



THE NUMBER ONE DODGE/CUMMINS TURBO DIESEL RESOURCE

ISSUE 77

AUG/SEPT/OCT 2012



**INSIDE:** Above is a collection of previous TDR Calendar contestants. The 2013 Calendar Contest is discussed on pg. 4.

# TECHNICAL TOPICS

Service/Parts Update and Articles  
by Robert Patton

## WISH I'D KNOWN THAT

TDR members are very good at holding on to their old magazines. Likewise they know that indexes of previous articles were published yearly until year 2009. These important archives were compiled by Bob and Jeannette Vallier. These valuable yearly indexes are found in Issues 65, 61, 57, 53, 49, (deduct 4), etc. Then in 2009, we implemented a digital search of TDR magazines back to Issue 40 at our web site.

So, a solid infrastructure exists for those who want to research a topic.

But, how about a resource for those folks who don't know what they don't know?

That's right, something for the "wish I'd known that" crowd.

Wait a minute, isn't that what the TDR's [Turbo Diesel Buyer's Guide](#) (TDBG) is all about? Yes, indeed, and there is so much detail (aka, TDR's solid infrastructure) in the [TDBG](#) – Oops, perhaps the detailed research is too daunting of a task for the prospective new owner who doesn't know what he doesn't know. How can we keep it simple?

Easy. I gave the "Wish I'd Known That" assignment to Joe Donnelly for the First Generation truck, Scott Dalglish for the Second Generation truck and I took the Third Generation truck. I created an outline for each of us to follow and I completed the assignment first so they could see how the format should be turned into entertaining and educational text.

---

*Likewise, the [TDBG](#) is a fantastic source for performance and miles-per-gallon enhancements; specifications; Technical Service Bulletins; yearly changes to the truck; evolution of the different Cummins engines; warranty considerations.*

---

## The Outline

Rather than reinvent the wheel, I used the established categories used by the Chrysler group for all of their Technical Service Bulletins. That numerical system is as follows:

2 Front Suspension	14 Fuel
3 Axle/Driveline	16 Propeller Shafts and U-Joints
5 Brakes	18 Vehicle Performance
6 Clutch/Manual Transmission	19 Steering
7 Cooling	21 Automatic Transmission
8 Electrical	22 Wheels and tires
9 Engine	23 Body
11 Exhaust/Air Intake	24 Air Conditioning
13 Frame and bumpers	25 Emissions Control
	26 Miscellaneous

Within each of these categories I will present the most common "Wish I'd Known That" problems that have been encountered by the TDR audience. Then I'll give a brief write-up of the solution with a TDR reference location (perhaps within the [TDBG](#), perhaps in the magazines) where the new or prospective owner can go for details as needed. Here goes...

## General Information

Before I start my "Known That" story, I'll remind you of an inspection chart that TDR writer Andy Redmond uses for evaluation of any used vehicle. The detailed chart is found in Issue 70, page 121.

If you use this level of detail in your pre-purchase exercise(s), I have no doubt that the seller will be impressed with the thoroughness of your vehicle search. Andy's inspection list trumps my, "If the door jams and truck seal (or tailgate lift area) are clean, I am a buyer" pre-purchase criteria.

Rather than bore you with the "do a Carfax Report; check the NADA and Kelly blue book values; check with your insurance agent for policy prices; loan values; etc.," I'm going to make the assumption that this truck purchase is not your first rodeo. If you need further information:

- TDBG, "Buying a Used Truck"
- TDR #70, page 120, "Pre-Owned Purchase"
- TDR #73, page 96, "Let the Search Begin"
- This issue, page 80, "The Search for a New Ram"

Likewise, the [TDBG](#) is a fantastic source for performance and miles-per-gallon enhancements; specifications; Technical Service Bulletins; yearly changes to the truck; evolution of the different Cummins engines; warranty considerations – wait, why not give you the table of contents because I can guarantee it will be referenced when I get into the "Known That" story detail. The TOC is on the next page.

