Volume 2010-2012

TURBO DIESEL

Buyer's Guide

What you should know about the
2010-2012 Ram Turbo Diesel truck.

A Publication of the ***Turbo Diesel Register***

Turbo Diesel Buyer's Guide

A WORD ABOUT THIS BUYER'S GUIDE

Recently my wife and I spent much time looking for a "new" used car. I fired up my computer, studied comments and users' experiences in forum-based websites, and downloaded archived articles from Car and Driver and Edmunds.com. There was a lot of miscellaneous and helpful information, free and for the taking. I figure this sort of web search is pretty typical for prospective vehicle purchasers today. As it turned out, we didn't make a purchase, but my experience in searching for a suitable used car made me more aware of issues of value and economy in owning a Turbo Diesel today.

As a writer it is tempting to tell the long story of "information being worth the price that you paid for it." I will refrain. Many thought-provoking articles on the state of the publishing business versus the free-for-all of the interweb (pun intended) have been written and my opinion is not likely to change anyone's point of view.

Back to the subject at hand—you are a prospective or new owner. You want more information. You want it now. You want it at no charge.

Since the late 90s we have compiled information on the Dodge/Cummins Turbo Diesel truck. Each year we update the book. We call the data the Turbo Diesel Buyers Guide, which you have successfully downloaded.

The price of this book has been discussed many times over. It is offered to you at no charge. Our hope is that its value will lead you to purchase a subscription to the Turbo Diesel Register magazine. Thanks for your consideration.

Robert Patton
TDR Editor

VOLUME 2010-2012

TABLE OF CONTENTS

2010-2012 Buyer's Guide last updated 02/2017.

A WORD ABOUT THE TURBO DIESEL REGISTER

How did the Turbo Diesel Register get its start? First off, I'm an automotive enthusiast. An automotive enthusiast that was in search of a tow vehicle for my admittedly small collection of automobiles. As you can imagine, the search for the right tow vehicle took me in the direction of the Ram Turbo Diesel. My search was aided by the fact that my previous job was in the diesel engine profession as a Cummins distributor product support representative. Do I have a good knowledge of the Turbo Diesel engine? Well, maybe. I'll let you be the judge.

Back to the "story." As an automotive enthusiast, I am a member of a handful of car club/register type publications. In addition, I subscribe to just about every car and truck monthly publication in hopes that I can learn something more about my vehicles. The only vehicle I owned that didn't have its own club was the Turbo Diesel. The light goes on. Why not start a Turbo Diesel club? The light flickers. I know the immediate answer: not enough time, no money, and who would write the articles? Needless to say, the idea got put on the back burner. Another great idea, but…

Looking back, that was many long years ago. Prior to our first magazine (Fall '93) I took time to talk to other Turbo Diesel owners who wanted to know more about their truck and specifically the Cummins engine. At the time I knew the Turbo Diesel Register would work. I also knew it would be a lot of hard work with an up-front monetary investment and the commitment to publish the magazine.

Positive discussions with other club/register publishers and an unofficial "good luck" or two from the manufacturers, and well, I was still hesitant. Back to the all-important concerns: time, money and writing skills. Time? In the initial two-career-days it was nothing to stay up until 2:00 a.m. Money? What the heck, we took out a second mortgage. And writing skills? You've heard the saying, "if it is to be, it is up to me." Thus, we started the TDR way back in the summer of 1993.

Robert Patton
TDR Editor

PS. We hope you'll learn something from the following collection of tips and Ram technical data. Please realize this booklet is just the "tip of the iceberg." The TDR and its members provide a wealth of information. How to join? Please fill-out and mail the order form or register on-line at www.turbodieselregister.com.

Join Us Today!

An annual subscription to the Turbo DIesel Register is $35.00 U.S. and $45 Canadian/International.

Please complete this subscription form and enclose it in an envelope along with your check or money order payable to:

TURBO DIESEL REGISTER
1150 Samples Industrial Drive
Cumming, Georgia 30041

(770) 886-8877

Name ______________________________

Address ______________________________

City ____________________ *State* __________ *Zip* __________

Phone: *Home* ( ) ______________________________

Work ( ) ______________________________

Truck Year ______________ *Model* ______________

☐ *Payment Enclosed*
☐ *Bill my Mastercard/VISA*

______________________________ *Exp. Date* ______________

WHY A DIESEL?

by Robert Patton

As the editor of a club news magazine (the *Turbo Diesel Register* for Dodge/Cummins owners), I am frequently asked, "Why is a diesel engine more fuel efficient than a gasoline engine of comparable displacement and horsepower?"

Let's see if I can provide a simple, no-nonsense answer. At the close of this article we'll do a quick diesel-payback example. Armed with a better understanding of why diesel provides a better payback on fuel consumption, you will be equipped to wring the most mileage from your tankful of diesel fuel.

How would you respond to, "Why is a diesel more fuel efficient?"

You may respond with one of the common clichés, such as, "It's the design of the diesel, it's built to be more efficient." How about, "The compression ratio is higher, there is more power?" Or, maybe a little more helpful, "The Btu content of diesel fuel is greater;" or perhaps, "It's in the injection system."

All of the above are correct, but the answers are pretty intuitively obvious.

When working with diesel powered generators, I encountered similar queries and responded with the same partial answers. I've seen the same "you didn't answer my question" body language from interested parties. It took being embarrassed in front of a large crowd before I vowed to get the complete answer.

Let's see if I can tie it all together and give you an answer you'll be able to use with your acquaintances. We will examine the diesel's design, compression ratios, fuel Btu's, and the fuel injection system to lead us to a concise answer, one that's easy to recall.

The Diesel's Design

"It's the design of the diesel; it's built to be more efficient."

The diesel engine was designed and patented in 1892 in Europe by Rudolf Diesel.[1] In the early part of the last century, Mr. Clessie Cummins, founder of Cummins Engine Company, refined the diesel design and developed engines to be used on-highway in the USA. Clessie's son, Clessie Lyle Cummins Jr., is a diesel historian. A passage from his book Diesel's Engine provides an historical perspective on Rudolf Diesel's early struggle to perfect his revolutionary engine and bring it to market.[2]

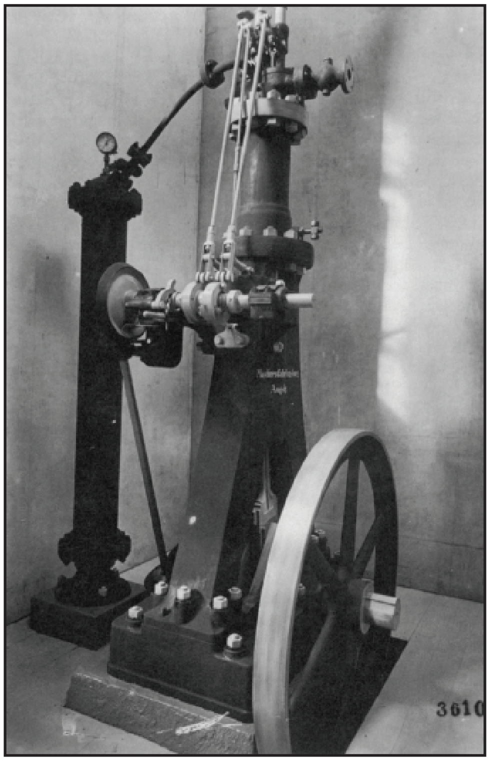
> After a ten-year search Rudolf Diesel was convinced he had found the way to design an engine with the highest thermal efficiency. He believed the most difficult days were over and transforming ideas into reality should prove a simpler task: License a qualified manufacturer to develop and build the engine under his guidance and then await the forthcoming royalty check. One company finally agreed to evaluate a test engine built to his design, but gave him no financial support. Because of this limited commitment he continued to promote his theories through the book based on his studies. Gift copies went to influential professors and companies deemed possible licensees. A few favorable academic endorsements resulted, but no new firms showed any interest. Meanwhile, when Diesel came to realize that his patented combustion process was unsuitable for a real engine he quietly substituted another. The path of his endeavors still failed to follow his optimistic, short range plan.

Diesel continued to seek the "highest thermal efficiency," or what he called a "heat engine," until his suicide in 1913. But the design principle is remarkably simple. From Mr. Clessie Cummins' book My Days With the Diesel,[3] I'll let the senior Mr. Cummins explain.

> As the term "heat engine" implies, the diesel differs in principle from the gasoline engine, in that [diesel] combustion is obtained by the heat created by compression of air in the cylinder. The diesel needs no electrical (spark) ignition system. Furthermore, it burns low-grade oil rather than the highly refined, more expensive fuels required by the gasoline engine.
>
> Adjudged practical only for heavy-duty, stationary, or marine power applications, diesels, when I first encountered them, weighed as much as 400 pounds per horsepower and ran at very slow speeds. Entering the industry some eight years after introduction of the diesel in this country, I undertook a personal campaign, with the crudest of experimental facilities, to reduce this pound-per-horsepower ratio, despite all textbook rules to the contrary. These efforts culminated in the invention of the high-speed, light-weight automotive diesel.
>
> For two decades, while struggling with the engine developments, I battled equally big odds to build a highly specialized business. Cummins Engine Company was incorporated in 1919, but it took the better part of eighteen years for our bookkeeper to need any black ink. Then success arrived with a rush, after the initially skeptical long distance truckers finally accepted our new engine.
>
> Today Cummins Inc., of Columbus, Indiana, is the world's largest independent producer of automotive diesel engines. It provides jobs for ten thousand persons, with sales of more than $250 million annually (the publish date of Clessie Cummins' book was 1967).

Note: 2005 sales were 9.92 billion.

Considering the level of technology in machined parts in the late 19th century, it is no wonder that Rudolf Diesel was unable to build his heat engine and prove its practicality. But in time, technology would catch up with the simplicity of Diesel's informing concept; and so the seemingly offhand answer that the design of the diesel is built to be more efficient is a true statement. Let's look further at the components that make the diesel different.



Diesel's first engine at the start of an 1893 test (photo courtesy of C. Lyle Cummins).

HIGHER COMPRESSION RATIO

"The compression ratio is higher, there is more power."

Technically speaking, the compression ratio of an engine is the comparison of the total volume of the cylinder at the bottom of the piston's stroke divided by the volume of the cylinder remaining at the top of the piston's stroke. Since we are familiar with gasoline engines, let's quickly discuss their compression ratios and a condition that spells disaster in a gasoline engine, detonation, or pinging.

The Gasoline Engine

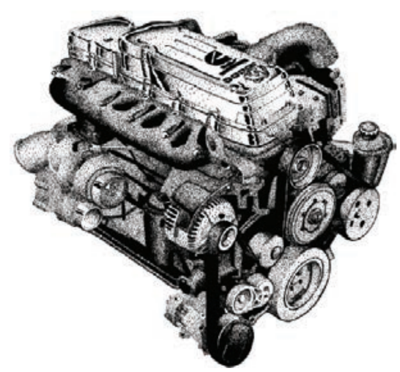
Serious damage to a gasoline engine can result if you attempt to run a high compression ratio with low octane fuel. Detonation or pinging is the ignition of the fuel due to the high temperature caused by a high compression ratio/high pressure developed by a given design. Premature ignition of the fuel, i.e., coming before the spark of the spark plug, results in rapid uncontrolled burning. When timed properly, the approximate maximum compression ratio for a gasoline engine in race trim is 14:1. Most non-racing low octane compression ratios used in automobiles and trucks are less than 9:1.

The Diesel Engine

Remember, the diesel is a "heat engine" using heat energy developed from the compression of air. High compression ratios (ratios range from 14:1 to 20:1) are possible since air only is compressed. The hot compressed air is sufficient to ignite the diesel fuel when it is finally injected near the top of the compression stroke. A high compression ratio equals a greater expansion of the gases following ignition and a higher percent of the fuel's energy is converted into power! The diesel compression ratio is higher, there is more power! However, I've provided yet another incomplete answer that is a true statement, but not the complete story.

Thus far we've covered the principle of diesel operation and the high compression ratios needed to make the heat for diesel engine combustion. The high compression ratio requires the designers to test and manufacture the block, heads, head bolts, crankshaft, connecting rods, rod bolts, pistons, piston pins, etc., with greater structural capacity. Diesel engines are heavy in comparison to their gasoline brothers. Take, for example, the B-Series engine used in the Dodge pickup. It is 970 pounds for the 359 cubic inch Turbo Diesel engine versus 540 pounds for the 360 cubic inch Dodge Magnum V-8 gasoline engine. With the greater structure and a diesel's need for air, the turbocharger (introduced in the 1950s) was a natural fit for diesel engines.

Looking back, the first engine designed by Clessie Cummins in the 1920s was a monster at 400 pounds per horsepower produced. The year model 2005, 325 horsepower Cummins Turbo Diesel pickup truck engine is 3 pounds per unit of horsepower. I'd say diesels have made some progress in 85 years.



The Cummins engine used in today's Dodge pickup.

Fuel BTU's

"The BTU value of diesel is greater."

Quite true, the BTU, or British Thermal Unit, for diesel fuel is 130,000 per gallon, with a weight of 7.0 lbs./gallon. The value for gasoline is 117,000 BTUs at a weight of 6.3 lbs./gallon. If we go back to our basic physics rules for energy, you'll note the fuel in the tank has potential for work if it is injected into the cylinders and, when combined with the compressed heated air, ignited. The piston is forced downward, the crankshaft rotates, and the wheels turn. True as all this is, the BTU value is not the major contributing factor to the diesel's miles-per-gallon superiority. So, what is the key answer?

The Injection System

"It's in the injection system."

Rudolf Diesel designed the heat engine to use the injection of fuel at the last moment to ignite the compressed air. Understanding the heart of the diesel, the fuel pump, is the key to answering the fuel efficiency question.

The Gasoline Engine

A gasoline engine is what engineers call "stochiometric." Stochiometric describes the quantitative relationship between two or more substances, especially in processes involving physical or chemical change. With a gasoline engine there is a stochiometric equation of 14 parts of air to one part of fuel. Remember, always 14:1. Whether at idle or full throttle, the fuel and air are mixed outside the cylinders in a carburetor or injection manifold, and the mixture is introduced to the combustion chamber via the intake valve, 14:1, always.

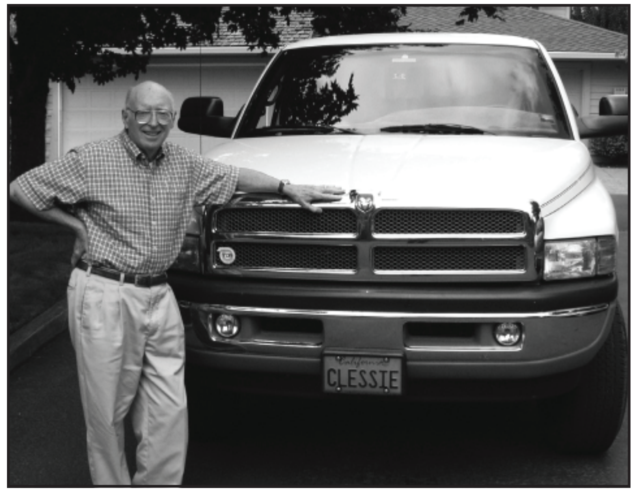
The Diesel Engine

Fuel and air in the diesel design are not premixed outside the cylinder. Air is taken into the cylinder through the intake valve and compressed to make heat. Diesel fuel is injected near the top of the piston's stroke in an amount or ratio corresponding to the load on the engine. At idle the air-to-fuel ratio can be as high as 85:1 or 100:1. At full load the diesel still boasts a miserly 25:1 or 30:1 ratio! It is in the injection system where we find the key to the diesel's fuel mileage superiority.

The Fuel Pump is the Key

The fuel pump used on early '90s vintage diesel pickup trucks typically was a rotary style fuel pump. Think of this pump as a mini automobile-spark-distributor. A rotary head sends fuel pulses through the high-pressure fuel lines to the injectors. The pressure opens the injector valve, and fuel is injected.

As exhaust emissions standards tightened in 1994, there was a need for higher fuel injection pressures and more timely delivery of fuel into the combustion chamber. Pickup truck leader, Ford, used an injection system developed by Caterpillar called HEUI (hydraulically-actuated, electronically controlled, unit injection). The Dodge/Cummins engine used a Bosch P7100 in-line fuel pump. Think of it as a mini in-line six cylinder engine, and it's easy to understand its principle of operation. Six plunger pumps actuated by the pump camshaft send fuel pulses through six high pressure fuel lines to the injectors. The pressure opens the injector valve, allowing fuel to pass into the combustion chamber. With the Bosch P7100 fuel pump the metering of the fuel (at idle, 85:1; or at full load, 25:1) is controlled by a fuel rack and gears that rotate a metering helix to allow fuel into the six plunger pumps.



C. Lyle Cummins Jr. poses in front of a '02 Dodge/Cummins Turbo Diesel pickup.

Future Considerations

Further exhaust emission legislation in 1998 and again in 2002 has forced the diesel engine manufacturers to introduce electronic fuel injection controls. Key legislation dates were 1988, 1994, 1998, and 2002. Thus the progression from simple mechanical (vintage 1988-1993) to more complex mechanical (vintage 1994-1997) followed by simple electronics (vintage 1998-2001) and now advanced electronics (2002 and newer) has been the norm that the diesel industry has followed. Stay tuned as the 2007 emissions legislation has brought another dramatic decrease in exhaust emissions for diesel engines in pickups and big-rigs.

1. We capitalize "Wankel" when referring to a rotary engine. When did we stop capitalizing the "D" in diesel?

2. I found Lyle Cummins' *Diesel's Engine* to be a complete history of Rudolf Diesel's engineering efforts. For information on how to order this book, please see this story's source table. I'll bet that if you request it, Mr. Cummins will autograph your copy! A must for your automotive library.

3. The senior Cummins' book, *My Days with the Diesel* is no longer in print (publication date, 1967). Lyle Cummins remembers his father in his recent book, *The Diesel Odyssey of Clessie Cummins.* Copies of the latter book are available. Again, please see the source table for complete information.

Sources:
Diesel's Engine (760 pages, $55) and *The Diesel Odyssey of Clessie Cummins* (400 pages, $37) are books written by diesel historian Clessie Lyle Cummins Jr. Published by Carnot Press. The books can be ordered at (503) 694-5353.

DIESEL VERSUS GASOLINE
DO THE MATH

My own experience has been with a 2002 Dodge 1500 with its 360 cubic inch (5.9 liter) gasoline engine and a 2003 Dodge 2500 with the 359 cubic inch (5.9 liter) Cummins diesel engine. Overall numbers in around-town driving equated to 13.5 mpg gasoline, 18.5 diesel.

In our example, let's figure that I travel 20,000 miles per year.

Gasoline usage: $\frac{20{,}000}{13.5} = 1{,}481$ gallons used

Diesel usage: $\frac{20{,}000}{18.5} = 1{,}081$ gallons used

It used to be that the price of diesel fuel was less than that of regular gasoline. Lately in my area that has not been the case. However, for comparison sake, let's assume the numbers are equal at $3 a gallon.

Gasoline expense: \$3 × 1,481 = \$4,443

Diesel expense: \$3 × 1,081 = \$3,243

Diesel net yearly fuel savings = $1200

Estimated sticker price for the optional diesel engine – $7,000

Years (assuming 20K per year) and miles to payback – 5.8 years or 116,000 miles

If you subscribe to the adage, "Figures don't lie, but liars figure," you can easily make the previous example work for a shorter or longer payback period. In this short, down-n-dirty comparison we're not going to consider maintenance or resale values. And don't lose track of the obvious: as the diesel engine option in pickup trucks continues to price-creep upward, the payback is longer; however, as fuel prices rise, the payback is quicker.

