenoid with a mallet), might get you home. The usual suspects to make the repair: the start/run solenoid; the relay to the solenoid; the fusible link that protects the solenoid; or fuse #9 in the fuse panel. An alternate method is to delete the start/run solenoid and replace it with a cab controlled cable to move the fuel shut-down arm. This also makes a fine theft deterrent for the vehicle. Adjustments and replacements are do-it-yourself operations.

Geno's Garage offers a Shutdown Solenoid Replacement Kit.

Geno's Garage also offers the following "No Start Tip". This bit of wisdom is included in our 48-page product catalog that is updated and available quarterly.

Should the fuel START/RUN solenoid fail to energize (come up) and/or hold in the "UP" position, do not let its malfunction leave you stranded. Have an assistant attempt to start your truck while you move the solenoid's plunger up to the "RUN" position. If it starts and the solenoid holds in the "RUN" position, drive it to your destination for further troubleshooting as time permits. If the solenoid fails to hold in the "RUN" position, tie-wrap it in the "RUN" position, and drive it to your destination. Cut the wrap, and the engine will stop.

So, we presented a tip to get you to a desired location. Does the problem lie with the solenoid, the relay to the solenoid, the fuseable link that feeds the solenoid or a fuse?



No voltage for "START" tells you to check the relay to the solenoid (Item 1).



Also check the fuseable link that feeds the solenoid (Item 2) or fuse #9 in the fuse panel.

Do a voltage check at the solenoid's three-wire connector. Negative goes to the Black/Red trace wire. On "START", positive 12-volts will be at the Red/Black trace wire.

If voltage is present for "START" the solenoid is likely the problem.

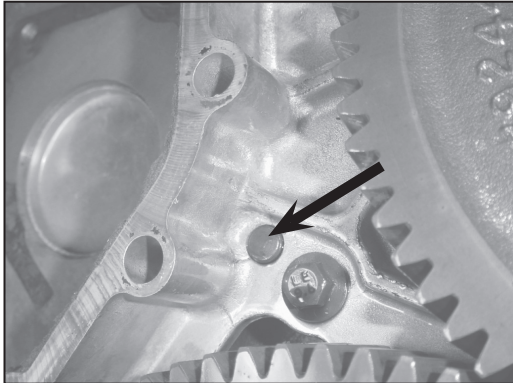
No voltage for "START"? Chances are that the solenoid is okay. Check the relay, fuseable link or fuse #9 as the source of the electrical malfunction.

Flaw: The dreaded “Killer Dowel Pin”

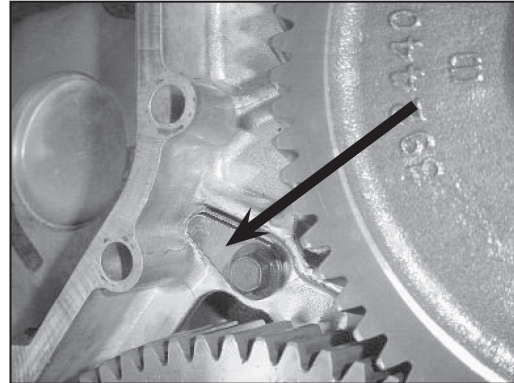
Fix: A potential problem for ‘94-‘98 12-valve trucks and some ‘99 trucks is the dowel pin used to locate the aluminum timing gear cover on the front of the engine. When this cheap part falls out, expensive things happen, and it’s shown some proclivity for falling out. There are a number of preventative measures, some of which can be done with hand tools. When replacing the dowel pin, replace the crankshaft oil seal and vice versa due to a seal leak. The fix involves staking the pin, covering the pin with a teardrop-shaped washer placed under a nearby bolt, or removing the pin altogether since it has already served its purpose in locating the housing during engine assembly.

Geno’s Garage offers a “Killer Dowel Pin” Repair Kit for ‘89-‘93, ‘94-‘98 and ‘98.5-‘02 Dodge Turbo Diesel trucks.

The TDR Buyer’s Guide has a four page article that discusses the proper repair procedure.



A close-up view of the dowel pin.



A picture showing an egg-shaped washer that covers the dowel pin.

Flaw: Low power output on ‘98.5-‘02, 24-valve engines.

Fix: Clean/replace the MAP (Manifold Absolute Pressure) sensor and/or the AIT (Air Intake Temperature) sensor to restore power that is caused by false readings from these dirty sensors. Dirty sensor tips or poor electrical connections at ostensibly weatherproof plugs render the sensors inoperative, which causes restrictions in fueling.

Flaw: ‘94-‘98 12-valve, P-7100 engine specific problems.

Fix: The fuel return line rubber portion on the underside of the intake manifold, in the area of the fuel filter boss, tended to fail due to engine heat and to air getting into the fuel system. Replacing the hose with a better quality hose that is diesel fuel rated and more heat resistant is the solution.

Low fuel system pressure that causes low power and stalling at hot idle, especially in automatic transmission trucks, may not necessarily signal a failing lift pump. It can also be caused by a failing fuel overflow valve that bypasses too much fuel through the injection pump.

Low power and smoke complaints point to intercooler piping that may not be tight. Additionally, the fuel heater/pre-strainer is probably clogged. This strainer is used only on the Dodge application. The nylon pre-strainer clogs with trash, restricting fuel flow to the lift pump and injection pump. Clean pre-strainer by unscrewing the bottom of the unit, or replace it if damaged.