**Why a Diesel?** . . . . . 4  
**Looking at the Changes** . . . . . 8  
**Evolution of the Cummins Engine, 1989-Current.** . . . . . 26  
**Performance Enhancements, 1989-Current.** . . . . . 48  
**Performance, Warranty and You** . . . . . 70  
**Fuel Injection System '89-'02** . . . . . 76  
**Why Didn't They Think of That – Exhaust Emissions.** . . . . . 83  
**So You Want Fuel Economy.** . . . . . 89  
 Part One – The Basics of Volumetric Efficiency . . . . . 89  
 Part Two – All Year Models and Updates . . . . . 95  
 Part Three – How to Drive . . . . . 109  
**Your Truck and the Boost Treadmill** . . . . . 113  
**Buying a Used Truck** . . . . . 118  
**What Does Every Turbo Diesel Owner Need to Know** . . . . . 120  
**The Driving Force Behind the Changes to the Cummins Engine/ Meaningful Abbreviations** . . . . . 122  
**Dodge Technical Service Bulletins** . . . . . 128  
 TSBs Issued During '95 and Prior . . . . . 129  
 TSBs Issued During '96 . . . . . 142  
 TSBs Issued During '97. . . . . 147  
 TSBs Issued During '98. . . . . 152  
 TSBs Issued During '99 . . . . . 156  
 TSBs Issued During '00. . . . . 162  
 TSBs Issued During '01. . . . . 167  
 TSBs Issued During '02. . . . . 170  
 TSBs Issued During '03. . . . . 176  
 TSBs Issued During '03-'09. . . . . 182  
 TSBs Issued During '10. . . . . 206  
 TSBs Issued During '11. . . . . 210  
**Recall Notices** . . . . . 215  
**Most Common Problems** . . . . . 221  
 Favorite Fumbles—Fabulous Fixes . . . . . 221  
 12-Valve Dowel Pin Common-Sensical Solution 226  
 12-Valve No-Start Condition . . . . . 230  
 Vintage '94-'04 Lock/Unlock . . . . . 231  
 Block 53 and Class Action Settlement . . . . . 232  
 Steering Woes . . . . . 235  
 Fuel Transfer Pumps Revisited . . . . . 246  
 Low Pressure Fuel System Problems. . . . . 265  
**DTCs and You** . . . . . 269  
**Problems Solved by the TDR's Writers, TDR Members, and TDR Vendors.** . . . . . 279  
**Mechanics Tips** . . . . . 287  
**New Owner's Corner...** . . . . . 290  
**Part Number Reference** . . . . . 291  
**Why Ask Why—Liquids in Your Truck.** . . . . . 293  
**Memorable Articles** . . . . . 297

No, let's attempt the highlights and add additional commentary. Here goes: Now, for the data that you've been waiting for, "Wish I'd Known That – Third Generation, 2003-2009."

**2 Front Suspension**

For this concrete-cowboy who lives in Atlanta, Georgia, there is no need for a four-wheel drive truck. With the two Third Generation trucks that I have owned (one is still in the family) I can say that the only suspension maintenance required was to change the shock absorbers at 175,000 miles.

In consulting with my four-wheel drive buddies, they tell me that the Third Generation's suspension is greatly improved over that of the previous '94-'02 Second Generation truck. However, if you add big wheels and tires, raise the suspension and/or exceed the 100,000 milestone you will have to go underneath the truck and monitor the suspension components for wear. While this generation of truck is not as prone to the "death wobble," the aforementioned big tires/raised suspension/mileage will have the owner looking at beefing up the steering box stabilizer, track bar, track bar bushings and steering damper. Unfortunately, there is not a one-size-fits-all solution to suspension wear. There is a 10-page article in the TDBG that covers suspension inspection and alignment specifications, pages 235-245.

**3 Axle/Driveline**

One word: bulletproof. Certainly there have been individual problems, but when was the last time you read a TDR article about U-joints, drive shaft, transfer case or axle problems?