To close the do-the-math example, remember that "your mileage may vary based on driving conditions." Don't ya love the clichés of automotive doubletalk?

Robert Patton
TDR Staff

CUMMINS 6.7-LITER FOURTH GENERATION POWER RATINGS

MODEL YEAR	HP@RPM	TORQUE @ RPM	TRANSMISSION	COMMENTS
2010 6.7 Pickup	350@3000	610@1600	6 Manual	All States DOC/NAC/DPF
		650@1600	68RFE Automatic	
2010 3500 Cab/ Chassis	305@2900	610@1600	6 Manual	All States
			Aisin Automatic	
2010 4500/5500 Cab/Chassis	305@2900	610@1600	6 Manual	All States
			Aisin Automatic	
2011 6.7 Pickup	350@3000	610@1400	Manual	All States DOC/NAC/DPF
		650@1600	68RFE Automatic	
2011.5 6.7 Pickup (HO)	350@3000	800@1600	68RFE Automatic	All States DOC/NAC/DPF
2011 Cab/Chassis	305@2900	610@1600	Manual	All States SCR System
			Aisin Automatic	
2012 6.7 Pickup	350@3000	610@1400	Manual	All States DOC/NAC/DPF
		800@1600	68RFE Automatic	
2012 Cab/Chassis	305@2900	610@1600	Manual	All States SCR System
			Aisin Automatic	

CUMMINS 6.7-LITER FOURTH GENERATION POWER RATINGS

MODEL YEAR	HP@RPM	TORQUE @ RPM	TRANSMISSION	COMMENTS
2013 6.7 Pickup	350@2800	660@1400	Manual	All States SCR System
	370@2800	800@1600	68RFE Automatic	
	385@2800 HO	850@1700	Aisin Automatic	
2013 Cab/Chassis	320@2800	650@1600	Manual	All States SCR System
	325@2400	750@1600	Aisin Automatic	
2014 6.7 Pickup	350@2800	660@1400	Manual	All States SCR System
	370@2800	800@1600	68RFE Automatic	
	385@2800 HO	850@1700	Aisin Automatic	
2014 Cab/Chassis	320@2800	650@1600	Manual	All States SCR System
	325@2400	750@1600	Aisin Automatic	
2015 6.7 Pickup	350@2800	660@1400	Manual	All States SCR System
	370@2800	800@1600	68RFE Automatic	
	385@2800 HO	865@1700	Aisin Automatic	
2015 Cab/Chassis	320@2800	650@1600	Manual	All States SCR System
	325@2400	750@1600	Aisin Automatic	
2016 6.7 Pickup	350@2800	660@1400	Manual	All States SCR System
	370@2800	800@1600	68RFE Automatic	
	385@2800 HO	900@1700	Aisin Automatic	
2016 Cab/Chassis	320@2800	650@1600	Manual	All States SCR System
	325@2400	750@1600	Aisin Automatic	

FOURTH GENERATION NOISE EVALUATION

by Robert Patton

It has been almost three years since we did an article on noise. In Issue 59 (February 2008) we did a comparison of two comparabletrucks, Jim Anderson's '06 3500 with the 5.9-liter engine and my '07.5 3500 with the 6.7-liter engine, to see if the new 6.7 engine was quieter.

Before we jump into the results of the February 2008 comparison and the evaluation of the 2010 truck in June, let's set the stage for an understanding of the unit of measure for sound, the decibel.

Way back in the 12-valve days of Issue 13 (Summer 1995) I took on a sound deadening project with enthusiasm and a lofty goal of reducing the sound level by three decibels.

The measure of a decibel's effects are progressive: a 3dB(A) drop equals about one-half the sound power. But it is only the threshold of what the average person can perceive as "quieter." It takes a 10-dB(A) reduction for a person to declare that something is "twice as quiet."

From the Issue 13 test I was only able to effect a 1.0 decibel change. However, by reducing the idle speed of the 12-valve engine from 750rpm to 680rpm (it was a five-speed truck) I was able to get to the magic 3.0 decibel number. To grab the readership's attention, I titled the article "Turn Down the Noise." Cute.

With all of the work (pull out the entire interior and door panels and cover with rubber, foam and jute-felt) you would think I would have learned a lesson. Nope. In the Fall of '99 I tried the same thing with a 24-valve truck. The result was a 0.4 decibel reduction. The result was hardly worth the effort.

So I have proven to myself that it is difficult to decrease the noise level of an engine by simply installing sound deadening materials. The materials do tend to blanket the higher pitched sounds and give your vehicle a more solid feel when the doors are opened and closed. But, for diesels, sound attenuation starts in the engine compartment.

So, what did we find in February 2008 when we compared the 5.9-liter engine in Jim's truck to my 6.7-liter engine? We found that the 6.7 is quieter. The following table gives you the results.

	2006 Dodge/ 5.9 HPCR 3500, 4x2, auto	2007.5 Dodge/ 6.7 HPCR 3500, 4x2, auto
INTERIOR @ IDLE	52.2	48.2 (4.0 better)
FRONT @ 3'	75.7	73.5 (2.2 better)
HOOD OPEN @ 3'	78.2	75.6 (2.6 better)
DRIVER'S DOOR @ 3'	72.6	67.7 (4.9 better)
REAR @ 3'	63.0	58.5 (4.5 better)

In late June of this year Jim took delivery of a 2010 3500 truck, 4x2, automatic transmission. He stopped by the office with his truck and we thought it would be good to do another sound comparison. Just one catch: my 16-year-old decibel meter was nowhere to be found. Darn, so much for continuity in our testing because the replacement unit from Radio Shack did not measure in 1/10 units, only 5/10 units. Additionally, we could not duplicate the numbers from the February '08 test on my truck. Apples and oranges…

So, we did an oranges-to-oranges (the trucks are the same, both are 3500 4x2, automatics) test with the new Radio Shack meter and the chart below shows the differences.

	2007.5 Dodge/ 6.7 HPCR 3500, 4x2, auto	2010 Dodge/ 6.7 HPCR 3500, 4x2, auto
INTERIOR @ IDLE	53	53.5 (.5 better)
FRONT @ 3'	71	68.5 (2.5 better)
HOOD OPEN @ 3'	74	71.5 (2.5 better)
DRIVER'S DOOR @ 3'	66.5	63.5 (2.5 better)
REAR @ 3'	66	57.5 (8.5 better)

First Conclusion: Yes the 2010 truck is quieter.

Second Conclusion: It is a shame that I no longer have my trusted 16-year-old meter, as we cannot directly compare Jim's 2010 truck to the old data from his 2006 truck.

Finally, as you read in the editorial, I've purchased a new 2010 Ram 2500 two-wheel drive truck with the ST trim level which means it has rubber flooring. I've already purchased the factory carpet to go in the truck (reasonably priced at $425), and the interior has to be removed to install the carpet. Although I have proved to myself that the addition of sound deadening materials does not have a noticeable effect…well, the interior has to be removed, so I'll be sure to get before and after decibel readings. I look forward to presenting my findings. Wish me luck!

Robert Patton
TDR Staff

Jim Anderson made this photo of me intently looking at the decibel meter.

4G PURCHASE CONFIRMATION OR BUYER'S REMORSE

ISSUE 71 – TECHNICAL TOPICS

by Robert Patton

In Issue 70 I mentioned several times that I had purchased a Fourth Generation truck. Here is the report I promised you on the process of my evaluation of the 2010 pickup.

Purchase Confirmation or Buyer's Remorse?

Everybody knows what "Buyer's Remorse" is—that sinking feeling a guy gets after a big-ticket purchase, the gnawing regret at making the wrong decision. But how would I label the opposite? What phrase for the feeling of elation, that all is well, that the big outlay was money well spent?

No slang phrase comes as ready-to-hand as "Buyer's Remorse;" but obviously I need a term to balance against it, as I evaluate how I may feel about my recent budget-busting purchase. As it happens, I've heard a catch phrase around dealer lots, "Purchase Confirmation," which originally stood for a communication between buyer and seller expressing mutual satisfaction on a deal well-made. I will borrow that phrase to serve as the opposite to the dread "Buyer's Remorse" as I assess how I feel about buying my 2010 Turbo Diesel.

So which is it? Have I got a case of "Buyer's Remorse" or "Purchase Confirmation"? Is it Pro or Con? Let's take it from the top.

In December 2007 when I attended the press event where Dodge showcased the upcoming '09 1500 series as the very prototype of Dodge's future pickup truck design, I knew that somewhere down the road I'd be buying a Fourth Generation Turbo Diesel. After all, you can't write knowledgeably in an enthusiast publication without personal experience with "the latest and greatest." (So it wasn't just a matter of truck lust, I told myself.) However, in July of 2007 I had just purchased the '07.5 for the latest-and-greatest reason of owning the newly introduced 6.7-liter engine. Like you, the prospect of a mere two or three year span between such big financial outlays was sobering, to put it mildly. And then, the national economy went south…

Although by the time I would purchase my 2010 truck (last August) the worst of the recession seemed to have passed and pundits said wheels were beginning to turn again, nevertheless, the most prudent people were still holding on to their cash (as my wife reminded me more than once). Thus, the sheer magnitude of the purchase price has added weight to the "Con" side of the scales. Rack up one, two, and three points in the direction of "Buyer's Remorse."

Further, it did not help in my deliberations that the '07.5 truck was already completely dialed-in. From remote control stereo, to heated and vibrating seats, to lowered rear suspension, to power step, running board, it was/is a great truck. Further, the '07.5 was a Mega Cab, Long Box truck and it flawlessly served its intended purpose of pulling a 30' enclosed car hauler. Further, it was paid for, in full. Yes, "Buyer's Remorse," rises to four points.

Finally, although the 2010 truck was a really fantastic bargain—$34,316, after rebates and before taxes: a price that was a mere $2,000 more than an '03 truck that I previously owned —yet that similarly priced '03 had had the SLT and Sport package trim; and I admitted to myself that having bought a mere base-equipped ST truck, rankled my ego and cast a shadow on my self-esteem. "Buyer's Remorse" rises to five points.

A Crew Cab 2500 truck with only the ST trim Package. Buyer's Remorse?

On the heels of that last consideration—i.e., weighing the importance of my compromise on the trim package for my new truck—the gremlin of "Buyer's Remorse" was threatening to assume the guise of "Buyer's Anxiety." This was getting serious. So I hunkered down to a serious search for things to weigh in favor of "Purchase Confirmation."

The first place I went to was my stack of TDR magazines, to review what others had said about the Fourth Generation truck. As we all know, the engine, drivetrain and suspension are carryovers from the '07.5 trucks when the 6.7-liter engine and 68RFE transmission were introduced. Therefore, my search for grounds for "Purchase Confirmation" took me back to Issue 58, February 2008, to read the articles "Driving the 6.7-Liter and 68RFE" by Jim Anderson and "The 2009 Dodge Ram (1500 truck)" by Greg Whale. In addition to these penetrating review articles, each issue of the TDR magazine since February 2008 referred to unfolding developments in the 2010: to the powertrain directly; or to the cab alluded to in relevant reports on design innovations in the new 1500 truck.

In my research, Issue 67 proved to be the most useful: here were focused articles by Steve St.Laurent, Andy Mikonis, Greg Whale, John Holmes, and myself— all reporting on the official Dodge press introduction in October 2009. A lot of data. With that TDR issue in hand, I could then fully appreciate Jim Anderson's review of the truck in Issue 70. Finally, I fired up my computer link to the TDR website and surveyed the extensive input from members reporting their assessments of this new truck. With all this TDR background—both the technical facts from experts and the subjective judgments of savvy owners in the real world—I knew I wouldn't be making my pro-and-con judgment just on whim: I awarded a point in favor of "Purchase Confirmation."

Next I went outside the TDR community, to an article in Fleet Owner magazine, October 2010, forwarded me by TDR member Albert Wilson. (Thanks, Albert. As you'll see, this material has proved timely.) Fleet Owner did a diesel shootout comparing Dodge, Ford, and Chevy 2500 series trucks. I opened a story in Motor Trend, June 2010, which did a Dodge versus Ford comparison, elbow to elbow. Finally, besides these print evaluations I turned to my computer monitor and studied the results of the "Diesel Shootout," www.pickuptrucks.com.

With this comprehensive comparison/evaluation from outside the ranks of Dodge HooRah writers, I was prepared to decide whether it was to be "Buyer's Remorse" or maybe "Purchase Confirmation." But at this point in the contest, the score was:

"Buyer's Remorse" Bears — 5

"Purchase Confirmation" Cowboys — 1

Excerpts from the Evidence, Pro and Con

I'm going to pull several quotes from the Fleet Owner and Motor Trend write-ups and close with a summary of the www.pickuptrucks.com "Diesel Shootout."

Fleet Owner

From Fleet Owner's Sean Kilcarr: "While many diesel-engine enthusiasts are swayed by horsepower, performance and fuel-economy numbers, commercial operators typically look long and hard at another critical though less-sexy metric in their competitive analysis: maintenance needs.

"That's because the costs of upkeep, including such mundane chores as changing engine oil, can add up to a pretty penny over the life of a diesel engine.

"And for some operators, it's those numbers—and not the beefier horsepower stats—that win them over to a particular make and model.

"Take the Cummins 6.7L turbodiesel powering Chrysler Group's Ram pickups, for example.

"While it placed last in the 'Best Engines Diesel Shootout' in acceleration times compared with Ford Motor's homegrown Power Stroke and General Motors' Duramax, it nabs the top spot outright in terms of lower maintenance lifecycle costs.

"While engine oil, fuel-filter and engine-coolant change intervals are almost the same among the three OEMs, diesel exhaust fluid (DEF) replenishment needs and life-to-overhaul metrics aren't even close.

"For starters, the Cummins engine uses an oxides of nitrogen (NOx) catalyst to comply with exhaust emissions rules, completely eliminating the need for the selective catalytic reduction (SCR) technology used by Ford and GM.

"From a big-picture perspective, life-to-overhaul is a critical figure both for those diesel owners planning to keep their trucks a while and for used-truck buyers.

"The Ram Cummins diesel offers far and away the longest interval here, boasting a 350,000-mi. life-to-overhaul timeline, while Ford comes in at 250,000 mi., and GM at 200,000 mi.

"GM notes that the 200,000 figure is calculated under the severest of operating condition, so more sedate diesel owners might get more miles for that service interval."

Also, Fleet Owner's Tom Murphy noted this about fuel economy: "In our trailering evaluations, each truck got roughly the same fuel economy (11.6mpg) and each scampered up and down a 20% grade with relative ease."

Motor Trend

From Motor Trend's Mark Williams: "For fuel economy, both trucks did well on our loop, averaging within 0.2mpg of one another, with the Super Duty (16.6mpg) edging just ahead of the Ram HD (16.4). We're guessing much of that difference is likely explained by the fact that the Ram HD had a slightly shorter final-drive ratio with 3.73:1 gears compared with the Ford's 3.55s."

Motor Trend then filled each truck's bed with weight to bring the truck within 100 pounds of its gross vehicle weigh rating. They found, "The results, again, were pretty close, giving our Super Duty an average of 18.0 mpg and our Ram HD 17.9 mpg—and at the track, the Ford pulled away from the Ram with a full payload. Both trucks had onboard, instantaneous, and overtime fuel economy calculators and we found them to consistently be overly optimistic."

And the winner of the Ram versus Ford shootout at Motor Trend… They gave first place to the Ford truck, but not without this lengthy proviso. Quoting from MT, "With pricing and equipment levels maxed out on both vehicles, it's hard not to tip the scales in favor of the Ram HD for delivering so much for $10,655 less than the Super Duty, although we should point out that some of the options and features on our F-250 King Ranch are not available for any Ram HD. So what wins? We have to admit there is something intangibly desirable about the rumble of the Cummins motor and hard-shifting Ram HD transmission that communicates the truck is ready and willing to work, and work hard.

But the refinement, power delivery, driving comfort (when empty and loaded), productivity center, and powertrain technology makes us believe Ford has taken the segment to new heights. Is this a perfect HD pickup? No. But, with their backs against the wall, Ford's engineers have given the segment a huge push forward in quality and refinement with a high-tech powertrain that forces the other guys to work harder if they want to keep playing in the work-truck arena."

Diesel Shootout Comparison

And, saving the best comparison for last mention was the Diesel Shootout that was done by the folks at www.pickuptrucks.com. Their test was extensive and covered the following performance criteria:

- 1/4-mile unloaded
- 1/4-mile with trailers
- 7% grade with trailers
- 16% grade with trailers
- 60-0mph braking unloaded
- 60-0mph braking loaded with 2000 pounds
- Fuel economy unloaded
- Fuel economy with trailers.

The www.pickuptrucks.com Shootout was one heck of a test. I encourage you to log on and read about their test criteria and the thoroughness of the evaluation. The Shootout was as apples-to-apples as I think you will find, and it was Consumer Reports-like in its presentation of data.

However, if you want to fish for red herrings, you can nitpick and note that the 2500 trucks had axle ratios of 3.73 for the GM and Dodge, 3.55 for the Ford. Then, again, the transmission overdrive for GM was .61; Dodge .63; and Ford .67. Then again, the GM had 20" tires; Dodge 17" tires; and Ford 18" tires. Do all of these variables really matter? The 3500 trucks all had 3.73 ratios and 17" tall tires.

Their test was done in August prior to Ford's release of their 400/800 rating. So the horsepower/torque numbers as tested were: GM 397/765, Ford 390/735, Ram 350/650.

With the horsepower/torque numbers one might expect the four performance-type criteria to be won by the GM and/or Ford, and that was the case (although the Ram was close in the 2500, 1/4-mile contest at 17.10 seconds versus 16.9 for GM and Ford). How's that for summarizing 72 pages of text?

How did the Ram fare in their test for fuel economy? Let me see if I can summarize 16 pages of text…

¾-Ton	Unloaded	w/Trailer	Combined	DEF Consumption
GM	19.66	13.28	15.85	1750 (mL)
Ford	18.55	13.91	15.90	360 (mL)
Ram	17.20	12.38	14.39	

1-Ton	Unloaded	w/Trailer	Combined	DEF Consumption
GM	17.96	11.04	13.67	2760 (mL)
Ford	17.32	12.69	14.64	2650 (mL)
Ram	14.53	11.21	12.65	

And, again, if you want to fish for red herrings, you can plug in the cost for DEF and do some awkward mathematics to try and compute an overall cost-for-fuel and DEF. The math is not going to make up a difference of 1.5mpg (3/4-ton trucks) or a 1 to 2mpg (one-ton trucks). Ouch.

Their test categories were "weighted": Performance 55%, Fuel Economy 25% and Subjective 20%. It was refreshing to note the subjective percentage was low and would not sway the point totals. For us Dodge "HooRa" fanatics I'll have to increase the subjective percentage to make the Ram a winner.

Also, did I mention that the price tag for the Ram (the trucks seemed comparably equipped) was noted to be $8,000 less on the 3/4-ton trucks that were tested? Their article did not mention the price of the 3500 trucks. Money certainly adds to the "subjective" part of my evaluation.