Another 12-valve specific problem: the quad ring on pre-strainer bowl is cut or distorted. Dodge offers a kit that consists of a new strainer and a new quad ring (O-ring with squared edges) for the strainer bottom assembly for about \$32. The strainer seldom fails. A new quad ring is available at most rubber supply and larger auto supply stores for a buck or two.

Flaw: I have heard that the '98.5-'02 truck engines have a problem with the fuel transfer pump (lift pump). Or is it the Bosch VP44 fuel injection pump? Or is it both? It sounds expensive. Please explain.

Fix: In the TDR Buyer's Guide they devoted 22 pages to the topic of fuel transfer pumps. The discussion covered the consequences to the expensive fuel injection pump that is downstream of the transfer pump should the fuel transfer pump fail.

The following is a "bottom line" version:

'89-'93 Owners – If the mechanical fuel transfer pump (driven by a lobe on the engine's camshaft fails there is no damage to the engine's fuel injection pump. The mechanical transfer pump has a long life-to-failure and replacement parts can be obtained at your Cummins distributor. Should the transfer pump not operate, the engine will not start/run. There will not be any damage done to the Bosch VE-style fuel injection pump that is downstream of the fuel transfer pump. It is not necessary to monitor the fuel pressure from the fuel transfer pump.

'94-'98, 12-Valve Owners – These engines use a higher pressure/greater fuel delivery Bosch P7100 fuel injection pump. Nonetheless, the story about the engine's mechanical fuel transfer pump and failure-mode of operation is the same as the '89-'93 vintage trucks.

'98.5-'02, 24-Valve Owners – RED ALERT. If the electric fuel transfer pump fails (a less than \$180 part) the Bosch VP44 electronic fuel injection pump (an expensive \$1200 + labor part) that is downstream of the fuel transfer pump will, in short order, fail. This infamous past has a sordid history. Life-to-failure can be as little as 15,000 miles. We do not sell the Dodge or Cummins OEM replacement part for this reason. We do sell an aftermarket designed part that is much more robust in its design. We also sell a Fuel Transfer Pump Relocation Kit for '98.5-'02 Dodge diesel trucks that moves the pump away from the hot, vibrating engine and puts the pump on the truck's frame rail, closer to the fuel tank, where the pump can function more like a pusher of the fuel rather than a suction device.

The Bosch VP44 has to have positive fuel pressure from the transfer pump to keep the VP44 pump's internal parts lubricated and cool. Have you installed a fuel pressure gauge to monitor the pressure of the marginal-at-best fuel transfer pump?

Why do you not have a fuel pressure gauge on your '98.5-'02 truck?

Do not pass GO. Do not collect \$200. Go directly to JAIL.

Your sentence for incarceration is to purchase and install a fuel pressure gauge. Upon completion of your sentence you will purchase a spare fuel transfer pump replacement (or upgraded aftermarket pump) and fully understand how to perform the 20-minute replacement. For your good behavior, you may also consider a fuel transfer pump relocation kit.

'03-'04 Owners – Good news – if the electric fuel transfer pump, that is located on the engine, fails it does not cause damage to the Bosch High-Pressure, Common-Rail (HPCR) fuel injection pump.

For year model '05 (and to current '09 trucks) Dodge relocated the fuel transfer pump and put it into the fuel tank. This has proven to be a better design.

Unfortunately, Dodge and Cummins discontinued the '03 to '04 fuel transfer pump and directed these owners to the '05 design system. This is fine if you have \$400 to spend for the now-in-the-tank fuel transfer pump hardware and \$400 labor to install the kit. For a more cost effective option we have found an aftermarket fuel transfer pump that fits the original '03-'04 location.

Life expectancy on the '03-'04 transfer pump; about 80k miles. Again, should the pump fail the consequence to the Bosch HPCR fuel injection pump is only that the truck will not start. Fuel pressure gauges are not needed for the '03-'04 engines (or newer '05 to current). Should the truck fail to start, the owner can simply listen for a non-functioning fuel transfer pump. For '03-'04 owners, be prepared and carry a spare. For '05 to current...thus far the in-tank fuel transfer pump design is proving to be durable and is giving long life.

At the Geno's Garage website in the Technical Information section we've also got the complete 23 page write-up on fuel transfer pumps. Look for **DODGE DIESEL TRUCK FUEL TRANSFER PUMPS REVISITED - TDR BUYER'S GUIDE**.

FOCUS ON THIRD GENERATION

Flaw: Third Generation performance and fuel issues. The lift pump located in the area of the fuel filter is being upgraded/replaced by Dodge dealers with the in-tank fuel lift pump as used on the '05 trucks when failure on earlier models is reported during the warranty period.

Fix: If your Third Generation truck is hard to start or offers limited output, check the CP-3 high pressure fuel pump that feeds fuel at 23,000 PSI to the fuel manifold. Failure of the high pressure fuel pump is cured by pump replacement. You should also check the voltage at the electric in-tank fuel pump. There is no TSB on either of these at this time.

Flaw: Excess truck washing due to fuel spills.

Fix: Fuel can spill on the painted filter surface from fuel overflow during the tank filling process on some Third Generation trucks. Drill a small hole in the plastic piece surrounding the fuel filler opening below the fill tube opening to allow any fuel overflow to drain out rather than run down the painted side of your truck.