**5 Brakes**

Normal maintenance is required.

If you want a complete tutorial on brakes, brake pads, brake bias, etc., you'll want to review the four-part series written by brake expert, James Walker, in TDR Issues 40-44. Yes, this is the same James Walker that authored the book High-Performance Brake Systems. His words from Issues 40-44 still hold true today.

Issue 40: James explains that your brakes do not stop the vehicle. The traction available between the road and the tire's four contact patches are what stops the vehicle. With this bit of enlightenment, you can bet that Issue 40 is worth a reread as James covers "Braking Systems in Plain English." Discussion about everything from the brake pedal, master cylinder, brake calipers, brake rotors, brake pads, brake lines are in the Issue 40 text.

Issue 41: "Brake Pad Selection." Brake pad material is a compromise. Read all about it.

Issue 42: "Twenty-One Brake Questions." From how to break in brake pads to why the rotors warp, James answers your 21 questions.

That, my friends, was a heck of a long introduction. Those with an eye for the details will carefully examine the TDBG's "TSBs Issued During '03-'09," pages 182-205. These documents give the service network the proper repair technique for the most common Third Generation truck problems. Perhaps this article should have been simply republishing those 23 pages?

Issue 43: "Brake Fluid." What is the difference between DOT 3, 4, 5 and 5.1? You'll know after you reread Issue 43.

Issue 44: "Brake Bias." Have you ever locked up the rear tires and have the back of the vehicle want to pass the front? Do you know more about brake bias than the factory engineer? Another James Walker article that is worthy of reread.

**6 Clutch/Manual Transmission**

**Transmission Options:** You know, the TDBG is an excellent reference guide—I had to refer to its section "Looking at the Changes," pages 14-19 to see what clutch/gearbox was used in the different '03-'09 Third Generation trucks. Here goes—

2003: NV4500 with standard 235 or 250hp engine  
NV5600 with high output 305hp engine

2004: Early 2004 models in CA, ME, MA, NY and VT got the NV4500 gearbox with a 235hp engine. All other states got the NV5600 gearbox with a 305hp engine

2004.5: A mid-year introduction gave all states the 325hp engine and a NV5600 gearbox.

2005: As the 2005 model year progressed, the New Venture NV5600, six-speed manual was replaced by a Mercedes Benz designed G56 six-speed manual transmission. The reason for the change: New Venture Gear was a joint venture company between DaimlerChrysler and GM. In December of 2002 the partnership was dissolved and New Venture was/is wholly owned by GM.

So if you have a 2005 truck with a six-speed transmission, how do you tell—without crawling under the truck looking for signs of identification—if it is the NV5600 or the G56? Easy, the shift pattern for a NV gearbox has reverse up and to the right; the G56's pattern is over to the left and down. (Thanks, Peter Pyfer at South Bend Clutch.)

2006: The G56 Mercedes Benz is now the only manual transmission that is offered.

2007: Same

2007.5-2009: In early 2007 the internal ratios of the G56 transmission were revised. The new gearbox is given the name "G56R." The following is the comparison chart.

		1	2	3	4	5	6
'05-'07	<b>G56</b>	6.26	3.48	2.10	1.38	1.00	.79
'07.5-newer	<b>G56R</b>	5.94	3.28	1.98	1.31	1.00	.74

**Clutch Discussion:** All clutches are a compromise. For the most part, if you drive the truck as it was intended and do not increase the engine's performance, the clutches used in Third Generation trucks give the owner acceptable (and then some) life. So, in an effort to write an article for "Wish I'd Known That," there is not a beware-of-this statement that has to be addressed.

The clutch used with the NV4500 and NV5600 was mated to a single flywheel.

The clutch used with the G56 and G56R is mated to a dual mass flywheel.

If your truck has a clutch problem; if you want to learn more about clutch replacement options; if you need to learn more about the dual mass flywheel and flywheel options for your G56/G56R, here are the related articles in the TDR that will help you.