So, what is the bottom line? After all, I am keeping score. Well, no apologies for my bias, I think that Dodge and Cummins deserve the win. My reasoning goes as follow:

How about that matter of price? Two of the articles talked about price differences of $8000 to $10,000. I know, there is a price point and option level for every buyer, be it Ram, Ford or GM. But, the sources noted that the trucks were comparably equipped, top-of-the-line vehicles. I'll keep the cash.

Nonetheless, for me the most compelling reason for a Ram/Cummins win is that the engine and driveline have been in the marketplace for four years and, aside from turbocharger and ECM flashes for emissions updates, the engine and drivetrain have proven to be strong and reliable. (There is also the overriding bona fides of twenty-plus years of close cooperation and development between the world's paramount diesel engine maker and Dodge.) I shudder to think what problems Ford and GM will encounter as their engines strive to fulfill the 2010 emissions regulations. And, with Ford's clean-sheet-of-paper, new engine, well, let me say that their previous 6.4 and 6.0 engines were less than stellar, and I would not want to be the guinea pig for this new engine. As Ram/Cummins owners, let's enjoy the three-year head start that we have on the competition. Score another point for the "Purchase Confirmation" Cowboys.

"Buyer's Remorse" Bears: 5

Purchase Confirmation Cowboys: 2

**PickupTrucks.com Special Report -
2010 HD Three-Quarter-Ton Diesel Trucks (SRW)**

A Blank Canvas/Inexpensive Truck

Earlier I mentioned that the transaction price on my 2010 truck was a "fantastic $34,616." (The actual sticker price was $40,820, which is a real bargain in comparison to the prices of the other trucks as I noted above in "Excerpts from the Evidence.")

So if you think the price of a new truck is out of hand, I would suggest that you give the blank canvas, ST-type truck a look. When shopping for the truck, there was a comparable SLT/Bighorn truck next to mine with a sticker price of $47,210. So what do you get for the difference of $6390?

I hi-lited the two window stickers and closely compared the trucks. The SLT/Bighorn had the additional following items:

Foglamps
Remote keyless entry
Power lumbar adjust
Rear 60/40 folding seat
10-way power seat
Polished aluminum wheels
Integrated brake controller
Power heated mirrors
Rear sliding window
Full carpeting
Chrome bumpers
Chrome Grille
Chrome interior trim
Steering wheel mounted audio controls
Leather wrapped steering wheel
Universal garage door opener
Overhead console
Sunvisors with vanity mirrors
Underhood lamp
Engine block heater
Remote start system

The only things on that list that I would like to have on my truck were the remote keyless entry, carpeting and steering wheel mounted audio controls. With a $6390 head start, I think I can make do. Also, with a $6390 head start, I can purchase some 20" wheels and tires that will transform the look of the truck. What do you think?

Will 20" wheels and tires work on a 2500 series truck? Weight ratings?

The wheels and tires do transform the look of the truck.

You may have noted that I had my reservations about having bought the base model truck with the ST trim package, and at that moment I awarded a point to "Buyer's Remorse" because the idea was not appealing. As they say in the NFL play-by-play broadcast, "Upon further review…" Well, upon further review subtract a point from "Buyer's Remorse" and award the point to "Purchase Confirmation" because the blank canvas, ST trim package does not sacrifice anything from the vehicle's tow rating nor does it sacrifice anything in creature comforts that I cannot correct with aftermarket parts.

Bears: 4
Cowboys: 3

Also, upon further review, you cannot beat the aforementioned price that was only $2000 more than my good 'ole 2003 truck. To keep things close, let's deduct .5 from "Buyer's Remorse" and award .5 to "Purchase Confirmation."

Bears: 3.5
Cowboys: 3.5

The Tie Breaker and Bottom Line

Since this article injects much from the idiom of sports into my contest between "Buyer's Remorse" and "Purchase Confirmation" it should come as no surprise to you that the tie breaker is come from the home-field advantage and the Dodge HooRa provided by the Turbo Diesel Register's membership. There is no doubt that without you guys and gals as support, this new truck of mine would still be at the dealership. Having the membership to help out, answer questions, act as ambassadors with the TDR Travel Companion, and provide 24/7 assistance at the TDR's website tips the scale in favor of the "Purchase Confirmation."

Thank you!

And, I say with all manner of confidence, go forth and take a look at a 2011 Ram Turbo Diesel. The TDR, Ram and Cummins will be there to back you up.

Robert Patton
TDR Staff

THREE MONTH OWNERSHIP NOTES

I mentioned earlier that my quest for purchase confirmation took me back through many TDR magazines. After all, our coverage of the drivetrain (6.7-liter engine and 68RFE automatic transmission) started back in February 2008 in Issue 58. But specific Fourth Generation write-ups were in Issue 67 and Issue 70; and I spent time rereading those articles and time at the TDRs web site to see what impressions others had of this vehicle that I listed as “Outstanding” in my Issue 67 write-up just one year ago.

So, would you believe Jim Anderson said it all in Issue 70?

Would you also believe that the writers in Issue 67 covered the truck in great detail?

Would you believe that I am at a loss for words from this point forward? Really, I am. But please don’t send nasty-grams scolding me for not submitting a full review of the 2010 truck in this column. I shouldn’t need to re-invent the wheel. If you are interested in a Fourth Generation truck or, like me, seeking for “Purchase Confirmation,” log on to the TDR’s web site and reread my and others’ impressions in Issue 67 and Jim’s evaluation in Issue 70. And, perhaps most important, read what your fellow TDR members have to say in the Fourth Generation forum. For the most part (and remember, it is the nature of the internet to gripe and complain), the online comments are more than favorable. By member accounts the truck is impressive.

By the way, I’m sticking with my first impression from Issue 67 which is now one-year old, “Outstanding.”

Robert Patton
TDR Staff

We found that the Auto Meter Sport Comp II series of gauges are a close-to-perfect match for Dodge’s 2010 dash.

At night, just like the Dodge gauges, the backlit numbers are green and the dial indicators are red.

AT A LOSS FOR WORDS?

I know that I stated in the article that “I was at a loss for words.” However, I just hopped out of my Chevrolet HHR rental car and I’ve got to make a comment on the featured vehicle.

Wait, wrong magazine. What’s a Chevy, four-door econo-box-on-wheels got to do with the 2010 Ram Heavy Duty truck?

How about readouts which are informative and easy to retrieve? While the Chevy did not have a fancy electronic vehicle information center (EVIC), essential digital information was conveniently displayed just beneath the odometer. I was impressed. I want my information where I want it. Dodge fans may differ about locating controls on the steering wheel, or, as I prefer, on the push-in-the-side stalk-type design. But it cannot be debated that the Chevy offered more ready information than our Dodge trucks (or at least my stripped-down ST version).

For example: Where is average miles-per-hour? (Don’t answer, “It is on my navigation system.”) Where are the individual tire pressure readings? To this list add information monitored by the engine’s control module such as turbocharger boost, exhaust gas temperature (at various sensors for emissions), fuel rail pressure, intake air temperature. I guess I’ll have to purchase.

The next issue will present further discussion of this matter. More discussion with Dodge and Cummins is called for. Questions need answers. How so? Watch your oil pressure gauge, watch your oil pressure EVIC—Are they the same? Ditto the water temperature. Are the gauges the virtual type? Is the EVIC number a virtual number?

Hang in there for “Part Two” of the gauge/EVIC story in the next issue of the TDR. Who knows, I might even have the latest EDGE Products “Insight” monitoring system to check against the factory readings. Stay tuned…

Robert Patton
TDR Staff

An EDGE Insight monitor has been installed on the editor’s 2010 project truck.

NOTES:

TECHNICAL SERVICE BULLETINS FOR 2010

ISSUE 70 – TDRESOURCE

Have we not all heard comments by those unfamiliar with the Ram Turbo Diesel (a prospective buyer of either a new or used truck, or a visitor on the internet or at the truck show) that "the Turbo Diesel certainly has its share of problems?" To them, no doubt, the grass looks greener on the other side. However, thanks to the TDR membership group and the support from Chrysler and Cummins, we are equipped with answers and solutions, rather than the dismay and isolation that would exist without a support group.

THIS YEAR'S TECHNICAL SERVICE BULLETINS

Each year as a service for the TDR membership I purchase a subscription to Chrysler's online service and data system (www.techauthority.com). New for this year, the TechAuthority site offers an index of factory technical service bulletins (TSBs) that have been released in the past year. I scroll through the index and print those bulletins that are pertinent to all Turbo Diesel trucks (all years, all models with cab and chassis included). With the bulletins in hand, I summarize the bulletin for publication in the magazine. Should you need a complete copy of the bulletin, you can contact your dealer with Issue 70 in hand, or armed with your truck's vehicle identification number (VIN) and a credit card you can log on to www.techauthority.com and, for $20, you can view/print all of the TSBs that apply to your vehicle.

In an effort to consolidate the TSBs for the magazine, we're going to use the same index system categories as Chrysler. Below are the index categories.

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

A note concerning the TSBs and their use: The bulletins are intended to provide dealers with the latest repair information. Often the TSB is specific to the VIN. VIN data on the Chrysler service network helps the dealer in his service efforts. A TSB is not an implied warranty.

WHAT DO THE MODEL CODES MEAN?

Throughout our summary pages you'll see model codes listed for the various Dodge trucks. The following is a chart of the model code meanings.

DR = 1500 Pickup	**DS** = 2009 1500 Pickup
DH = 2500 Pickup	**DJ** = 2010 2500 Pickup
D1 = 3500 Pickup	**D2** = 2010 3500 Pickup
DC = 3500 Cab and chassis	**DD** = 2011 3500 C/C
DM = 4500/5500 Cab and chassis	**DP** = 2011 4500/5500 C/C

NEW RELEASES

Again, with the new service at www.techauthority.com we've gathered information on Dodge Technical Service Bulletins that have been released only during the past year. If you wish to review all of the TSBs for the Third Generation truck, we have archived those as well as this update at the TDR's web site (Site Features: TSBs). Likewise, TDR Issues 66 and 58 have larger listings that allow the Third Generation owner to review the TSBs issued from 2003 to 2009.

CATEGORY 8 ELECTRICAL

TSB#	MODEL	SUBJECT/DESCRIPTION
08-004-10 3/2/10	'10 (D1) '10 (DJ) '09-'10 (DS)	*Radio video disable update.* This information-only bulletin describes the programming process used for allowing the front seat video option to be displayed if the vehicle is in park (automatic) or the emergency brake is on (manual).
09-018-10 7/29/10	'10 (DJ) '09-'10 (DS)	*Left turn signal on trailer may be inoperative.* When verifying trailer turn signal function prior to towing a trailer, the customer may experience a non functional left trailer turn signal. Check connector terminal number one. If there is silicone in the connector use a suitable tool, such as a straight blade Exacto knife, to scrape the silicone off the outside of the number one, left terminal.

CATEGORY 9 ENGINE

TSB#	MODEL	SUBJECT/DESCRIPTION
09-001-10 7/2/10	All diesel models	*Dust-out diagnosis for Cummins diesel engines.* This information-only bulletin involves proper inspection procedures to determine engine failure due to dust-out condition. Engines damaged due to the infiltration of dirt and/or debris through the air intake system are not warrantable.

CATEGORY 14 FUEL

TSB#	MODEL	SUBJECT/DESCRIPTION
14-001-10 2/2/10	'03-'09 (DH, D1)	*Electronic fuel control actuator (FCA) available for service/New diagnostics available for DTC P0251.* This bulletin applies to vehicles equipped with a 5.9-liter Cummins Turbo Diesel engine. Should the engine surge at idle or MIL illumination of code P0251 occur, follow the diagnostics in the service bulletin. The bulletin involves replacing the FCA with a revised Mopar part number 05183245AA.
14-002-10 2/11/10	'03-'09 (DH, D1) '07-'09 (DC)	*Heavy duty filtration – Mopar retrofit or add on parts available.* This bulletin applies to D1/DH/DR vehicles equipped with a 5.9-liter Cummins engine built from 2003 model year and D1/DH/DC vehicles equipped with a 6.7-liter Cummins engine built from 2007 model year. Several fuel system add-on or retrofit parts are available to enhance the filtering capability for customers exposing their vehicles to extremely dirty conditions. The description of parts available for Cummins diesel equipped vehicles is listed below:

6.7-Liter Changes

- New fuel filter. This is the FS2 design. (5 and 10 micron filter-in-filter) fuel filter to retrofit earlier models (shell and element).

  68061633AA – FS2 Element, fuel filter and shell.
  68061634AA – FS2 Element, fuel filter – This filter to supersede the original 5183410AA filter when supplies are exhausted.

6.7-Liter and 5.9-Liter Changes

- Fuel tank vent hose. 5.9 and 6.7 add-on or upgraded fuel tank vent hose kit with vent cap.

  68068997AA – Fuel Tank Vent. Must be used in conjunction with the appropriate Fuel Tank Vent Kit listed below:

  68051906AA – Kit, Severe Duty Fuel Tank Ventilation – DC 52 Gallon Tank

  68061341AA – Kit, Severe Duty Fuel Tank Ventilation – D1/DH 35 Gallon Tank

  68061342AA – Kit, Severe Duty Fuel Tank Ventilation – D1/DH 34 Gallon Tank

5.9-Liter Changes

- 5.9 upgraded air filter. This filter is similar in design to the current 6.7-liter air filter. The part number is: 53034249AA – Element, Air Filter – 2003-2007 5.9-liter

CATEGORY 18 VEHICLE PERFORMANCE

TSB#	MODEL	SUBJECT/DESCRIPTION
18-024-09 12/3/09 Rev. A	'07-'09 (D1, DH)	*Diagnostic and System improvements and improved air filter minder.* This bulletin supersedes technical service bulletin 18-024-09, dated August 6, 2009. This bulletin applies to D1/DH vehicles equipped with a 6.7-liter Cummins engine built before May 5, 2009. This bulletin involves selectively erasing and reprogramming the engine control module (ECM) with new software. Pickup trucks equipped with a 6.7-liter Cummins diesel have a number of software improvements available. This latest bulletin will include: • EGR valve cleaning cycle. • DPF "Snuffer" feature to expand DPF temperature controls during deSoot. • DPF "Super deSoot" feature to enhance the deSoot process. • Improved air filter minder detection. • Added turbo cleaning scan tool service procedure available through a diagnostic scan tool. This procedure is available with version 10.02 due out in December. • Many other enhancements.
18-016-10 4/30/10	'07-'08 (DH) '07-'08 (D1)	*CCN update required with J35 recall.* This bulletin applies to '07 and '08 vehicles equipped with a Cummins 6.7-liter engine. This bulletin supersedes service bulletin 18-013-08 Rev. A, dated December 4, 2008. Many improvements have been addressed with the latest engine control module (ECM) software addressed in Recall J35. The cab compartment node (CCN) may require updating in conjunction with the Recall. This service bulletin discusses the procedure used to update the CCN.
18-017-10 5/15/10	'06 (DH) 2500 pickup 5.9-liter '06 (D1) 3500 pickup 5.9-liter '07 ((DH) 2500 pickup 5.9-liter '07 (D1) 3500 pickup 5.9-liter '07 (DC) 3500 Cab/ Chassis 6.7-liter	*The problem addressed with this bulletin is that the truck will not pass a Smog Check On-Board Diagnostic (OBD) Test or Inspection and Maintenance check up.* This bulletin applies to 2006 and 2007 vehicles equipped with a 5.9-liter Cummins engine (sales code ETC or ETH) with Federal emissions (sales code NAA) built after January 1, 2006, or Cab Chassis equipped with a 6.7-liter Cummins engine (sales code ETJ) built prior to January 11, 2007. This bulletin supersedes service bulletin 18-038-09, dated December 19, 2009. This revised bulletin will cover federal emissions (EPA) certified vehicles only. Vehicles equipped with CARB (California) emissions have been removed and are addressed in Recall K01, dated May 2010. The instructions in the bulletin tell the technician how to selectively erase and reprogram the Engine Control Module (ECM) with new software.
18-020-10 6/10/10	'07-'10 (DC) '08-'10 (DM)	Cab chassis trucks equipped with a 6.7-liter Cummins engine have a number of software improvements available. This latest service bulletin (which supersedes 18-038-06 and 18-001-09) will include improvements to prevent erroneous Malfunction Indicator Lamp (MIL) illumination: • P000F – Fuel System Over Pressure Relief Valve Activated • P0087 – Fuel Rail Pressure Too Low • P0106 – Manifold Absolute Pressure Sensor Performance • P0191 – Fuel Rail Pressure Sensor circuit Performance • P1011 – Fuel Pump Delivery Pressure Too Low • P2299 – Brake Pedal Position/Accelerator Pedal Position Incompatible • P2262 – Turbocharger Boost Pressure Not Detected – Mechanical The bulletin involves selectively erasing and reprogramming the ECM.

CATEGORY 19 FRONT SUSPENSION

TSB#	MODEL	SUBJECT/DESCRIPTION
19-002-10 1/23/10	’08-’09 (DM)	*Steering wander.* While traveling on a straight stretch of highway, a customer may feel the need to provide steering input to correct a vehicle wander condition. This bulletin applies to 4x2 vehicles built before August 8, 2009. This bulletin involves inspection or replacement of suspension components and revised caster specifications to improve road feel and correct a vehicle wander condition. If the vehicle operator describes the symptom/condition, perform the repair procedure.
19-004-10 5/29/10	’09 (DH)	*Steering Wander* While traveling on a straight stretch of highway, a customer may feel the need to provide steering input to correct a vehicle wander condition. This bulletin applies to 4x4 vehicles built before February 4, 2009. This bulletin involves installing an Intermediate steering shaft kit, part number 05165725AA.

CATEGORY 21 TRANSMISSION

21-003-10 5/12/10	’07 (DC)	*MIL illumination due to transmission related DTC P0711 or P0776.* This bulletin applies to 2007 3500 Chassis Cab models equipped with a 6.7-liter diesel engine and an AS68RC automatic transmission. This bulletin supersedes service bulletin 21-019-08, dated August 2, 2008. The customer may experience a malfunction indicator lamp (MIL) due to one or both of the following diagnostic trouble codes: P0711 – Transmission Temperature Sensor 1 Performance P0776 – Pressure Control Solenoid B Performance. This bulletin involves verifying software levels in the transmission control module (TCM) and the engine control module (ECM). Then, as necessary, selectively erasing and reprogramming the TCM and possibly the ECM.

CATEGORY 23 BODY

23-006-10 3/10/10	’10 (D2) ’10 (DJ) ’09 (DS)	*Hood creaking and squeaking sound.* The customer may experience a creaking and or squeaking sound from the hood area when turning the vehicle and or going over rough terrain. Inspect the hood, and if a squeaking or creaking sound is observed when pressing the front of the hood, perform the repair procedure, which calls for the addition of anti-squeak tape to the underside of the hood.

CATEGORY 25 EMISSIONS CONTROL

TSB#	MODEL	SUBJECT/DESCRIPTION

25-001-09 10/20/09 — '07-'09 (DH/D1)

MIL Illumination due to P2000, P2A00 and/or P2A01.

This bulletin supersedes service bulletin 18-035-08 dated September 13, 2008. This bulletin applies to vehicles equipped with a 6.7-liter Cummins diesel engine. The customer may experience MIL illumination. Further investigation by the technician may find one or more of the following DTC(s) present:

- P2000 – NOX Absorber Efficiency Below Threshold – Bank 1.
- P2A00 – O2 Sensor 1/1 Circuit Performance.
- P2A01 – O2 Sensor 1/2 Circuit Performance.