Issue	Page(s)	Title	Author
30	36-39	NV4500 Drivetrain Updates	Joe Donnelly
31	28-29	Manual Clutches for the NV5600	Joe Donnelly
38	140-141	Troubleshooting Short Clutch Life,	Peter Pyfer
55	58-59	Clutches 101	Jim Anderson
63	40-44	Covering the Basics	Gary Croyle
66	94-101	Turbo Diesel Clutch History	Joe Donnelly
67	78-79	Performance Clutches	Joe Donnelly
68	88-90	Dual Mass Conversion and the G56	Joe Donnelly
71	12-16	Dual Disc Clutch for the NV5600	Doug Leno
72	10-12	Dual Disc Clutch Update	Doug Leno

**Gearbox Discussion:** As I mentioned in the Clutch discussion, in writing for the "Wish I'd Known That" audience there is not a beware-of-this statement about gearboxes used in the Third Generation trucks that has to be addressed. And, just like the clutch discussion, the TDR's writers and members have "been there, done that" with the gearboxes. How so? Well, take a look at the reference material listing that I have provided below:

Issue	Page(s)	Title	Author
53	94-98	G56 and the Dual Mass Flywheel	Scott Dalgeish
53	98-101	G56 compared to NV5600	Scott Dalgeish
64	85-89	Rebuilding the NV5600	Joe Donnelly
67	84	Rebuilding the NV5600	Joe Donnelly
68	88	G56 Rebuild	Joe Donnelly
70	12	NV4500 Repair	Joe Donnelly
71	106-109	G56 Rebuild	Joe Donnelly
75	92-94	Manual Transmission Review	Joe Donnelly

Pay particular attention to Donnelly's Issue 75 article (pages 92-94) and the "Backfire" discussion on pages 106-107, as the text gives you some preventive maintenance and accessory tips:

To summarize, the articles recommend: G56 and NV5600 – The addition of transmission coolers, for cooling and for extra lubricant capacity, is a good idea. Likewise, do not "over-torque" the gearbox by leaving it in sixth gear/low rpm when you encounter steep terrain.

G56 – ATF+4 is the recommended lubricant. Donnelly and transmission vendors recommend over-filling the G56 by one quart and using a heavier fluid (Pennzoil Synchronesh as used in the NV5600 or a GL6-rated lubricant).

## 7 Cooling

Normal maintenance is required.

The [TDBG](#) has a summary of all of our antifreeze discussion on page 295.

And, for anyone who has had to change a water pump on any vehicle other than their Turbo Diesel, you have to give the Cummins engineers credit for the super-simple water pump design. Remove the accessory drive belt, remove two 10mm bolts that hold the water pump in place and you've got this project close to completion. Cooling system problems are few and far between.

## 8 Electrical

Normal maintenance to the alternator, starter, batteries, solenoids, etc., is required.

In this issue, you'll read about Chrysler's totally integrated power module (TIPM) that controls many of the truck's electrical functions. A replacement TIPM is expensive (\$700) and now that these trucks have aged—and seen multiple owners with multiple trailers with who-knows-what wiring—we are seeing TIPM failures. The TIPM was not designed as a circuit breaker, and, if owners do not correct wiring problems, they find out how expensive it is to replace the TIPM if they use it as a circuit breaker. Ouch.

## 9 Engine

With all of the components that make up an engine, you would think that there would be a long list to discuss. However, aside from programming issues with the 6.7-liter engine (covered later in "Vehicle Performance"), the 5.9 and the 6.7 are rock solid! And, in fact, the '03-'07 5.9-liter engine is regarded by Turbo Diesel enthusiasts as the best of all. It is easy to maintain and service. The valve adjustment is every 100K miles. Hot rod parts are inexpensive and abundant and 400 horsepower is easy to attain. (Over 400 gets expensive as turbochargers need to be modified and other components have to be matched to the higher engine output.) Also, fuel mileage can be improved. All the particulars are in the [TDBG](#) starting on page 48 and again on page 89.

As I mentioned in "Axle/Driveline," there are always individual problems that occur, but when was the last time you read a TDR article about a bad turbocharger, water pump, oil cooler, oil pump, camshaft, valve train, etc.?

However, there is one area of the engine that is prone to wear. To meet emissions standards the engine uses a Bosch high pressure common rail (HPCR) fuel injection system. These injectors can fire as many as four times in a combustion event. Fuel filter maintenance (every 15,000 miles) and clean fuel are paramount to injector life. The average life span is 160-200,000 miles. Normally, if you need to replace one injector you'll need to replace all six—kind of like the purchase of replacement tires. Expect to pay \$350-400 per injector or \$2100-\$2400.

TDR writer Joe Donnelly tried to capture everything you need to know about the HPCR injectors in his Issue 72 article "Injectors for HPCR Engines." The three page article starts on page 44. Any owner who wants to understand the principle of operation; wants to understand the importance of clean fuel; needs to replace an injector; has an engine stumble; wants to know about performance injectors; wants to know about alternate fuels; etc., you'll want to reread Joe's article. It is as relevant today as it was one year ago. Again, that is Issue 72, pages 44-57.

Performance upgrades for the 5.9-liter engine: Read all about it in the [TDBG](#), pages 89-112, "So You Want Fuel Economy."

Performance upgrades for the 6.7-liter engine: Three words sum it up—don't do it. The [TDBG](#), pages 70-75, "Performance, Warranty and You," gives you the reasons. Also, flip to page 56 and read "Section 18 – Vehicle Performance" for the reason(s) that I suggest you leave the 6.7-liter engine alone.

## 11 Exhaust/Air Intake

I just returned from a show where the proud Turbo Diesel owner told me about his '06 truck with the free flow exhaust, super monster filter and powder-coated intake air horn. He told me about the increased mileage (Really?) and the fact that he could hear the difference (No doubt!).

After we touched on several other topics—my favorite was the biodiesel junk—it was obvious that any challenge that I might present that opposed the justification for his modifications would be futile. So, I found a reason to excuse myself and walked away.

Don't get me wrong. In the quest for high horsepower, performance exhaust and intake systems have their place. Both work to lower and control exhaust gas temperatures and give a measure of better horsepower. However, with the exhaust system you sacrifice noise, with air intakes you may sacrifice air filtration.

So, for the guy who wants a dependable, reliable truck, my suggestion is to leave the exhaust and air intake alone.

This is especially true with the 6.7-liter engine. Our contacts at Dodge tell us that the new emissions laws require more sensors than ever before. The engine is very sensitive to intake air temperature and any change in the filter or airbox could lead to:

- The potential for too much hot underhood air which can cause a derate condition. This occurs most often in high altitude situations when the engine fan is engaged.
- Too much oxygen (O<sub>2</sub>) in the exhaust system. This can prevent the regeneration from coming on and foul the exhaust aftertreatment system.

For 5.9-liter owners the K&N filter debacle was covered in Issue 34, pages 105. Back in the Fall of 2001 Cummins tested the K&N for air flow and dirt flow. The result: Yes, they flow more air *and* more dirt. At the time the K&N was the number two selling item at the sister company Geno's Garage. As much as it could have hurt sales, the folks at Geno's pulled the item from the shelves and no longer offer the K&N line of filters.

Finally, the air filter, cold air intake, and the performance you should expect from these types of modifications was covered in Issue 56 and 59. These articles are also conveniently found at the Geno's Garage web site under "Technical Information" and then the title "Understanding Air Intake Systems," or at the TDR's web site in the digital back issues area.

### 13 Frame and Bumpers

Back in 2003 Dodge introduced a new-and-improved hydroformed frame. This manufacturing technique results in a stiffer and stronger frame.