This bulletin involves verifying all TSB's related to high sooting issues have been properly addressed, inspecting both Oxygen (O2) sensors and either cleaning the sensors or replacing sensors, and installing an O2 Sensor Blanket/Shield on the exhaust pipe in the area of the front O2 sensor.

25-001-10 7/9/10 — '11 (DD) '11 (DP)

Diesel exhaust fluid.

This bulletin provides information regarding the diesel exhaust fluid (DEF) vehicle delivery fill guidelines. The vehicle is equipped with a "Low DEF" warning system that notifies the driver when the level of DEF drops below approximately 2.5 gallons. The warning system includes warning messages displayed by the EVIC and audible chimes. The first level warning displays the message "Refill DEF Engine Will Not Restart In XXX Miles". If the vehicle is driven too long with low DEF, the message "Refill DEF Engine Will Not Start" will be displayed. At that point, the engine will no longer restart if it is shut off. A minimum of 2.5 gallons of DEF will need to be added in order to be able to restart the engine.

The following diagnostic trouble code may be displayed on a Diagnostic Scan Tool if the level of DEF was low.

- P203F – (Diesel Exhaust Fluid) Reductant Level Too Low
  When this code is set, the Powertrain Control Module (PCM) initiates a countdown that will inhibit an engine restart if the DEF system is not serviced within 500 miles .

- P1C70 – SCR Error Detected – Engine Disabled
  When this code is set, the PCM commands the EVIC to display the "Refill DEF Engine Will Not Start" message. The message will continuously display when the counter reaches zero, and will be accompanied by a periodic chime. The engine will not start after it has been turned off unless up to 2.5 gallons of DEF is added to the tank.

DEF has a temperature dependent shelf life that shortens when exposed to elevated temperatures. As temperatures increase, the Urea in the DEF degrades. As the concentration degrades, the urea will become less effective at reducing NOx levels in the SCR catalyst. The following chart provides the approximate shelf life of DEF Versus temperature.

Temperature	Estimated Useful Life
32°F (0°C)	Indefinite
50°F (10°C)	75 Years
68°F (20°C)	11 Years
86°F (30°C)	23 Months
95°F (35°C)	10 Months
104°F 40°C)	4 Months
122°F (50°C)	1 Month
140°F (60°C)	1 Week

RECALLS ISSUED THIS YEAR

CALIFORNIA EMISSIONS RECALL K01
REPROGRAM ECM—OBD READINESS

Date: May 2010

Models: '03 (DR) Dodge Ram 2500/3500 Pickup Truck
'06-'07 (DH/D1) Dodge Ram 2500/3500 Pickup Truck
'07 (DC) Dodge Ram 3500 Cab/Chassis

This recall applies only to the above vehicles equipped with a 5.9-liter diesel engine (sales codes ETC and ETH) and a California emission control system (sales code NAE). And to above vehicles equipped with a 6.7-liter diesel engine (sales code ETJ) and a California emission control system (sales code NAE) built through January 5, 2007.

The Engine Control Module (ECM) on the above vehicles may fail to accurately report diagnostic system information with some generic scan tools This may cause the vehicle to be rejected or fail an Inspection/Maintenance Test (also known as a Smog Check).

Repair: The Engine control Module (ECM) must be reprogrammed (flashed).

EMISSIONS RECALL J35
REPROGRAM ECM—REGENERATION STRATEGY

Date: April 2010

Models: '07.5-'09 (DH/D1) Dodge Ram 2500/3500 Pickup Truck

This recall applies only to the above vehicles equipped with a 6.7-liter diesel engine (sale code ETJ). The Engine Control Module (ECM) software program on the above vehicles may cause illumination of the Malfunction Indicator Lamp (MIL) when no problem exists or under certain conditions allow heavy sooting of the turbocharger, exhaust gas recirculation valve and diesel particulate filter. Heavy sooting could damage emissions components and result in increased emissions.

Repair: The Engine Control Module must be reprogrammed (flashed). The bulletin describes the service procedure that the dealership technician is to follow. Using the dealership's scan tools, the time allowance for the reprogramming operation is less than one hour. As a part of the recall and ECM update the technician has to verify that the previous emissions recall, recall G30, October 2007, has been performed. The G30 recall contains software that must be installed to prevent damage to the ECM. There are no parts involved in the J35 recall notice.

www.techauthority.com
A HIGHLY RECOMMENDED RESOURCE

After a five-year absence of providing the service of listing new technical service bulletins for a given year, the folks at TechAuthority (www.techauthority.com) have reinstated this service feature. This is both good and not-so-good for the TDR audience.

How so?

Good: It allows the editor to list only those TSBs issued during a given year. This cuts down on my research and trims the page count as we don't have to print a compilation of TSBs that go on for three or four years.

Not-so-good: As the owner you only get to see a limited, one-year window of bulletins printed in the magazine. How can we make this news to you more agreeable? First, realize that a compilation of the yearly TSB updates is always available to you at the TDR's web site under the listing of "TSBs." Second, if you want to search the TSBs the old-fashioned way you can go back to your printed magazines and look specifically at our annual summaries (starting with a progression of four) at 66, 62, 58, 54, etc.

Elsewhere in the magazine I've already talked about TechAuthority as an outstanding resource for information. The value of the information available for your truck's VIN at www.techauthority.com far exceeds the TechAuthority subscription price of $20. Using your VIN (I even tried a '97 truck's VIN and got the information), you'll be able to pull up and print all the TSBs and recall notices specific to your truck. And, as mentioned on page 53, you'll be able to scroll through the entire factory service manual for your vehicle.

Robert Patton
TDR Staff

WHAT'S UP WITH THE 6.7-LITER ENGINE

ISSUE 62 – CUMMINS' COLUMN

by Robert Patton

In buying and selling the 6.7-liter Turbo Diesel, there is bad news and good news. For reasons well-known to everyone witnessing the steep rise in fuel prices, demand in the market for pickup trucks, and particularly for heavy-duty pickups, has taken a steep slide. But as a consequence there has never been a better time to buy.

In such a roiled market, there is a lot of uncertainty, but also much interest in what promises to be a unique pickup.

You've heard it from your friends, I'm sure, because as a TDR type you are the automotive and truck "authority" in your neighborhood. It goes with the badge on the grille of your Turbo Diesel.

Let's suppose a friend, let's call him Joe NewDiesel, puts it to you like this: "What's up with that new 6.7-liter engine in the famous Dodge-Cummins Turbo Diesel? I've read that it's a great new engine, but I've heard it has teething problems." Or he asks, "How can such a powerful engine really meet the tough emissions controls going into effect in 2010?" Maybe Joe NewDiesel follows that up with, "How can it achieve acceptable engine efficiency, considering the rising cost of fuel?"

If you are the neighborhood expert, or if you are the editor of the TDR, how do you get the story across, so your newcomer audience will understand that it makes sense to own one of those incredible 6.7-liter Turbo Diesels?

Just to make sure we get the facts right, we go to the TDR index and this is what you find:

Issue 52 – Introduction of Cab and Chassis trucks with the 6.7 by Steve St. Laurent

Issue 53 – Highlights of the 6.7 engine by Joe Donnelly

Issue 54 – Sneak peak at the 6.7 engine in Cab and Chassis truck by Greg Whale

Issue 55 – Introduction of a regular column chronicling the engine's ongoing progress

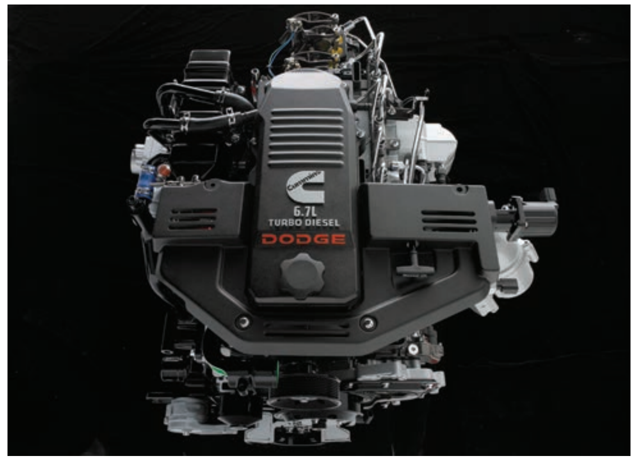
Issue 56 – Exposé on how Cummins met the strict 2010 emissions standards

Issue 57 – Joe Donnally's detailed inspection of 6.7 engine specifications

Issues 58 through 60 – Input and feedback from new owners in the field

Issue 61 – A new regular feature, The Cummins' Column" with Cummins' answers.

We could hand Joe NewDiesel this bibliography, but Joe doesn't really want a pile of printed technical information. He just wants to know, thumbs-up or thumbs-down. At most he wants us to summarize the facts for him.



Besides a thumbs-up/thumbs-down answer, we believe that Joe NewDiesel must also be apprised of the background that led to the introduction of the 6.7 engine. So what exactly do you say, Mister Editor or Mister TDR Expert?

It's a challenge, but here is how it might play out between you or me and Joe NewDiesel. We decide to begin by spotlighting the most impressive developments in the diesel industry in recent years. We tell Mr. NewDiesel that with the new 6.7-liter engine, Cummins has achieved a nearly unbelievable reduction of 90% (that's right 90%, you emphasize) in both particulate matter and oxides of nitrogen from the already strict standards implemented in 2004.

Joe NewDiesel's reaction, "Ho hum … everyone has to do it."

"No, Joe," we counter; "other diesel engine manufacturers are still scrambling to qualify for 2010, while the Cummins engine is so clean that it has put the 2010 standards behind it, and in so doing leaves the competition behind."

Joe NewDiesel affects nonchalance: "So, what's that mean to me?"

Apparently Mr. NewDiesel is not as wrapped-up in this emissions thing as we are. Remember he just wants a thumbs-up or thumbs-down. But we are not letting him off that easy; we are providing context. We tell him, "So, unlike the yo-yo changes that we have had to endure every 3 to 4 years, the 6.7 engine will be good until the next set of emissions legislation in 2013.

"Additionally, consider that the 6.7 engine offers a rock-solid engine-design platform that allows Dodge to ease into the next generation Ram, to further the stable Dodge/ Cummins relationship, and continue to keep this truck at the head of the pack.

"It is really uncertain what will happen with the Ford and Navistar relationship," you advise Joe NewDiesel; and therefore you suggest, "You clearly would not want a Ford truck." You explain that "the Duramax diesel engine in GM products will be totally revamped to meet the 2010 emissions standards. You'll not want to be the first on the block to own that engine either. Rumor has it that they'll offer a V-6 for 1500 trucks and a V-8 for their 2500/3500 trucks. The engine will be a radical departure from the normal intake-in-the-center and exhaust-out-of-the-side Vee configuration."

Joe NewDiesel affects a yawn. (This guy is difficult to bowl over.)

To keep him engaged, we make a strategic concession: the new engine is not perfect. "Yes, Mr. NewDiesel, there have been what you've called 'teething problems'. Admittedly, vehicles in early production runs were plagued by a flurry of engine-computer fault codes and the newly designed diesel particulate filter had initial problems in regeneration cycles, and turbochargers that were not prepared to deal with an overburden of soot. In spite of these shake-down complaints, this engine can safely be pronounced as Excellent."

"Excellent?" quizzes Joe NewDiesel with raised eyebrow.

"Yes, excellent," we maintain, settling back for some more-specific technical stuff. Finally Joe shows his interest and is prepared to listen to our background facts. We pull out the stops. From here out, it's not conversation, it's factual recitation.

In April the 6.7-liter engine earned the PACE Award winner status after an extensive review by an independent panel of judges, a comprehensive written application, and a site visit. The 14th annual award was presented in a ceremony in Detroit, Michigan, by Automotive News and co-sponsors Microsoft, SAP, and Transportation Research Center Inc. So, to have the PACE Award given to Cummins means the automotive community recognizes that Cummins is the first to meet 2010 emissions (I'm counting, that gem of a fact has been emphasized three times) by using a NO_x absorber catalyst (NAC) thereby eliminating the necessary scramble that others will face in 2010.

Nonetheless, as we've noted, this engine launch is not as trouble-free as the previous '03-'07 5.9-liter engine, which received a resounding thumbs-up from the beginning, while the comparable Ford 6.0-liter engine received a big disappointing thumbs-down. At that time the GM Duramax got a solid thumbs up.

But NewDiesel isn't interested in history—he maintains that he is not in the market for a used truck. To add depth to these facts, we identify the Ford and GM diesel web sites where he can scrutinize the laundry list of problems that they are having with their '07.5 and newer engines. Joe understands our point. He accept the warrant of Cummins' reputation, and he feels safe in the support of TDR members to keep him in the know. He goes straight to everybody's bottom line —the big question today— "How's the fuel mileage on the new 6.7?"

Mr. NewDeisel is not being coy now: he has his note pad out. And we don't spare the details. At this point, I proceed unabashedly as editor, drawing technical information from the resources of the TDR to explain the operation and energy dynamics of the new engine as it compares to earlier Turbo Diesel engines.

My basis for comparison:

- 110,000 miles behind the wheel of a '03 2500, Quad Cab, short box, 47RE automatic with 3.54 gearing (.69 × 3.54 = 2.44 overall top gear) and two-wheel drive.
- 25,000 miles behind the wheel of a '07.5, 3500, Mega Cab, long box, 68RFE automatic with 3.73 gearing (.63 × 3.73 = 2.34 overall top gear) and two-wheel drive.

Engine Data:

- The '03 5.9-liter engine was rated at 235hp/460 torque. It had a TST performance module set on level 3 which provided about 40 more horsepower/60 torque (275hp/520tq). Mileage wise, the TST module modified the timing of the fuel injection. Injection timing changes can improve fuel economy, but often do so at the expense of increased exhaust emissions. (Also note: Advancing the injection timing will result in higher peak cylinder pressures and can overstress the power cylinder, cylinder head and block structure, and engine rod and main bearings, depending on the amount of injection timing change.)
- The '07.5 6.7-liter engine is rated at 350 horsepower/650 torque. No modifications have been made to this engine.

Without changing my driving habits:

- Pulling 12,000 pound/30ft car hauler at 70 mph
  12.0mpg with the '03
  10.0mpg with the '07.5
- Around town (using a light left foot)
  16-17.5mpg with the '03
  13.5-15.0mpg with the '07.5
- Unloaded freeway travel (level ground) at 75 mph
  19-20mpg with the '03
  17-18mpg with the '07.5

Should I have believe that the '07.5 truck would be as frugal as the '03 truck? Sure, why not have unrealistic expectations. But seriously, the '07.5 is a dually truck (bigger aerodynamic block) and is a Mega Cab/Long Box and, I'm guessing, weighs 1,200 pounds (17%) more than the '03. Likewise the '07.5 engine offers 75 horsepower and 130 torque over the '03. Do I use that power? You bet. It would be unrealistic to expect the same mileage results.

Observations:

Back in May of ’06, Cummins’ Executive Engineer of the Cummins Chrysler Program attended the May Madness TDR event. In a presentation about the upcoming ’07.5 production of the 6.7-liter engine, he noted “new EPA emissions standards had some impact on fuel economy, and that we could expect 17-20mpg empty and 10-12mpg loaded. Graphs were presented showing that the Cummins gives one to three miles-per-gallon better than the competitors, the Ford 6.0-liter and Chevy 6.6-liter engines.”

As I look at my personal miles-per-gallon, the numbers are very close to those set forth in the presentation.

With the current price of diesel, fuel economy has become more important to many of you. So, what can you do?

- *Idle time decreases fuel economy. You are burning fuel while going nowhere, so you get 0 MPG.*
- *Driving style can have a big impact on fuel economy. Accelerate at a moderate pace whenever possible.*
- *Higher speeds burn more fuel. Lowering your speed, especially on the highway, will improve fuel economy.*

The 6.7-liter Turbo Diesel Owner’s DVD provides some good operating tips for better fuel economy. It is available for viewing at the TDR’s web site www.tdr1.com; site features; TDR TV.

Regardless of my data or the expectations of the factory-guy, I do have some test data from Dodge that compares our Cab and Chassis/work trucks to the Ford 6.4-liter (their new for ’07.5 product) and the Chevy 6.6-liter engine (for ’07.5).

The data comes from my notes taken at the National Truck Equipment Association meeting this past spring in Atlanta, Georgia. I attended a presentation by Dodge discussing the Cab and Chassis trucks. They had commissioned an outside testing organization to conduct SAE fuel consumption testing. The trucks used were the Dodge 5500, Ford 550 and Kodiak 5500 and the trucks were ballasted to a weight of 15,950 pounds; equivalent options and identical box configurations. The Dodge proved to be 14% more fuel efficient than the Ford, 23% more efficient than the Chevy. My apologies, as I can’t recall from my notes the mpg numbers from the test.

Moving right along now, Joe NewDiesel presses for a response to the second part of his initial request: that we provide him a coherent summary of facts on the engine’s hardware, a sort of digest on parts and design.

It seems to me that the most efficient way to present this information is to describe the parts and hardware of the new 6.7-liter engine in terms of how they differs from those in the previous Cummins engine, working with help from technical personnel at Cummins, and drawing on resources as editor of this magazine, including data from previous TDR articles about how the exhaust after-treatment components operate.

THE ENGINE’S HARDWARE

Cylinder Block and Hardware

The 6.7-liter engine has a 107mm bore and 124mm stroke (versus 102mm x 120mm for the 5.9-liter engine). In inches, these measurements correspond to 4.21 x 4.88 inches versus 4.016 x 4.724 inches for the 5.9-liter engine. See the chart below for a comparison of the later 5.9-liter manual transmission rating (highest output 5.9-liter for Dodge Ram truck) to the 6.7-liter pickup truck automatic transmission rating (highest output 6.7-liter for Dodge Ram truck).

	6.7L	5.9L
Displacement	6.7L (409 C.I.D.)	5.9L (359 C.I.D.)
Bore	107mm	102mm
Stroke	124mm	120mm
Max. HP	350 hp @ 3013 RPM	325 hp @ 2900 RPM
Max. Torque	650 lb-ft @ 1500-2800 PRM	610 lb-ft @ 1600 RPM
Turbo	Holset Variable Geometry	Holset Wastegate
Fuel System	Bosch HPCR	Bosch HPCR

To accommodate the larger bore, the cylinder walls are “siamesed” or cast together with vertical coolant passages drilled between them. During development of this engine block, high priority was assigned to considerations of high strength, proper coolant flow, achieving perfectly round cylinder bores, and long-term durability. The engine is built on the architecture and concepts of the 5.9-liter engine used from ’03 to the present. As I have noted, the block and head are cast iron, with the block slightly modified for increased stiffness and noise reduction. The skirt is re-contoured for improved stiffness and reduced transmission of noise. Coolant passages were optimized for coolant flow with the siamesed bores, with cross-drillings for coolant flow between cylinders.

Rod Bearings: The lower bearing stayed the same. The upper rod bearing is a new bi-metal design.

Crankshaft: Increased stroke for the 24mm increase in displacement. Counterweight profiles were modified for reduced noise, vibration, and harshness. A simple design change to machined counterweights versus “as forged” made a significant improvement in the linear vibration levels of the engine in vehicle.

Block Stiffener Plate: Used on all engines to strengthen block and reduce noise.

Front Crankshaft Seal: Updated lip style that utilizes a wear sleeve as needed for service repairs.