The folks at Dodge did not want a bunch of owners and aftermarket installers messing up this frame with Swiss cheese-type holes. They issued a technical service bulletin (TSB 13-001-03, 2/7/03) that set forth their guidelines. Since these trucks are now ten years old, I've no doubt that the second and third generation owners have ignored the TSB and the Swiss cheese holes have been drilled. The take away: beware of the overzealous frame driller. Aside from this watchword, the frame and bumpers are not problem areas.

### 14 Fuel

As mentioned in "Section 9 Engine Discussion," clean fuel is paramount to injector life. In this issue see pages 14 to 16 for more information on clean fuel (Chrysler TSB 14-004-11).

Biodiesel: With the cost of injectors at \$2100-\$2400 per set (and the other HPCR injection components aren't cheap either) I would steer clear of unknown biodiesel and not use anything greater than a B20 blend from a reputable supplier. Your Owner's Manual states that you should only use a B5 blend.

### 16 Propeller Shafts and U-Joints

Normal maintenance and inspection are required.

### 18 Vehicle Performance

For ease of reading I will break this topic into the two engines used in Third Generation trucks: the 5.9-liter and the 6.7-liter.

### 5.9-Liter Engine



Earlier I mentioned that the 5.9-liter from '03-'07 is regarded as the best of all engines found in our turbo Diesels. Leave it stock and it will last forever.

However, "leave it stock" is not a statement that the typical Turbo Diesel enthusiast can abide. So, what do owners do to this engine in their quest to improve on what was provided by the Cummins factory folks?

Boy, this is a lengthy topic. Exhaust and air intake have already been discussed in category 11. Programmers, turbochargers, camshafts, hot-rod injector—the TDR's writers have "been there, done that" and achieved some amazing results with horsepower *and* fuel economy. I'm not going into all of the details for this "Wish I'd Known That" article, but I will give you the chapter and verse so that you can do due diligence in your research—[TDBG](#), pages 89-112, "So You Want Fuel Economy" with particular attention to pages 97 and 108. Scott Dalgleish articles: Issues 50, 51, 52, 54, 59, and 61. Doug Leno articles: Issues 45, 47, 48, 49, 51, 53, and 57. Doug Leno article update: Issue 68, pages 50-57.

Now, while you are on your due-diligence quest for horsepower and economy you need to realize that, for the most part, *none* of the performance gains were done using aftermarket parts that meet any EPA or California Air Research Board (CARB) emissions standards or testing. You are reading between the lines correctly: Prior to 2007.5 (actually 2009, but it is a real long story\*), the world of diesel performance aftermarket parts was like the wild, wild West—anything, everything and lots of black smoke.

\*If you want the long story, you'll have to attend the Specialty Equipment Manufacturer's Association (SEMA) show each year and sit in on the diesel performance roundtable discussions. A summary of many years of my participation is found in the [TDBG](#), "Performance Warranty and You," pages 70-75. Before you add any winky-twinky performance items to your truck, you need to understand the potential \$25,000 fine you could face for violation of EPA code 203(a). Ouch!

## 6.7-Liter Engine



As mentioned, the vehicle performance section was broken into two categories. Now it is time to discuss the 6.7-liter engine from the '07.5-'09 model years.

TDR members know that some of the odd model year designations ('91.5, '98.5, '07.5) coincide with the tightening of federal exhaust emissions rules. Such was the case with the 6.7-liter introduction as an '07.5 model. And, if you recall from your reading in the TDR or from the [TDBG](#), the 6.7-liter engine was a step ahead of the competition and the federal emissions standards as it was emissions compliant for the standards that would be in force in 2010. Detailed information about the hardware changes that coincided with the 6.7-liter introduction: [TDBG](#) pages 40-46, "The 6.7-Liter Engine Introduction."

Yet, early to the market with the new technology does not always equate to seamless reliability. Notice I did not mention durability, as the hardware (block, cylinder head, turbo, EGR components, water pumps, fuel injection equipment, etc.) have not given owners undue problems. However, the software, i.e., programming of the engine to stay in-sync with the emissions control hardware (the diesel particulate filter, the EGR controls, the diesel oxidation catalyst and the nitrogen absorber catalyst), has caused owners their share of grief. Knowing that there are two sides to every story, the blame is not entirely that of Cummins and Dodge. Back in '07.5 we still had folks purchasing diesel trucks without a need to really have a diesel. The 6.7-liter engine should not be used to drive around town and bring home groceries.

Time has proven that if you use the engine as intended and leave it stock, it will last forever. This statement is a repeat of my assessment of the '03-'07 5.9-liter engine. However, unlike the 5.9 owner that could not resist modifying his engine, the 6.7-liter owner had better leave it stock.

For those that resisted the temptation to tinker, in the past four years the 6.7 owner was faced with multiple ECM flashes and updates. Often these updates were complicated by fraudulent owners that would pull their hot-rod programmer off the truck or reflash the ECM to stock. In March 2009, the Cummins folks—perhaps tired of this illegal game, and wanting tighter control of their ECM and/or influence by the EPA to stop owner tampering—embedded software to make sure only approved calibrations were downloaded, a secured ECM. If a non-approved flash was detected, a trouble code U1601 was set and the engine would not start.

Looking back to the TDR's coverage of the secured ECM (Issue 67, page 34, "Spy Versus Spy: The 3/2009 Secured ECM") I did some research to see how successful Cummins has been with their security attempt. Since there are aftermarket products available for Turbo Diesels made *after* 3/2009, one has to assume that the aftermarket folks found a way around the U1601 code and that engines do start with the aftermarket programmers. However, in typical Spy versus Spy fashion, I've no doubt that there are other counters (the number of downloads), timers or red flags in the ECM to tell the Dodge service technician that a reprogram has occurred.

If you value your warranty status, how many times do I have to say "Leave the engine stock."

Here is what to look for if you play hot-rod guy with the 6.7 engine: First off, admit that you are a cowboy, a one-percenter, a member of the lone-wolf club. It is now *your* engine, and you are your own warranty station! Next, please read the [TDBG](#) article "Performance Warranty and You," pages 70-75. Subsequently, the EPA and CARB have made enough threats to keep many in the aftermarket from playing in the 6.7-liter performance business. Likewise, another deterrent is the 2010 CARB emissions test that California residents have to pass in order to get a license tag.

Now, after all of the cautions that I have presented, I can only imagine that there will still be owners that want more performance from the 6.7-liter engine. In Issue 67, pages 31-34, I listed all of the modules/programmers that were available for the engine. In conclusion, I wonder to myself, "How many different ways can I say leave the engine stock."

Finally, the TDR followed the trials and tribulations of a member that modified his 6.7-liter engine in a short article in Issue 72, page 32: "The Long Story, a Tale of Woe."

Regardless of the cautions that I've issued, there will be the instance where a fault code/check engine light appears on your dash. How do you read the code and what does it mean? Is the code a nuisance or a serious call to action? Again, the intent is to keep this article brief: you can find all of the fault code answers in Issues 74, pages 84-85; Issue 66, pages 90-91; and the [TDBG](#), pages 269-278.

## 19 Steering

In my review of the TSBs from '03-'09 ([TDBG](#), pages 182-205) I did not see anything out of the ordinary in the steering category.

**21 Automatic Transmission**

In my review of the TSBs from '03-'09 ([TDBG](#), pages 182-205) I did not see anything out of the ordinary in the automatic transmission category.

Before you cry, "Foul, we know there are automatic transmission problems," let's try for a civil discussion on the topic.

First, let's discuss the time frame for changes to the automatic transmission. The first big change was January 1, 2003, for the change from the 47RE to the 48RE. There were no internal gear ratio changes.

The next change was January 1, 2007, for the change from the 48RE to the six-speed 68RFE. The new 68RFE went hand-in-hand with the '07.5 introduction of the 6.7-liter engine. The gear ratio comparison to the 48RE:

		1	2	3	4	5	6
'3.55-'07	48RE	2.45	1.45	1.0	.69		
'07.5-newer	68RFE	3.23	1.84	1.41	1.00	.82	.63

The complete "Ask the Engineer" story about the 68RFE is found in TDR Issue 58, pages 46-47.