Connecting Rods: The rods are still of the fracture split design but because of weight differences, they are not backward compatible. The benefit of the fracture split design is a joint between the rod and the cap that is perfectly matched and more resistant to slip.

Oil Pump: The mounting bore in the block for the oil pump was reduced in size to strengthen the block.

Fuel Pump: The pressure has been increased from 1600 bar (23,200psi) to 1800 bar (26,100psi).

Grid Heater: The grid heater is now incorporated into the intake plate. If the grid fails, the entire plate will have to be replaced. With exhaust gas recirculation, the grid heater has a self-cleaning mode to prevent excessive build-up. Conditions for self cleaning are as follows:—the engine has been running for 30 seconds, vehicle speed is less than 18mph, and intake temperature is greater than 66°.

The engine also has a closed crankcase ventilation system developed by Cummins Filtration. The system incorporates a coalescing filter that captures oil mist and returns it to the crankcase. The filter requires service after approximately 60,000 miles.

Turbocharger

The turbocharger is now a proprietary Holset variable-geometry design. The sliding nozzle ring in the turbine housing (exhaust side) allows for continuously variable air flow and boost pressure. It works with the cooled exhaust gas recirculation (EGR) system and aftertreatment system to help reduce exhaust emissions. What you will feel from the driver's seat is better response and better altitude capability. The new turbocharger also provides an integrated exhaust brake. The braking performance is better than the optional exhaust brake on a 5.9-liter, and it now comes standard with every Cummins 6.7-liter powered Dodge Ram.

Cylinder Head, Pistons and Hardware

The cylinder head has valve seat inserts on both intake and exhaust ports. High strength, gallery-cooled aluminum pistons are used, similar to those used since '03 in the 5.9-liter high output engines. The crankshaft counterweight profiles have been changed, reducing noise, vibration, and harshness (NVH). These considerations are important for penetrating the "mainstream" marketplace, where owners are less diesel enthusiasts than seekers of smooth, quiet, powerful, and luxurious pickup trucks.

Valve Lash: The valve lash settings are the same as used on the later 5.9's, at 0.010" intake and 0.026" exhaust.

Pistons: The piston pin is offset for reduction in idle noise.

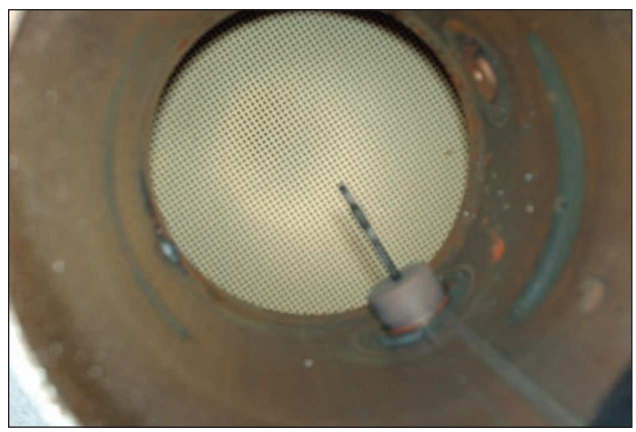
Piston Cooling: Targeted piston cooling nozzles are used on all ratings, providing oil flow to the piston cooling galleries. The benefit of gallery-cooled pistons is better durability because of decreased piston temperature.

Headgasket: Still graded? Pistons graded? There is only one service headgasket for the 6.7. It is acceptable for all repairs as long as the head, block, and piston are within service limits.

The Exhaust Aftertreatment

To get an overview of the exhaust aftertreatment components I went back to Issue 56 and toinformation quoted from the trade publication Diesel Progress. [Note that the following descriptions apply primarily to the aftertreatment system in the pickup. The chassis cab aftertreatment system omits the NO_x Adsorber (NAC), keeping the DOC and DPF which are both housed in a single canister under the truck.] From our Issue 56: "The Aftertreatment system is a three-section unit. All three aftertreatment sections have their own active regeneration schedules, and the engine ECM controls the regeneration cycles.

"The system begins with a close-coupled catalyst—essentially a conventional diesel oxidation catalyst (DOC) incorporating a metallic substrate—mounted to a short downpipe just off the back of the turbocharger. A short distance behind and below the close-coupled catalyst is the NO_x adsorber unit, which is followed by a particulate filter. Both the NO_x adsorber and diesel particulate filter (DPF) use ceramic substrates.



These components were taken from a Cummins test vehicle.

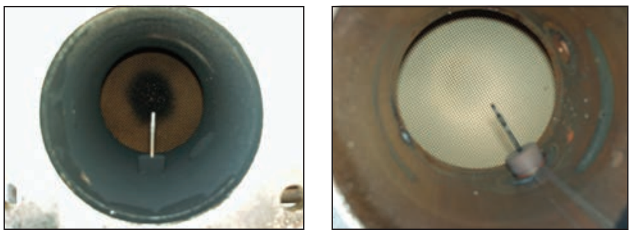
1. diesel oxidation catalyst (DOC)
2. NO_x absorber catalyst (NAC)
3. diesel particulate filter (DPF)

"The next part of the system is the NO_x adsorber catalyst, or NAC. The NAC has been cited by the EPA as a promising technology and as providing a possible key in future rule-making to solve the daunting nitrous oxide puzzle.

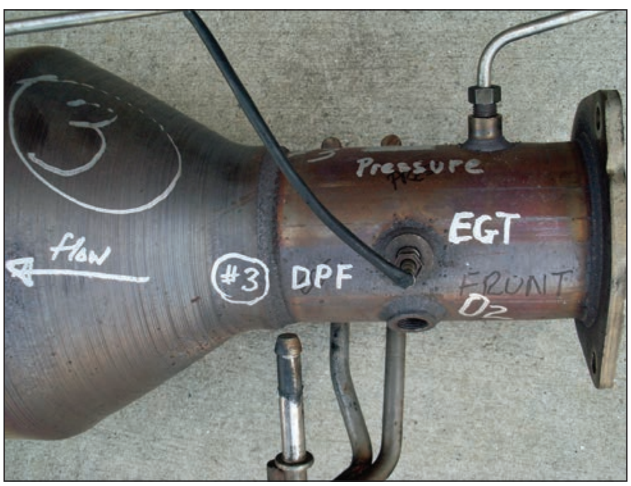
"A NO_x adsorber resembles a conventional catalyst, incorporating a catalytic substrate through which diesel exhaust is directed. Then the NO_x molecules are collected and held—'adsorbed'—onto the surface of the substrate, removing them from the exhaust stream. When the surface area of the substrate is full, the adsorber is regenerated with heat used to chemically change the NO_x into more benign gases, mostly nitrogen and oxygen.

"The NO_x adsorber is regenerated every few minutes at approximately 600° to 800°F and the process takes about three to five seconds. The NO_x adsorber will also, over time, collect sulfur from the fuel, which will gradually reduce its effectiveness. So depending on how much fuel is burned—typically every two tankfuls,, a separate regeneration cycle is initiated to remove the sulfur. The use of high sulfur fuel is not allowed because it results in a high degradation rate of this catalyst.

"The third part of the aftertreatment is the diesel particulate filter (DPF). The DPF is regenerated when differential pressure sensors in the exhaust system detect a specified amount of loading on the substrate. Unlike the PM filter systems used on heavy-duty applications, there is no ash cleaning required, and the PM filter—like the NO_x adsorber and close-coupled catalyst—is rated for the life of the vehicle.



The "in" and "out" sides of the DPF.



EGT, oxygen and pressure sensors monitor the need for regeneration of the NAC and DPF.

"In another departure from the heavy-duty side, all of the hydrocarbon dosing (diesel fuel) needed to raise the temperature for the various aftertreatment regenerations is handled by the fuel injection system rather than a separate injection system."

'It took some time and a lot of work to integrate the control system,' said Jim Fier, technical project leader. 'Some of the fuel we use to light the catalyst is partially burned, and any time you burn fuel, you produce power. If this were not the case, you would feel that extra fuel as power. With both the air handling and the fueling, we had to adjust those various pulses in order to keep the power balance and the torque balance as we go in and do the regenerations.'

"Cummins itself engineered the entire aftertreatment system, right down to specifying the washcoat on the catalyst bricks; and the system was assembled by Tenneco, which does aftertreatment system packaging for many segments of DaimlerChrysler."

So, how does the DPF regeneration process operate? When the ECM determines that regeneration is needed, fuel dosing brings the temperature above 950°F. Under normal conditions the injectors pulse three times for a given firing event. Pilot occurs just before top dead center, main injection at TDC and post when the piston is traveling down on the power stroke. If fuel dosing is necessary for increase in EGTs, there can be two more fuel injection events, very late on the power stroke then and during the exhaust stroke.

Active regeneration is more difficult if the vehicle is operating in a very low speed drive cycle, and will not occur with the transmission in Park or with the Parking Brake set. Improvements in regeneration with later calibrations have made regenerations more effective in all drive cycles, including in-town drive cycles.

Later calibrations also have improvements in operation at idle, making the system much more tolerant to idle time than it was previously. These changes dramatically reduce the amount of soot produced when idling is necessary, and allow the system to reduce the level of soot in the DPF under conditions of more extended idle. However, care must still be taken to watch for DPF messages on the overhead console (EVIC) signaling a need for a change in drive cycle to enable regeneration. With the latest calibrations, idle-up should not be used in an attempt to help the aftertreatment system during extended idle, as has been common with the 6.7. The new idle modes are more effective if idle-up is NOT used.

Conclusion

Some or all the foregoing text should answer the probing question posed by "Joe NewDiesel" and others of his kind: *"What's up with the new 6.7-liter engine?*

Should you have questions regarding the 6.7-liter Cummins engine I would like to forward them on your behalf to our helpful contacts at Cummins Inc. You can submit your inquiry to me at rpatton@ix.netcom.com (other contact information on page 138) and I will try to coordinate a response(s) for Issue 63

Robert Patton
TDR Staff

Notes on exhaust system regeneration:

The ECM continuously monitors the level of particulates (soot) and other substances in the exhaust aftertreatment system. As needed, the ECM triggers a regeneration to remove them. This is completely transparent to the driver. There are no indicators on the instrument cluster or EVIC, and there is no difference in sound or feel of the engine. In other words, when things are operating as normal, as they do for the majority of owners, you will not know that a regeneration is needed or in-process.

In rare cases, typically due to difficult drive cycles, a regeneration may not be possible. In those cases, you may see a message on the overhead console (EVIC) regarding the aftertreatment system, stating either 'CATALYST FULL' or 'EXHAUST SYSTEM REGENERATION REQUIRED NOW', depending on the level of software. As long as the percent-full message is less than 100%, the system can complete a regeneration if you change your drive cycle to allow it to happen. The most effective drive cycle for regeneration is highway cruise. Some trucks, depending on the level of software, will display 'REGENERATION IN PROCESS' if your drive cycle has changed such that regeneration has been started. Note that this message will occur only after the system has gotten full enough to display the 'EXHAUST SYSTEM REGENERATION REQUIRED NOW', meaning you will not see it on every regeneration.

A visit to your dealer is necessary only if a message regarding the exhaust aftertreatment system reading 'SEE DEALER' or 'SERVICE REQD' is displayed on the EVIC. In that case, getting the truck to the dealer sooner, rather than later, may prevent further damage to the system.

The 6.7-liter Turbo Diesel Owner's DVD provides additional detail on the aftertreatment system and operating tips. Watch it for more information. Visit the TDR's web site at www.tdr1.com; site features; TDR TV.

6.7-LITER ENGINE REPORT

ISSUE 72 – TECHNICAL TOPICS

by Robert Patton

in this issue's editorial you'll note the challenge that we presented to the TDR's writing staff—provide an all encompassing view of a topic. The writers were also asked to maintain their focus with articles that were brief and to the point. My assignment was to give 6.7-liter engine owners an update.

In order to present fresh and new information one has to assume that the reader is up to date on the 6.7-liter engine and its aftertreatment hardware. To that end, I researched and reread the materials in past TDR magazines to make sure that there were no updates needed. So, for those that need to come up to speed on the engine, the reference articles are:

Issue 62: pages 74-79, "What's Up with the New 6.7-Liter Engine?"

Issue 63: page 46, "The Next Emissions Hurdle"; pages 50, 51, "Ownership Report"; page 54, "6.7-Liter Update."

Issue 65: pages 42-43, "6.7-Liter: Ask the Engineer."

Issue 66: page 40, "The Regeneration Process."

Issue 67: pages 46-56, "The 2010 Ram HD Trucks, A TDR Writer Report"; pages 30-34, "Performance Enhancements for the 6.7-Liter Engine."

Issue 68: pages 42-48, "Fourth Generation: Ask the Engineer – Truck and Engine."

Issue 69: pages 48-53, "Emissions – Bringing It Together"

Issue 71: pages 54-58, "The Editor Buys a 4th Generation Truck."

Wow, Mister Editor, that is a lot of research. Can you shorten it down to, maybe, three or four major questions?

Okay, sure. What you really want to know is:

- With four years under-the-belt, how is the engine's reliability?
- What is the miles-per-gallon story?
- What is the regeneration story?
- What do I recommend?

Let's get started.

How is the Engine's Reliability?

I have noticed that the question of durability typically does not come up with Turbo Diesel owners or potential owners. With the exception of the Block 53 problems seen on '98.5—'01 vintage engines (Issue 62, page 22, and Issue 60, page 114, have the details), durability of the Cummins 5.9-liter or the new 6.7-liter has never been questioned. Can the Ford and GM customers say the same?

Reliability. Each vintage of Cummins engine has its share of quirks. From dowel pins, to fuel transfer pumps, to injector life of 150,000 miles, TDR members have met the challenge and serve as the resource that alerts other members to a problem—you show others how to repair them. That's the fact. The specific spotlight in this article is directed onto the 6.7-liter engine and the question of its reliability. And from what I have observed as editor, the real issue of this engine's reliability is not so much engine components as it is on the emissions control devices (ECDs) and updates in the engine control module (ECM) to manage them.

Before I get into the nuts and bolts (or the bits and bytes?) of my exposition, I want to re-emphasize the overriding advantages our new 2011 owner has over competitive Ford or GM trucks. The Dodge and Cummins folks have four years in the saddle with the 6.7-liter engine, which, as you know, met the 2010 emissions standards three long years early. We can certainly conjecture that the competitors will have their share of teething problems.

But back to the main story: the reliability of the 6.7-liter engine. First off, we need to note that we are actually looking at two unique engines with different ECDs based on emissions testing applied to each one's respective product category. Specifically I refer to the difference between (1) consumer 2500 and 3500 models to which are applied an EPA emissions test based on a drive cycle; and (2) commercial cab and chassis 3500, 4500, 5500 models subject to an EPA emissions test where the engine is on a stationary dynamometer. Recognizing this distinction, I will treat each category separately.

First, reliability of the '07.5–11, 6.7-liter consumer 2500 and 3500 engine: in assessing reliability, we note that this engine has an additional ECD piece of hardware that the cab and chassis truck do not have, namely a NAC or nitrogen oxide (NOx) absorber catalyst. (Issue 62, page 78, has a technical discussion that covers the NAC.)

This engine has had its share of problems traced back to soot accumulation, problems addressed by Chrysler in several service bulletins and two recalls. It has been a fraught issue and received considerable attention before it could be resolved. Because questions may remain for some users today, I will put the matter in context and summarize its history. I am guided by information gained in discussions with the men who work on the trucks for a living every day at Dodge dealerships. There is no more reliable source.

In my summary, I cite two relevant recalls addressing this issue: the first, known as G30, was dated October 2007: the latest, "Emissions Recall J35," was dated April 2010. I start with G30 to emphasize that there was period of nearly three years during which Cummins and Chrysler analyzed the problem to devise solutions. The most direct way to understand the initial problem and its eventual fix, is to review the text of the J35 recall as it was published in our Issue 70 magazine, re-printed herewith.

> Date: April 2010
>
> Models: '07.5-'09 (DHID1) Dodge Ram 2500/3500 Pickup Truck
>
> This recall applies only to the above vehicles equipped with a 6.7-liter diesel engine. The Engine Control Module (ECM) software program on the above vehicles may cause illumination of the Malfunction Indicator Lamp (MIL) when no problem exists or under certain conditions allow heavy sooting of the turbocharger, exhaust gas recirculation valve and diesel particulate filter. Heavy sooting could damage emissions components and result in increased emissions.
>
> Repair: The Engine Control Module must be reprogrammed (flashed). The bulletin describes the service procedure that the dealership technician is to follow. Using the dealership's scan tools, the time allowance for the reprogramming operation is less than one hour. As a part of the recall and ECM update the technician has to verify that the previous emissions recall, recall G30, October 2007, has been performed. The G30 recall contains software that must be installed to prevent damage to the ECM. There are no parts involved in the J35 recall notice.

As I read it, the most significant statement in the J35 recall is that "there are no parts involved in the J35 recall notice." Prior to the software updates it prescribes, there had been a series of technical service bulletins (TSBs) instructing the dealerships in how to clean turbochargers and how to wrap sensors to retain heat, and prescribing a series of "flashes" to reprogram the ECU. With the J35 recall, issued and acted upon a year ago, this vexing issue on '07.5 to '09 engines seems to have been solved.

For the 2010 and 2011 consumer trucks there are two TSBs that have been released that involve, you guessed it, a reflash to the ECM with software updates. These bulletins are listed on page 66.

Now, the '07.5-'09 cab and chassis engines: The emissions test for a commercial cab and chassis is done on an engine dyno rather than an EPA driving cycle. Therefore, these engines do not have the NAC hardware. Would you believe me if I told you that the problems with this engine have been minimal?

Finally, the new '11 cab and chassis engine with urea injection: While it is true that the '07.5, 6.7-liter consumer 2500 and 3500 trucks met the EPA's 2010 emissions standards three years early, the engine in the cab and chassis were not fitted with the necessary urea injection until the official emissions due date of 1/1/2010. The report card on these engines has not been completed.

For the 2011 commercial trucks there is a TSB that has been released that involves a reflash to ECM with a software update. This bulletin summary is on page 65.

What is the MPG Story?

As the editor, with firsthand knowledge about the 6.7-liter engine since 8/07, I'll tackle this question. I'm going to share with you the short answer, the competitive story, and then the long story.

The short answer: The Issue 67 magazine, pages 30-33, has a listing of performance items/tuners that are available for the 6.7-liter engine. It also gives my view on the hype created by internet town-criers with their claims of "increased fuel mileage of 5mpg." My response bears repeating:

"Yet, with the continuous barrage of criers, magazines and advertisements, one has to wonder, 'Is there validity to such hype?' Without thinking thoroughly about the question, I asked a group of Cummins' engineers. They were candid in their response. To summarize, one has to consider the duty cycle of the truck. If it is being used as intended—moderate to high load in highway travel—the answer is the obvious: the engine's output of unburned fuel (particulates) is very low, the exhaust gas temperature is high and there is little need to fire-up the self-cleaning oven known as the diesel particulate filter. Consequently the mileage penalty is negligible, if any at all.

"If the truck is being used as a grocery-getter or has long periods of idling there can be an effect on fuel mileage. How much? The estimate is less than 5%. Five-percent is nowhere close to the claims of 5mpg."

Also, the Issue 67 magazine, pages 42-44, had all the details regarding emissions compliance.

The competitive story: From Issue 71 you likely noted the reference to a test done by the folks at www.pickuptrucks.com titled the "Diesel Shootout."