Now, let's talk reliability, durability and all that stuff...

Okay, the '03 and '04 models have the same throttle position sensor (TPS) as the '98.5-'02 trucks. The TPS has been widely known to give folks problems. Do you need to do some research to find out the particulars? [TDBG](#), "Vintage '94-'02 Lock/Unlock," page 23.

More reliability, durability and stuff: Perhaps you are under the impression that the Dodge automatic transmissions are substandard and are the weak link in an otherwise good drive line. How did this idea come to be?

First off, let's discuss the new 68RFE. It was introduced with the 6.7-liter engine in 2007.5. The initial power ratings for the engine was 350hp/650 torque. Not to be outdone by the competition, in February 2011 an engine rating of 350hp/800 torque was authorized for use with the 68RFE. (Notice, this rating was not released for manual transmissions—the clutch cannot take the torque.) Careful reading of the TDR magazine will reveal that the 68RFE is not being overpowered by the engine and the problems are few and far between.

I think the reason the 68RFE is doing well is two-fold: First, it is a good transmission. Second, owners of the 6.7 engine are not playing super hot rod/gonzo performance games with the engine and, therefore, not overpowering the torque converter lockup disc.

Now let's talk about the 48RE. This transmission has the same casting footprint as the previous 47RH/RE ('94-'03 vintage), the A618 ('89-'93 vintage) and the famous Chrysler 727 transmission that dates back to the 1960s. Matched to moderate horsepower and torque ratings, this transmission performed well, at least until 1994. Although engine ratings did not substantially increase in 1994, the factory used a plastic transmission line connector that, given time and heat cycles, was prone to leak fluid. If you ran the transmission low on fluid you would eventually overheat the transmission and end up with an expensive repair bill. Revised connectors were

implemented in or about 1997. However, a damaged reputation was already established.

Add to this damaged reputation story the fact that Turbo Diesel owners were discovering all kinds of horsepower adders for their 12-valve and 24-valve engines, and the transmission's reputation was further dinged. The extra horsepower/torque could, and did, overpower the 47RH/RE's torque converter lockup disc. Once the disc slips the transmission has to be rebuilt.

That's the transmission story, and the bad reputation kind of disappears with the Third Generation trucks and the 48RE and 68RFE. I fully understand the 68RFE story. I suspect the reason we don't hear complaints from the '03-'07 crowd with the 48RFE is that they *know* that their engine horsepower/torque modification has to be matched with a modified automatic transmission torque converter lockup. They listened and learned from the '94-'02 owners.

**23 Body**

In my review of the TSBs from '03-'09 ([TDBG](#), pages 182-205) I did not see anything out of the ordinary in the body category. However, since your Third Generation truck is up to nine years old I am betting that the paint could use a bit of rejuvenation. TDR writer Doug Leno did an excellent article on truck detailing in Issue 68, pages 58-65. To rid your truck of those nasty swirl marks and etching from acid rain, this article is worth a reread.

**24 Heating and A/C**

Two words: blend door. Two more words: It happens. Reference material for the repair: Issue 66, pages 12-17.

**25 Emission Control**

Nothing to report.

**26 Miscellaneous**

Nothing to report.

**Conclusion**

It is difficult for me to put aside my bias for the Dodge/Cummins Turbo Diesel truck. However, the Third Generation vehicle is far better than the trucks from GM or Ford from the same vintage of years. The Ford owners had various engine problems to deal with in those years and the Duramax engine from GM was yet to be proven.

If you already own a Third Generation truck, I hope you agree with my assessment of your vehicle and that the article has provided a solid review for details that you had long since forgotten. For the prospective "Known That" owner my hope is that the data provided gives you the confidence to purchase the truck. The truck is not without its faults, but we TDR members are here to provide you with an information resource that is unmatched anywhere else.

**Robert Patton**  
TDR Staff