I have been on the lookout for other apples-to-apples comparisons but I've not seen any better than the one done by pickuptrucks.com. The following are the numbers from my Issue 71 summary of their 16 pages of text:

3/4-Ton	Unloaded	w/Trailer	Combined	DEF Consumption
GM	19.66	13.28	15.85	1750 (mL)
Ford	18.55	13.91	15.90	360 (mL)
Ram	17.20	12.38	14.39	

1-Ton	Unloaded	w/Trailer	Combined	DEF Consumption
GM	17.96	11.04	13.67	2760 (mL)
Ford	17.32	12.69	14.64	2650 (mL)
Ram	14.53	11.21	12.65	

Granted, our truck was not the winner of the pickuptrucks.com "Diesel Shootout." In fairness, to Ram, Cummins and the TDR audience, I found another publication that tested all three trucks, WardsAuto.com, at the same event where the pickuptrucks.com tested the vehicles. The report from Wards, "In our trailering evaluations, each truck got roughly the same fuel economy (11.6 mpg) and each scampered up and down a 20% grade with relative ease."

If you want to fish for red herrings, you can plug in the cost for DEF and do some awkward mathematics to try and compute an overall cost-for-fuel and DEF. The math is not going to make up a difference (based on their "combined" results) of 1.5mpg (3/4-ton trucks) or a 1 to 2mpg (one-ton trucks). Ouch.

The long story, a tale of woe: I have a close friend that read the words from the internet town criers about "increased fuel mileage of 5mpg." His comment, "There is only one way to find out, right?"

So, armed with credit card, a metal sawzall, and tin snips to cut and fit some exhaust gas recirculation (EGR) block-off plates, I sent him to work on his '07.5 6.7-liter engine.

He had logged about 10,000 miles on the engine prior to the decision to "walk on the wild side." He was fully aware that the emissions control device (ECDs) deletes were illegal and that he would have no rights to warranty consideration. The temptation of an additional 5mpg was too good to pass up.

First up, order the turbo-back ECD delete pipes, dummy sensors, and the EGR block off plates. The $700 kit was installed and off he went to tow for a modest 12-hour round trip. Thirty-minutes into the return trip the overhead console chimes and the message reads "Diesel Particulate Filter (DPF) full, See Dealer." I get the frantic phone call asking "What should I do?" My answer, "Keep driving and hope that the truck does not go into a limp-home mode. After all, you've only got 5 hours, 30 minutes remaining on your trip.

Aside from the console chime every 10-minutes, he made it back to the home base without the inconvenience of derate. The next day the first order of business was to call the "ECD delete dudes" and quiz them about their pipes and sensors. His question, "Why did the message 'DPF full' come up, it no longer has a DPF?" Their answer, "Not really sure, man. Guess you need to spend another $900 with us and get the Edge Products module that allows you to reset the fault codes and clear the codes each and every time you start the truck."

It looks like the temptation of an additional 5mpg was too good to be true…

So, my close friend was into this project for a cool $1600 and, should a problem arise, he now had no hope for any type of future warranty consideration.

Over the next 2.5 years and 30,000 miles the engine ran without any problems. However, the fuel mileage was, at best, about .5 mpg better when towing (up from 10.0 to 10.5) and the around town mileage up by .75 mpg (13.5 to 14.25). The around town number is a close approximation as his truck is used only when towing. Yes, the lure of 5mpg was too good to be true.

But wait, there is more: three years and 35,000 miles into his ownership the truck starts spitting white smoke and raw fuel out the exhaust. Again I get the frantic phone call asking, "What should I do?" My answer, "I don't know, this sounds expensive."

He brought the truck over to our office. Sure enough, no matter how many times you reset the fault codes, the engine still would spit out raw fuel within a matter of .2 miles of driving. So, we removed the Edge box and all of its associated wiring from the vehicle. No difference. Next, we put the Edge back on. No difference. Then, we took the Edge off again. No difference. Then I reminded my friend that "You are your own warranty station."

He did not see the humor in my comment.

As a part of the Issue 67 report that I did on "Performance Upgrades for the 6.7-liter Engine" I had purchased a MADS Electronics "Smarty S67." I, too, was interested in the too-good-to-be-true mileage claims and had the best of intentions to do a Society of Automotive Engineers (SAE) type fuel mileage comparison. But, based on the data collected by my friend that owned the white smoke/raw fuel truck sitting in the TDR's parking lot, I had determined that the money, time and effort to do an SAE mileage test would not prove anything. So, we decided to put the $685 MADS "Smarty S67" to work on his truck.

The S67 is a downloader that reprograms the ECU. You plug into the trucks OBDII port and choose one of many different power levels. The choice we made was "stock with timing for fuel economy."

With the download completed, we started the truck and drove .2 mile before the white smoke/raw fuel came bellowing out of the tailpipe. This time I made the frantic phone call. I called my good friend, Mark Chapple, owner of TST Products (www.tstproducts.com). I had purchased the S67 from TST and Mark was quick with his what-to-do response. "I want you to go to the MADS web site and download your Smarty S67 with the 'ME' program. ME stands for Middle Eastern where the 6.7 engine operates without the fancy emission stuff. So the ME program will likely ignore some sensor or timer that is telling the engine's injectors to operate after the combustion event where it is trying to use fuel to ignite an aftertreatment device that is no longer on the truck."

We downloaded the ME program. The white smoke problem went away.

Subsequent fuel mileage data using the Smarty S67 told the same story, about .5 mpg better when towing, up from 10.0 to 10.5.

And, now, the moral of the story: My friend has spent $2285 in his pursuit of a .5mpg improvement in towing. He has no rights to warranty consideration and he has spent lots of time upset by his costly mistake(s).

Is there something to be learned here?

Now, for more on the MPG story continue your reading with "The Regeneration Story."

What is the Regeneration Story?

Did you notice the "Product Showcase" write-up in Issue 71 on pages 146 and 147, about the new gauge package from Edge Products called the Edge Insight Color Touch Screen (CTS)?

Chances are you breezed right over it. Had I not written the article, I would have been guilty of the same. It is seldom that I can muster enthusiasm for a new electronic gizmo. However, the Insight is such a product , so I purchased one for TDR writer Jim Andersen to evaluate for this issue of the magazine. His report is on pages 134-136.

I am again writing about their product because it offers several benefits beyond the conventional analog gauges that we've all used in the past:

- For equal to the cost of a boost, EGT, transmission temp gauges and the associated pods you can purchase the Insight CTS (price, less than $400)
- The Insight CTS gives you (by my count) 17 more items that can be monitored
- To install the Insight you simply plug into the truck's OBDII port
- Added benefit—the ability to read and reset diagnostic trouble codes
- Added benefit—the ability to do performance testing

However, the Insight feature that is the focus of this article is the display of the regeneration status, "Regeneration On or Off."

The Insight CTS isn't the first monitor to display this information; the previous Edge monitor (the "Attitude" monitor used with the Edge "Juice" performance module) would do the same. And, likely, there were other brands of monitors that would display the regeneration status. But, can you recall a report anywhere in the TDR, or on the TDR's web site or anywhere else in print or web where the author talked about the frequency of regeneration over a 1,000 mile test drive?

Me neither. So, since I am often accused of having my head in the sand, I asked those that surf the web and several TDR writers if they could recall such a write-up. I even asked the product representative at Edge if such an observation had been done. The consensus as to why: likely those that purchased a monitor also purchased the performance box. Likely they ran over a big bump in the road that caused all of the emission control devices (ECDs) to fall off of the truck. Can you think of any other reason that such a report has not been filed?

With the background discussion out about why such an observation had not been done, here is my report on when the regeneration cycle(s) start; when they stop; the corresponding observed fuel mileage; and the temperatures associated with regeneration. That's right folks; we're trying to define, "What is normal?"

The observations are based on three different driving cycles: the in-town loop; the 700 mile and 1,000 mile interstate trips; and the 600 mile towing trip.

Finally, realize that the following numbers are not scientific tests, but rather observations on previous trips. I have verified the truck's indicated MPG with the fuel required to fill the tank. However, this series of observations that you'll read about make the assumption that the indicated MPG can be trusted for a less-than-tankfull event.

The in-town loop:
I started this observation in mid-January and the weather was in the mid-20° to mid-40° range. The cold weather combined with a driving loop of less than 8 miles per day put the truck into a regeneration cycle that I will call the "dufus zone." The dufus zone looks like this:

Reset	On	Off	Notes
0	.9	3.7	stop – warehouse
0	.8	3.7	stop – home
0	.6	3.7	stop – warehouse
0	.9	3.7	stop – home
0	.7	3.7	stop – warehouse
0	.5	3.7	stop – home

And so it went for eight consecutive trips to and from the warehouse to home. The regeneration would turn on after pulling out of the subdivision, still on when parking the truck at the warehouse or home destination. EGT readings would be less than 700°, the NOx absorber reading would climb to 950°.

Finally, I had a chance to drive on the interstate and I logged the following data:

The regeneration came on as I pulled out of the parking lot. From there it was 2 miles to the freeway. I settled into the flow of traffic (approximately 70mph) and reset the "Fuel Economy MPG."

The regeneration stayed on for 20.8 miles; indicated MPG, 14.2. The temperature at the NOx rose to, and stayed at 1100°.

The regeneration stayed off for the next 114 miles as I completed a town-to-town interstate loop: indicated MPG, 17.3.

The interstate trips:

Next up, the 700+ mile interstate trip and the 1000+mile interstate trip.

On the tail end of the "off for 114 miles" interstate trip, the truck putzed around town getting ready for the 700 mile trip. As I have come to expect, the regeneration came on almost as soon as I hit the road for the 700 mile trip from Atlanta, Georgia, to Hilton Head, South Carolina. I set the cruise control at 75mph.

The regeneration was *on* for 18 miles; indicated MPG, 14.7

The regeneration was *off* for 188 miles: indicated MPG, 17.6

The regeneration was *on* for 26 miles; indicated MPG, 13.9

The regeneration was *off* for the balance of the trip to our destination (64 miles) and it stayed off in around town traffic for another 49 miles, total off 113, MPG 15.8.

I'm starting to see a pattern, how about you? The balance of the trip:

	MPG	Notes
On for 12 miles,	12.2	: in town
Off for 87 miles,	16.7	: country roads and in town
On for 19 miles,	13.6	: in town
Off for 52 miles,	15.9	: in town to interstate
On for 29 miles,	14.5	: interstate travel
Off for 169 miles,	17.1	: interstate travel, return to home

Observation for this trip:

Each time the regeneration comes on the temperature at the NOx catalyst goes to 1100°, EGT can be 250° cooler as the truck is going down the interstate at 75mph. The driving style did not change with the on or off status. Adding up the total miles: 713

"On" miles – 104; average* indicated MPG – 13.78

"Off" miles – 609; average* indicated MPG – 16.62

"On" mileage penalty = 2.84

*The average of the "average indicated" is not a weighted average, but rather the MPG numbers added together and divided by the number of "Ons" and "Offs." Not scientific, but rather, a casual observation.

For the 1000+ mile trip the truck went from Atlanta, Georgia to Orlando, Florida, a straight shot down Interstate 75. The driver was Geno's Garage employee Scott Sinkinson. Scott set the cruise control on 78mph. After putzing around town to get ready for the trip the regenerations came on just as he put the truck onto the interstate.

	MPG	Notes
On for 20 miles,	13.0	All interstate
Off for 240 miles,	15.4	" "
On for 23 miles,	13.1	" "
Off for 237 miles,	15.3	" "
On for 21 miles,	12.9	" "
Off for 245 miles,	16.2	" "
On for 19 miles,	12.3	" "
Off for 239 miles,	16.5	" "

Observations for this trip:

Compared to the MPG of the previous 700 mile trip it is obvious that speed cost mileage. Perhaps a fuel price of $4 will slow these drivers down. Scott had some side wind in both his south and north bound travels. Being on the interstate in a non-changing environment really brought out consistency in the on-and-off events. Adding up the total miles: 1,044

"On" miles – 83; average indicated MPG – 12.82

"Off" miles – 961; average indicated MPG – 15.85

"On" mileage penalty = 3.03

The 600 mile towing trip:

This trip started on the heel of a brief duty cycle of around town errands and trailer hook-up. The truck was in the dufus zone that I previously described. The trip is about 300 miles, 275 of interstate, 25 miles of back roads. Topography: rolling hills from Atlanta to Columbia (area), South Carolina. The trailer is a 30' car hauler with a weight of 12,000 pounds.

	MPG	Notes
On for 20 miles	9.2	Start of trip on interstate at 70mph
Off for 204 miles	9.5	Continue 70mph interstate
On for 27 miles	8.8	Continue 70mph interstate
Off for 173 miles	8.7	Arrived at destination at 20 miles. The return portion of trip 153 miles
On for 68 miles*	8.7	Continue 70mph interstate
Off for 45 miles	9.4	Slower traffic as I returned to destination

Observations:

- What was it that caused the difference in MPG? A tailwind, headwind, slower traffic, uphill, downhill, or the calculations of the overhead display during the 20, 27, and 68 miles of travel with the regeneration on? My thought, the mileage penalty when the regeneration is on while towing is not significant.

- I made the same temperature observations as I had done for the in-town loop and interstate trip. I had some time to play with the Edge Insight and added two other temperature readings; temperature downsteam of the NOx absorber, at the diesel oxidation catalyst (DOC); and downstream of the DOC at the diesel particulate filter (DPF). Here is the chart:

	OFF	ON (1)	ON (2)
EGT	1200	1200	1275
NO_X	800	1050	875
DOC	775	930	850
DFF	760	915	840

(1) The trip east with the wind
(2) The return trip west against the wind

Note: with a digital gauge the temperature is never constant. The numbers I recorded are those that showed when I was able to keep the throttle and EGT relatively constant on level ground.

- Again, I had some time to play with the gauge and watched the relationship of the following display items:

    Boost
    Fuel pressure
    Percent load
    Pressure restriction at DPF

  If I were a computer geek I could probably find a way to list and chart these four items. However, my common sense-o-meter (and three minutes putting the items on the screen and watching them move in-sync) says that the chart could be drawn using a magic marker connected to the big toe on the right foot.

- What does the * mean after the 68 mile cycle? It signals two situations that are outside of the limited definition of "normal" that has been thus far established: First, as I had previously noted, the cycles are usually 30 miles or less. Why did the cycle take 68 miles?

Second, in the 68 mile cycle the alarm on the Insight CTS would go on when the regeneration was started. You have to watch the gauge to note the "off" position. In the previous on-off driving cycles I had become accustomed to a number of momentary "offs" and the alarm would let me know of a restart. However, in the 68 mile cycle the alarm went on at least 25 times. I tried to do a correlation to the load factor. Was it at 100% load factor for a length of time that it would go off only to resume operation at a part throttle condition? Why did it not reach the 1100° temperature that I had seen in the in-town or interstate trip travel sections that is noted previously in the "On(1)" column of data?

I wish that I had an explanation for the on/off, on/off behavior Since there was not an effect on MPG, I have resolved to realize that there are some things I cannot explain with my simplistic Edge Insight tool and my inability to engineer Cummins' ECU protocol. I researched Issue 66, page 40 (The Regeneration Story) and concluded that during this longer 68-mile cycle the ECU had the engine performing both a De-soot as well as events sulfur oxidation ($DeSO_X$) events.

What Do I Recommend?

Well, this should come as no surprise to anyone, after all this is the Ram/Dodge/Cummins Turbo Diesel Register. To quote from last Issue's article where I searched for information to give me "purchase confirmation" about my new 2010 truck, "Nonetheless, for me the most compelling reason for a Ram Cummins win is that the engine and driveline have been in the marketplace for four years and, aside from turbocharger and ECM flashes for emission updates, the engine and drivetrain have proven to be strong and reliable. (There is also the overriding bona fides of twenty-plus years of close cooperation and development between the world's paramount diesel engine maker and Dodge. I shudder to think what problems Ford and GM will encounter as their engines strive to fulfill the 2010 emissions regulations. And with Ford's clean-sheet-of-paper, new engine, well, let me say that their previous 6.4 and 6.0 engines were less than stellar and I would not want to be the guinea pig for this new engine. As Ram/Cummins owners, let's enjoy the three-year head start that we have on the competition."

Conclusion(s)

In the section "What is the MPG Story" there was a quote from the Cummins engineering group that read, "One has to consider the duty cycle of the truck. If it is being used as intended—moderate to high load in highway travel—the answer is the obvious: the engine's output of unburned fuel (particulates) is very low, the exhaust gas temperature is high and there is little need to fire-up the self-cleaning oven known as the diesel particulate filter. Consequently the mileage penalty is negligible, if any at all.

"If the truck is being used as a grocery-getter or has long periods of idling there can be an effect on fuel mileage. How much? The estimate is less than 5%. Five-percent is nowhere close to the claims of 5mpg."

Do my simplistic observations agree with this broad-brush statement?

Let's take a look at each of the three driving cycles that were presented.

In-town loop: sorry, I disagree with the assessment "the estimate is less than 5%." With the new emissions package you had better keep the truck on the highway.

- 700+ mile interstate trip: As noted, there was a marked difference in MPG during a regeneration event. The events happened about 15% of the time the truck was operational.

- 1000+ mile interstate trip: Again, there was a marked difference in MPG during a regeneration event. Driving at a faster speed, the events only happened about 10% of the time the truck was operational. Interesting...

I'm going to look at the 700+ and 1000+ mile interstate trips and try some backward math to determine the "On" mileage penalty or cost.

Here goes:

713 Trip as calculated | **713 Ideal trip**

609 miles	104 miles	713 miles
÷ 16.62 mpg	÷ 13.78 mpg	÷ 16.62 mpg
36.64 gallons	+7.54 gallons = 44.18	42.9 gallons

1.27 gallons for regeneration, 1.27 ÷ 42.9 = 3% penalty

1044 Trip as calculated | **1044 Ideal trip**

961 miles	83 miles	1044 miles
÷ 15.85 mpg	÷ 12.82 mpg	÷ 15.85 mpg
60.63 gallons	+6.47 gallons = 67.1	65.86 gallons

1.24 gallons for regeneration, 1.24 ÷ 65.86 = 1.88% penalty

- The 600 mile towing trip: As I noted there were too many variables in my limited 600 mile test. The data is inconclusive and my gut feeling is that there is not a significant difference. Not to mention, do we trust the factory's MPG display feature?

To close this article, you already knew what the author would recommend. The report from Cummins about the engine's reliability is good. The miles-per-gallon and regeneration stories are a collection of observations by the folks at www.pickuptrucks.com and from yours truly. And, I've given you some advice about town criers, friends, money and how not to run afoul of the EPA. Finally, I've provided some insight (Edge Insight, pun intended) into miles-per-gallon and regeneration that helps us define "what is normal?"

Go forth, collect data and let me know what you find. Feel confident in your choice of truck and engine.

Robert Patton
TDR Staff

ENGINE EVOLUTION – EMISSIONS

ISSUE 49 – TECHNICAL TOPICS

by Robert Patton

EPA, NOx, PM, SCR, EGR, DPF, NAC, VGT, ULSD, HPCR, HCCI, NMHC, ACERT, TITT: Can you pick the abbreviation that is non-diesel, non-emissions related? It's easy, TITT as in "throw in the towel." The balance of the abbreviations serves to bewilder your diligent scribe. However, with a new round of diesel exhaust emission legislation less than two years away and with ultra low sulfur diesel fuel (abbreviation: ULSD), due in the summer of '06, it is appropriate that we understand what the abbreviations will mean to the diesel enthusiast.

As TDR subscribers know, emission legislation dates are the driving force in the changes to the Cummins engine hardware. To make a boring story into a relevant topic, the subject matter has to address "what does it mean to me?" The best way to answer this question is to crank-up the way-back machine to Issue 40 and look at the progression of the ever-tightening emissions standards.

After we review the material which answers the question, "what does it mean to me?" material, I'll attempt to tie the big picture together with a look at those annoying abbreviations and what is on the horizon for 2006 and 2007.

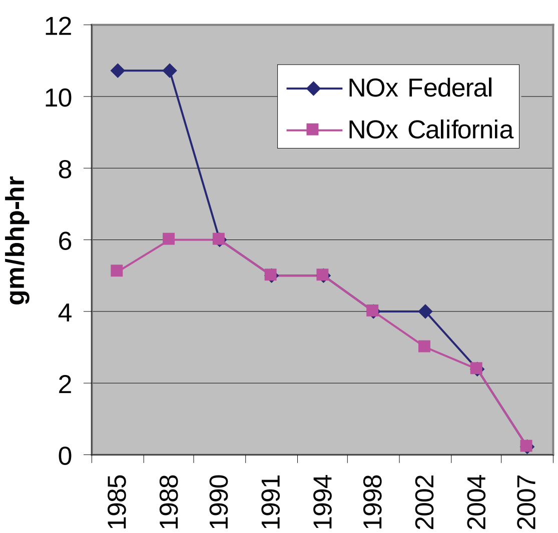
Boring Stuff?

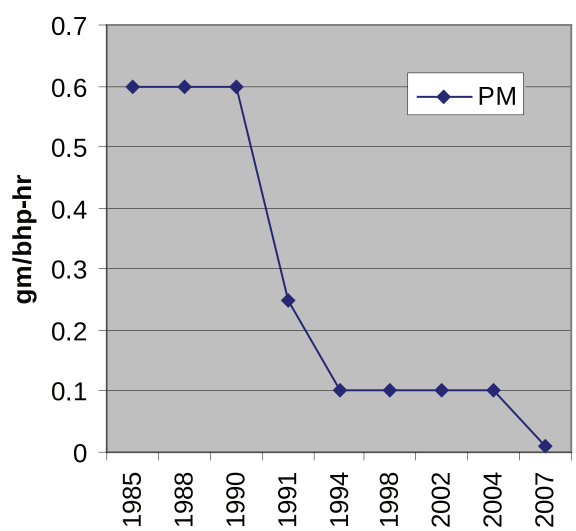
While it might be tempting to skip through this subtitle, I'll ask for your concentrated efforts as we simplify (oversimplify?) the two emissions components that concern the diesel engineer: oxides of nitrogen (NOx) and particulate matter (PM). The following paragraphs may provide us a more informed understanding of these two emissions components.

Oxides of Nitrogen (NOx)

- One of the primary regulated pollutants from diesel engines.
- Reacts with hydrocarbons in the presence of sunlight to form ozone.
- Formed by reaction between nitrogen and oxygen in the combustion chamber.
- NOx formation increases with higher combustion temperature and cylinder pressures.
- Methods of reduction include lower intake manifold temperature, lower in-cylinder temperature, retarded fuel injection and combustion optimization. Any in-cylinder approach to NOx reduction involves lowering the temperature and limiting the time of the combustion event.
- Potential impacts can be higher fuel consumption and requirement of a more complex cooling system.

Note the sharp, ten-fold drop in emissions from year 2004 to 2007. I recall that one of the first TDR magazines stated that emissions were the driving force behind changes to the diesel engine. The 2007 emissions targets nail home that statement. Certainly ultra-low sulfur fuel will help, but the engineering it will take to meet the targets is difficult to imagine.





Particulate Matter (PM)

- Often visible as black smoke.
- Formed when insufficient air or low combustion temperature prohibits complete combustion of the free carbon.
- Primarily partially burned fuel and lube oil.
- Methods of control include oil consumption reduction, catalytic converters, combustion system development and higher fuel injection pressures.

To oversimplify, think back to last winter and the many fireside evenings you enjoyed. As you built the fire, there was inefficient combustion, characterized by black smoke and not much heat generation. Thirty minutes into the exercise you were sitting back in the easy chair, with a raging fire, no more black smoke, a beautiful yellow and blue flame, and lots of heat.

Now, refer back to the NOx and PM bullet statements and reflect on the following: the design engineers could control particulates (PM) by raising the combustion efficiency (temperatures and pressures). But, raising temperatures and pressures causes the formation of oxides of nitrogen (NOx) to go out of the emissions box. Likewise, efficiency and heat of combustion can be sacrificed to meet the NOx legislation, but the particulates go out of the emissions box. How does the engineer get the teeter-totter level?

As an interesting sidenote, NOx not only is formed in internal combustion engines, it is the result of elevating the temperature of air—made up of 79% Nitrogen and 21% Oxygen—high enough for the reaction to occur. One of the most significant sources of NOx formation in nature is lightning.

The reaction that forms NOx is also time related; the longer the temperature remains elevated, the greater the level of NOx formation.

In the diesel engine, NOx formation can be correlated to engine performance; the higher the rate of formation, the more efficient the engine. As most are aware, the impact of reducing NOx emissions is increased fuel consumption, which is the result of reduced efficiency.

For a good demonstration of the principle, consider that in-cylinder temperatures are much higher on two-stroke engines because fuel is provided on every stroke. Also, consider the lack of oil control that contributes to too many particulate emissions. These factors made it impossible for two-stroke engines to meet emission targets and maintain fuel consumption and other performance targets. The 1988 on-highway emissions regulations were the final blow to the two-stroke diesel in trucking applications. Two-stroke diesels are now only produced for off-highway and generator set markets.

The method of attack in reducing NOx formation in the diesel engine is basically twofold: a) reduce the in-cylinder temperature and/or, b) reduce the time for the reaction to occur. Control of the temperature within the cylinder is managed in part by reduced intake manifold temperature (an intercooler/charge air cooler). Although not used on our Cummins diesel engines, exhaust gas recirculation (EGR) is another method used to control the in-cylinder temperature and, in turn, NOx formation. Recirculated exhaust gas is oxygen-depleted and the inert gas acts to buffer the combustion event thus lowering the in-cylinder temperature. Reduced reaction time is controlled largely by retardation of the injector timing. Also note the '03-'05 Turbo Diesel engine with its high-pressure, common-rail (HPCR) fuel injection system gives a pilot shot of fuel prior to, and post of the larger injection event. The pilot shots of fuel help control the temperature and reduce NOx formation. Pilot injection also has greatly reduced the noise level that is associated with diesel combustion.

As you review the NOx and PM bullets, you can understand the balancing act the engineer has to perform. Now, add to the emissions teeter-totter the need for the engineer to deliver to the market place an engine that can maintain or show an increase in fuel economy. Further, competition dictates higher performance from the engine. Quite a job for the engineering community.

THE LOOK AHEAD

Back to the Basics

For easy understanding and efficient recall, let's start with a glossary of terms that will be used in this article.

EPA: Environmental Protection Agency, the governmental department that is responsible for governing diesel exhaust emissions.

NOx: oxides of nitrogen, a key pollutant that reacts with hydrocarbons in the presence of sunlight to form ozone.

PM: particulate matter, another key diesel pollutant that is primarily soot and other combustion byproducts that form urban smog.

SCR: selective catalytic reduction, an aftertreatment technology that uses a chemical reductant (urea) that is injected into the exhaust stream where it transforms into ammonia and reacts with NOx on a catalyst, converting the NOx to nitrogen and water vapor.

EGR: exhaust gas recirculation, a technology that diverts a small percentage of the oxygen depleted, inert exhaust gas back into the cylinder to help lower the combustion temperatures, thus reducing NOx.

DPF: diesel particulate filter, also known as a particulate trap. DPFs will be used to capture particles of soot in a semi-porous medium as they flow through the exhaust system. DPFs are available in passive or active configurations. Active DPFs use a control system to actively promote regeneration events.

NAC: NOx absorber catalyst, a catalyst that releases NOx for a conversion to nitrogen gas and water vapor.

VGT: variable geometry turbo, turbochargers that constantly adjust the amount of airflow into the combustion chamber, optimizing performance and efficiency. In essence, the turbine casing varies from a small to a large cross section.

ULSD: ultra low sulfur diesel, this fuel is scheduled to be available in September 2006. Over the years the sulfur in diesel fuel has all but been removed. The standards: prior to 1994 – 5000 ppm; 1994 – 500 ppm; 2006 – 15 ppm. It is interesting to note that the European standard is 50 ppm which was enacted in 2004. With ULSD in September 2006 the United States will have the world's strictest standard.

HPCR: high-pressure, common-rail, this is the type of fuel system that is currently produced for our Dodge/Cummins pickup trucks.

HCCI: homogeneous charge compression ignition, a method of in-cylinder NOx reduction. Think of HCCI as "massive EGR."

NMHC: non-methane hydrocarbons, these are primarily unburned fuel in the exhaust stream and are not a substantial part of the diesel emissions problem. In 2002 the EPA added the NMHC number to the NOx number for a total standard of 2.5-g/bhp-hr (NOx + NMHC).

ACERT: advanced combustion emission reduction technology, the abbreviation for Caterpillar's emission control system.

The 2007 EPA Emissions Rules

Looking ahead to 2007-2010, the emissions requirements will change dramatically for diesel pickup trucks. Both NOx and PM are reduced by 90% from 2004 levels. Specifically, NOx must be reduced to 0.2 grams/brake horsepower-hour by 2010, while the particulate standard is reduced to 0.01 g/bhp-hr PM beginning in 2007.

The EPA has allowed for NOx phase-in from 2007 through 2009. During this time, 50% of the engines produced must meet the 0.2 g/bhp-hr NOx standard, while 50% may continue to meet the current 2.5 g/bhp-hr NOx + NMHC standard.

Most engine manufacturers will use the NOx phase-in provisions along with averaging to certify engines to a NOx value roughly halfway between the 2004 number and the final 2010 NOx level. This calculates to approximately 1.2 g/bhp-hr NOx.

The PM level is not phased in, and thus all engine production is required to be at 0.01 g/bhp-hr PM beginning January 2007.

In addition to the lower NOx and PM levels, crankcase gases will be included in the emissions measurements. This requirement will drive closed crankcase systems for 2007 or ultra-low emissions from open systems. Open systems allow crankcase gases to be vented into the atmosphere through a breather tube. Closed systems reroute crankcase ventilation gases from the breather tube back into the engine intake airflow to be used for combustion.

Likely there will be further EPA regulations which will require advanced onboard diagnostics, which will lead to additional sensors to monitor the effectiveness of emissions systems on the engine.

Ultra-Low Sulfur Fuel

In addition to new exhaust emissions standards and in support of the new exhaust emissions, the EPA is lowering the limit for diesel fuel sulfur from 500 parts per million (ppm) to 15 ppm. The new fuel standard will be phased in beginning September 1, 2006 (80% participation) through September 1, 2010 (100% participation). It is expected that 15-ppm fuel will be widely available. On a volume basis, over 95% of highway diesel fuel produced in 2006 is projected to meet the 15-ppm sulfur standard. On a facility basis, over 90% of refineries and importers have stated that they plan to produce some15-ppm diesel fuel. It is projected that the additional cost of the new fuel will be less than 5¢/gallon.

Ultra-low sulfur fuel (ULSD) has several beneficial effects. It inherently produces less PM from combustion, so it is a PM control strategy for all in-use equipment. And, just like unleaded gasoline in the early '70s, ULSD enables NOx absorber catalyst (NAC) technology to be highly effective and reduces the production of sulfuric acid.

In 1994 there were widespread problems associated with the introduction of low sulfur diesel. The desulphurization process that removes the sulfur plays havoc with the aromatic composition of the fuel. The change in composition caused shrinking, cracking and oxidation of rubber compounds, specifically fuel pump o-rings, and fuel leakage was the result. Manufacturers scrambled to switch the composition of their fuel pump seals.

Many tried to link the fuel pump leakage problem to the lower lubricity of '94s low sulfur fuel. However, a fuel lubricity specification was never adopted by the American Society of Testing and Materials (ASTM). For 2007 the ASTM has set fuel lubricity standards and these are set to take effect in early 2006.

Cooled EGR to Reduce NOx

Cooled EGR is an effective NOx control. The EGR system takes a measured quantity of exhaust gas, passes it through a cooler before mixing it with the incoming air charge to the cylinder. The EGR adds heat capacity and reduces oxygen concentration in the combustion chamber by diluting the incoming ambient air. During combustion, EGR has the effect of reducing flame temperatures, which in turn reduces NOx production since NOx is proportional to flame temperature.

In order to control both NOx and particulate emissions accurately, the amount of recirculated exhaust gas and air has to be precisely metered into the engine under all operating conditions. This has driven the use of advanced variable geometry turbochargers (VGT) that continuously vary the quantity of air delivered to the engine.

Aftertreatment Solutions to Reduce NOx

While cooled EGR is an in-cylinder technology that can reduce NOx, there are several aftertreatment solutions which can achieve reduced NOx levels by treating the exhaust gases after they leave the engine. These include selective catalytic reduction (SCR), NOx adsorbers and lean-NOx catalysts.

SCR systems use a chemical reductant, in this case urea, which converts to ammonia in the exhaust stream and reacts with NOx over a catalyst to form harmless nitrogen gas and water. Urea is a benign substance that is generally made from natural gas and widely used in industry and agriculture.

The SCR-urea catalyst is a more mature technology. The first SCR applications have been implemented in Europe and Japan. And, while the EPA has not said no to SCR, the world's diesel manufacturers have an understanding of the problems associated with SCR in the US—specifically distribution at fueling locations, additional tanks and plumbing on trucks and controls to ensure the operator refills the SCR tanks. Nevertheless, the European diesel manufacturers as well as Detroit Diesel are intent on using SCR technology for the North American market in 2007.

For several reasons Cummins has chosen SCR for its engine in Europe: the NOx limits in Europe are a bit more lenient; relative to the cost of diesel fuel, the urea price is low; and there is a supporting urea distribution infrastructure.

For the North American market Cummins will continue with cooled EGR and work with original equipment manufacturers to select the appropriate NOx aftertreatment.

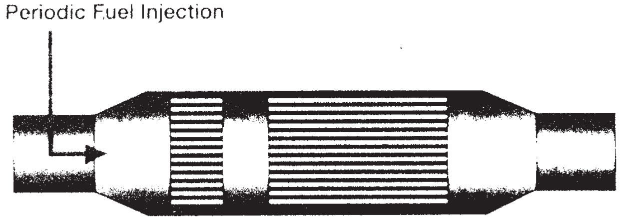
Caterpillar will continue with their ACERT combustion technology and the appropriate NOx aftertreatment. In a November '04 issue of Transportation Topics, William Morris, chief engineer for on-highway engines at Caterpillar responded, "the selective catalytic reduction process 'was at the bottom of the list for 2010 solutions.' Morris said Caterpillar was more interested in modifying its existing emission control system called ACERT and that Caterpillar was doing something similar in 2007 with new designs for 'pistons, rings and liners' to improve the combustion that takes place in the cylinder."

NOx Adsorber Catalyst to Reduce NOx

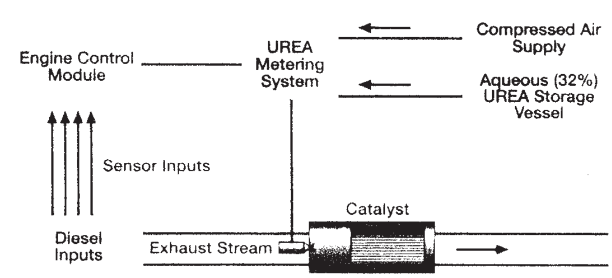
The NOx adsorber catalyst (NAC) is a technology developed in the late 1990s. The NAC uses a combination of base metal oxide and precious metal coatings to effect control of NOx. The base metal component (for example, barium oxide) reacts with NOx to form barium nitrate—effectively storing the NOx on the surface of the catalyst. When the available storage sites are occupied, the catalyst is operated briefly under rich exhaust gas conditions (the air-to-fuel ratio is adjusted to eliminate oxygen in the exhaust). This releases the NOx and allows it to be converted to nitrogen gas and water vapor. Just like unleaded fuel in the early 70s, ULSD enables NAC technology to be implemented.

The elimination of all excess oxygen in the exhaust gas for a short period of time can be accomplished by operating the engine in a rich mode. This is done by injecting fuel directly into the exhaust stream ahead of the adsorber to consume the remaining oxygen in the exhaust. Either way, the engine and catalyst must be controlled as a system to determine exactly when regeneration is needed, and to control the exhaust parameters during regeneration itself.

NOx adsorbers are expected to appear first in light-duty applications.



NOx Adsorber Catalyst



Basic Principal – Spraying UREA into the exhaust stream to promote NOx reducing catalyst activity.

PM Reduction

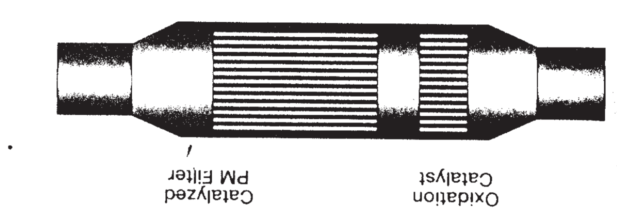
Previous reductions in particulate matter emissions have been achieved through engine combustion improvements and oxidation catalysts, the stringent 2007 particulate standards (90% lower than current-day standards) will require very effective particulate aftertreatment.

The active diesel particulate filter (DPF) is the only current technical option for meeting the 2007 PM emissions standards. It is expected that all engine manufacturers will use this technology.

Filtration of exhaust gas to remove soot particles is accomplished using porous ceramic media generally made of cordierite or silicon carbide. A typical filter consists of an array of small channels that the exhaust gas flows through.

Adjacent channels are plugged at opposite ends, forcing the exhaust gas to flow through the porous wall, capturing the soot particles on the surface and inside pores of the media. Soot accumulates in the filter, and when sufficient heat is present a regeneration event occurs, oxidizing the soot and cleaning the filter.

There are several methods to control or raise the exhaust temperature to manage the regeneration event in the DPF. The most promising methods for an active integrated system for 2007 are management of the engine combustion process in combination with an additional oxidation catalyst. This will allow regeneration to take place under low-ambient/low-load conditions when exhaust temperatures are low, as well as during normal operation.



As oil is consumed and particulate matter is burned off through regeneration they become ash and collect in the filter. The ash must be cleaned from the filter or plugging will occur. Maintenance may be required on diesel particulate filters.

Cummins is currently working with oil manufacturers on the development of low-ash oils and to determine how different oil additive components may behave with regard to filter plugging. If maintenance of the diesel particulate filter is required, it is anticipated that it will be at relatively high-mileage intervals of 185,000-250,000miles.

2007 Lubricating Oil

New specifications are being developed for lubrication oil compatible with the low-emissions engines for 2007-2010. The primary focus will be to make the oils compatible with aftertreatment devices. For 2007, the immediate requirement is to reduce ash in order to enable extended maintenance intervals on the diesel particulate filter while maintaining the important lubricity capability of the lubricant.

And the Bottom Line?

Yours truly is not an accomplished prognosticator. I am often reminded that we incorrectly predicted that the post 1/1/04 Turbo Diesel would have EGR. While the Ford and General Motors diesels were saddled with EDR, the engineers at Cummins were diligent with their in-cylinder development and avoided adding the recirculated exhaust gas plumbing and controls to the engine.

With my qualifications duly noted, as we look toward the future I will stick with factual data and quotations from other periodicals.

- ULSD is currently legislated to be available in September of '06. The problems associated with the introduction of low sulfur diesel fuel in 1994 have not been forgotten and the fuel vendors and the ASTM have standards in place to avert problems.

- Particulate control: according to Diesel Progress, November 2004: "Major manufacturers such as Caterpillar, Cummins, Detroit Diesel and International Truck and Engine have adopted diesel particulate filters as the preferred strategy/technology for PM reduction, but there is no consensus on NOx control technologies. The two most practical and cost-effective approaches to lower NOx emissions from diesel trucks are in-cylinder techniques such as a high rate of EGR and exhaust system technologies such as urea-SCR, which is being adopted in the European Union staring in 2005."

- Further, Diesel Progress, December 2004 notes: "Diesel particulate filter can be considered a relatively mature technology. At least in light-duty vehicles, DPFs have been used in high-volume applications in diesel passenger cars in Europe, with over 850,000 systems sold since 2000. In the US, several heavy-duty engine manufacturers have been testing their 2007 truck prototypes and expressed confidence in the DPF technology."

- Confident that PM can be addressed with DPFs? Let's continue to address NOx. Consider this excerpt from Successful Dealer, March 2004: "According to technology chief John Wall, Cummins already has laboratory engines that can achieve a 1g level for NOx emissions and he is confident of being able to manufacture production engines that will meet the 1.2g "averaging" level without exhaust aftertreatment.

> "Furthermore, Wall zsaid highly-advanced combustion research techniques that actually use windows on the combustion process, and the complex modeling they can now do, allow him to predict that fuel consumption will not take a hit next time. It may even improve in some applications. Conclusion: For Cummins the refinement of the EGR process currently in place is the right emissions strategy for North America.
>
> "In Europe, Wall says it is likely Cummins will use the alternative selective catalytic-reduction (SCR) technology. The requirements for Euro 5 are less stringent on PM and the big differential between the cost of fuel between European countries and the United States (their cost per gallon is four or five times ours) means SCR is the more economical solution.
>
> "The economics are simply not there for the US. However, he did not rule out some SCR for 2010 to clean up the NOx from 1.2g down to the 0.2g levels."

- Specifically, how about NOx control on our light-duty pickup diesel. Scowering through the trade publication Transportation Topics—Equipment and Maintenance Update, March 2004, I found another interview with Cummins' John Wall. "John Wall, vice president and chief technical officer for engine manufacturer Cummins, said NAC adsorbers would likely go into lighter applications first because 'they have a lot of precious metals in them and they get more expensive as you scale them up to heavy-duty applications.'"

To conclude: your light-duty Cummins engine will require some form of exhaust aftertreatment. The allowable NOx phase-in between years '07 to '10 make prediction difficult and complex. Therefore I will refrain from bold statements laden with abbreviations like, "expect an EGR and VGT-equipped engine with a DPF and later a NAC.

Time will tell. I will keep a watchful eye toward press information and an open ear when in conversation with others.

The Right Technology

As a postscript to our crystal ball look into the future I found an article in the 1/3/05 Transportation Topics magazine that give further insight into the use of SCR to control NOx emissions. As was mentioned several times in the article, the EPA would not take a stand on the technology the manufacturers should use. However, there was pressure against the SCR concept. How so? Consider the following from TT: "SCR can reduce levels of NOx by mixing urea, an ammonia-based solution, into the exhaust stream ahead of the catalytic converter. SCR would allow the combustion process to operate in a more traditional way, proponents have argued.

"Detroit Diesel Corporation, a subsidiary of Freightliner, plus the powertrain units of Mack Trucks and Volvo Trucks North America had been considering SCR for 2007 engines.

"They finally dropped the option in the face of EPA's concern over the engine makers' ability to ensure SCR's use when a truck was operating, plus the lack of a distribution infrastructure for the mixture."

If we read between the lines it looks like the use of SCR has not been abandoned, rather pushed back. See if you come to the same conclusion as we again quote from TT, "Diesel manufacturers have put the selective catalytic reduction aftertreatment process on hold, but the manufacturers said SCR would still be an option for 2010, when emission standards were set to change again."

Final Conclusion

Again, I'll remind you that I am not adept at predicting the future. However, we've provided a paint-by-numbers guide for the 2007 emissions picture; it's up to you to fill in the colors. Will your picture match the one that Cummins and Dodge are painting? We've got about one year before the 2007 model year truck is introduced. Get busy with your brush.

Credits: Much of the technical information (abbreviation definitions and emissions solutions) was gleaned from Cummins bulletin number 4103666, "2007 Emissions: Choosing the Right Technology." Copies of this bulletin can be sourced at your Cummins distributor or by calling 800-DIESELS.

6.7 HPCR ENGINE MEETS 2010 EMISSIONS

ISSUE 56 – 6.7 HPCR

It has been a full year since the March ’05 announcement of the Dodge 3500 Chassis Cab with the 6.7 liter Cummins engine. The 3500 Chassis Cabs rolled off the assembly line last fall and we introduced this column in the magazine to cover developments with the 6.7 HCPR engine.

At the Chicago Auto Show in February Dodge announced their new 4500 and 5500 Chassis Cab that use the same 6.7 HPCR engine. Hand-in-hand was the ’07.5 model year introduction of the 6.7 HPCR engine in the 2500 and 3500 pickup trucks.

Somewhat lost in the flurry of announcements, introductions and hardware hitting the streets was the following press release from Cummins.

“In January Cummins Inc. unveiled the strongest, cleanest, quietest best-in-class 2007 6.7-liter Turbo Diesel engine, used exclusively in Dodge Ram 2500 and 3500 Heavy Duty pickup trucks. The engine has increased displacement providing increased horsepower and torque while achieving the world’s lowest 2010 Environmental Protection Agency (EPA) NOx standard a full three years ahead of the requirements.

“Cummins is the first diesel engine manufacturer to have a product certified to the 2010 EPA heavy-duty engine standards for oxides of nitrogen (NOx) and particulate matter (PM) emissions, making it the cleanest heavy-duty diesel engine available in North America. The 2010 EPA standards for NOx (0.2g) and PM (0.01g) represent a more than 90 percent reduction in each pollutant, compared to the 2004 standards.

“‘The application of the right technology on the Dodge Ram is an extension of the joint clean diesel development work Cummins and DaimlerChrysler have performed together for nearly two decades,’ said Cummins President and Chief Operating Officer Joe Loughrey. ‘The new best-in-class Cummins Turbo Diesel and the Dodge Ram will provide the strongest, cleanest, quietest solution for heavy-duty pickup truck customers.’

“‘This new technology is a significant validation of the industry’s ability to meet the EPA’s 2010 clean diesel standards. These innovations help power our economy and drive our environmental successes,’ said Bill Wehrum, EPA’s Acting Assistant Administrator for Air and Radiation.”

Cummins, in conjunction with DaimlerChrysler and the EPA, made this announcement prior to the Washington DC Auto Show in January.

When I first read the press release my reaction was, “Ho, hum, another beat-the-chest exercise by the PR folks.” Is your reaction the same?

Look at the release again. It is important to note that with the 6.7 HPCR engine Cummins is the first diesel engine manufacturer to meet the 2010 EPA standards. This is big news!

Let’s say it again, the 6.7 HPCR engine meets the 2010 EPA standards.

So, unlike the yo-yo changes that we have had to endure every 3 to 4 years, the ’07 HPCR will be good until the next set of emissions legislation in 2013.

Will Ford be able to offer an engine package like this?

Will GM be able to offer an engine package like this?

Additionally, consider that the 2010 6.7 HPCR engine offers a solid engine platform that allows Dodge to engineer the next generation Ram, thus keeping the Dodge/Cummins relationship stable.

2010 Technology

This is big news. So much so that the February ’07 issue of Diesel Progress (a trade-only publication, not to be confused with the plethora of newsstand “glossy” publications) devoted five pages to the 6.7 HPCR and its technology. The following are excerpts from the Diesel Progress article by Mike Brezonick as he talks with several of the Cummins Inc. personnel behind the 6.7 HPCR project.

“When Dodge and Cummins announced the 2007 engine months ago, both companies highlighted some of the notable and apparent changes. Yet both companies kept very quiet on what is in some ways the most noteworthy aspect of all, choosing to save that for a more appropriate stage.

“That stage turned out to be the Washington Automobile Show in January. Cummins took the wraps off emissions technology that is being used on the 2007 model year Ram 2500 and 3500 Heavy Duty pickup trucks. The system, which Dodge and Cummins said will meet EPA’s emissions regulations for the next six years, is unprecedented in its sophistication and includes what is considered to be the first commercially produced NOx adsorber system to be used on a production vehicle in any market segment in North America.

The Challenge and Relationships

“‘As we looked ahead to ’07, Dodge’s challenge to us was to stay up with the competition in the horsepower and torque wars,’ said Jeff Caldwell, Cummins executive director – DaimlerChrysler Business. ‘Our challenge was how do we do that and meet emissions?

“‘Beyond cooled EGR and variable geometry turbos we knew we were going to add aftertreatment and if we took the same path that everyone else was taking, it would drive some pretty significant changes to the cooling system.

You've seen that in the 2007/2008 model year trucks from Dodge's competition—they're wider and taller. They've changed the trucks.

"'We feel terrifically about our relationship with Daimler Chrysler,' said Joe Loughrey, Cummins' president and chief operating officer. 'And the decision to use this particular recipe to meet the 2010 standards in 2007 was a collective decision between Cummins and DaimlerChrysler after having reviewed more than one alternative as to what our approach might be.

"'I have to emphasize that this was not Cummins walking in to say, hey, here's the deal. It was us working very closely with DaimlerChrysler and our partners and determining this was the best by far course of action to make the best truck for customers and the cleanest truck you can find anywhere in America.'

The Technologies

"Clearly, the most head-turning part of the vehicle is the addition of the NOx adsorber to the aftertreatment system. For the better part of a decade, NOx adsorbers have been cited as a promising technology for controlling NOx emissions from diesel engines—indeed, they were specifically cited as key technology by EPA in its rulemaking.

"A NOx adsorber resembles a conventional catalyst, incorporating a catalytic substrate through which diesel exhaust is directed. Then the NOx molecules are collected and held—"adsorbed"—onto the surface of the substrate, removing them from the exhaust stream. When the surface area of the substrate is full, the adsorber is regenerated with heat used to chemically change the NOx into more benign gases, mostly nitrogen and oxygen.

"However, for all their potential in principle and in the lab, NOx adsorbers remained closer to a promise than a real product. More on the NOx adsorber in a minute.

"Cummins incorporated a range of technologies into the engine. A variable geometry turbocharger from Cummins Turbo Technologies contributes to improved engine breathing. And, because of the robustness of the sliding vane design, it also can be used to provide engine braking, a beneficial feature, particularly in towing applications.

"Other changes to the engine include an intake throttle between the engine and charge-air cooler and a bypass valve in the EGR circuit that allows the gas flow to bypass the EGR cooler entirely in some operating conditions. This allows for more precise control of EGR rates, faster engine and vehicle warm-up and can also assist in raising exhaust temperatures for aftertreatment regeneration.

"The engine also has a closed crankcase ventilation system developed by Cummins filtration. The system incorporates a coalescing filter that captures oil mist and returns it to the crankcase. The filter requires service after approximately 60,000 miles.

The Aftertreatment System

"The Aftertreatment system is a three-section unit that is packaged mostly under the vehicle floor. It begins with a close-coupled catalyst—essentially a conventional diesel oxidation catalyst incorporating a metallic substrate—mounted to a short downpipe just off the back of the turbocharger. Shortly behind and below the close-coupled catalyst is the NOx adsorber unit, which is followed by a particulate filter. Both the NOx adsorber and PM filter use ceramic substrates.

"All three aftertreatment sections have their own active regeneration schedules, and the engine ECM controls the regeneration cycles. Even more significant, despite the use of fuel for regeneration, the overall fuel economy for the vehicle is virtually unchanged from the 2006 trucks, Cummins said.

"The NOx adsorber is regenerated every few minutes at approximately 600° to 800°F and the process takes about three to five seconds. The NOx adsorber will also, over time, absorb sulfur from the fuel, which can reduce its effectiveness over time. So depending on how much fuel is burned—typically every two tankfuls, a separate regeneration cycle is initiated to remove the sulfur. The PM filter is regenerated when mass flow sensors in the exhaust system detect a specified amount of loading on the substrate, typically about every four operating hours. Unlike the PM filter systems used on heavy-duty applications, there is no ash cleaning required, and the PM filter—like the NOx adsorber and close-coupled catalyst—is rated for the life of the vehicle.

"In another departure from the heavy-duty side, all of the hydrocarbon dosing (diesel fuel) needed to raise the temperature for the various aftertreatment regenerations is handled by the fuel injection system rather than a separate injection system.

"'It took some time and a lot of work to integrate the control system,' said Jim Fier, technical project leader. 'Some of the fuel we use to light the catalyst is partially burned, and any time you burn fuel, you produce power. If we didn't you would feel that extra fuel as power. With both the air handling and the fueling, we had to adjust those various pulses in order to keep the power balance and the torque balance as we go in and do the regenerations.'

"Cummins engineered the entire aftertreatment system down to specifying the washcoat on the catalyst bricks, and the system was assembled by Tenneco, which does aftertreatment system packaging for many segments of DaimlerChrysler."

At the onset I noted that the news about 2010 emissions and the 6.7 HPCR engine was noteworthy. The Diesel Progress article excerpts give us a better understanding of the technology behind the engine. Go forth and be proud of the Dodge/Cummins truck that you own.

Robert Patton
TDR Staff

EXHAUST AFTERTREATMENT PRINCIPLE OF OPERATION

ISSUE 66 – 6.7 HPCR

There has been a lot of misconception and misinformation posted about the regeneration process on the Dodge Turbo Diesel pickup with the Cummins 6.7-liter engine. This post is an effort to try to correct this misinformation and it will apply only to the pickup version. Although the Cab and Chassis models are similar, some of the parameters for regeneration are different.

Regeneration is the process where soot particles trapped by the diesel particulate filter (DPF) are burned into ash. This process involves many different components as well as a program in the engine control module (ECM) triggered by the pressure differential sensor or by an internal counter. I'll explain the different components and more about the counter later.

There are three types of regeneration: Passive, Active, and Manual

- Passive regeneration can occur when the engine is operating under load conditions that generate high enough exhaust temperatures to oxidize the soot particles trapped in the DPF.
- Active regeneration occurs when the exhaust temperature is insufficient to achieve passive Regeneration. Under certain conditions the ECM can automatically activate the fuel injectors to raise the exhaust temperature to achieve a successful regeneration while the vehicle is in motion. The ECM activates the injectors post-combustion.
- Manual regeneration can be performed with a scan tool or some of the aftermarket performance programmers that have the ability to perform regeneration.

The ECM will start the regeneration process of the DPF if the soot load exceeds a calibrated value. The calibrated value is 47 grams of soot. The ECM determines the soot load of the DPF based on the voltage output of the pressure differential sensor, and the ECM has an internal counter that runs anytime the engine is running. This counter is dependent on engine RPM and exhaust temperature, so the more RPM the engine is turning or the higher the exhaust temperature, the faster the counter runs. When this counter reaches 24000, or the DPF reaches a soot load of 47 grams, the ECM will try to activate the regeneration process.

There are four different diesel emissions: Oxides of Nitrogen (NOx); Oxides of Sulfur (SOx); Particulate Matter (soot); and Hydrocarbons (in the form of unburned fuel). With a scan tool there are five modes of regeneration that can be monitored:

Normal: The engine is operating in normal condition

De-soot: The ECM is performing a regeneration of the DPF

De-SO_X: The ECM is in a regeneration event and is performing a sulfur oxidation process.

De-NO_X: The ECM is in the process of desorption and regeneration of the NO_X Absorber Catalyst (NAC). Although a De-NO_X event can happen shortly after regeneration, it is independent of regeneration.

HC-Desorption: This is a process by the ECM to eliminate excess hydrocarbons, in the form of unburned diesel fuel, in the exhaust system. This is a process that most vehicles will not see very often.

The two processes involved in a regeneration event are De-soot and De-SO_X. In the regeneration processes, the exhaust temperature is the main determinant of regeneration. The oxidation of diesel particulate matter (soot) begins at 1025° and oxides of sulfur (SOx) oxidation begin at 1185°. Since many vehicles never get worked hard enough to raise the exhaust temperature high enough to reach the threshold, a passive regeneration will never be achieved. These vehicles will have to depend on the active regeneration process.

The De-NO_X event of NO_X desorption requires an exhaust temperature of approximately 500°. This process also requires the absence of oxygen in the exhaust system. To remove the oxygen, the ECM will momentarily dump exhaust gas recirculation (EGR) gases and sometimes fuel down the exhaust to displace the oxygen in the exhaust. This process only takes 5-10 seconds. The timing for a De-NO_X event is based on an algorithm that takes engine run time, engine load, engine temperature and fuel rate to determine how often to perform a De-NO_X event. This is why there are oxygen (O2) sensors up-stream and down-stream of the NAC.

A De-SO_X event during a regeneration process has a trigger of 4.5 grams of SO_X. The ECM determines a SO_X load of 4.5 grams based on an algorithm that uses engine run time, engine load, engine temperature, fuel rate, and ambient temperature, to determine the SO_X load in the NAC.

When either of the triggers reaches their threshold (47 grams of soot or the internal ECM counter reaches 24000), the ECM will try to initiate regeneration. Once the engine reaches operating temperature and the vehicle speed is sufficient the ECM will enable the De-soot portion of the regeneration process. The internal counter will start

at 24000 and continue to count up until the exhaust temperature reaches approximately 850°. Then the counter will start to count down. The ECM will set the variable geometry turbo (VGT) slide ring at 12% (88% boost), which is why a slight performance difference is felt. The ECM will begin adding fuel post combustion. The EGR valve will set closed. The diesel oxidation catalyst (DOC) will start the fuel burn and, as it continues down the exhaust stream, the NAC will aid in bringing the exhaust temperature up to approximately 1175°. The particulate matter will begin to oxidize and turn into ash. When the counter gets to about 11000, depending on the soot load, the ECM will switch over to the De-SOx mode. In the De-SOx mode the EGR valve will open and resume normal operation. The VGT slide ring resumes normal operation and operates at the 50-70% position. The ECM will continue to try to raise the exhaust temperature with post combustion fuel injections until the exhaust temperature reaches approximately 1250°. All of this is variable, if the soot load is high and the SOx load is at the trigger point, the ECM will keep it in the De-soot mode longer and the De-SOx mode for less time. If the vehicle is stopped the ECM will try to start the regeneration process again when the vehicle is restarted. It will continue to try and perform regenerations until the process is completed.
MullenaxM

Editor's Note: This is an explanation of the regeneration process written by a Dodge service technician in Texas. He explains that his knowledge comes from "three years of nothing but 6.7-liter repairs, every now and then a little knowledge sticks in the 'gray matter'."

EXHAUST AFTERTREATMENT: THE COMPONENTS

ISSUE 69 – TECHNICAL TOPICS

BRINGING IT TOGETHER

by Jim Anderson

There have been articles in several previous issues of this magazine and on the Turbo Diesel Register website about how emission controls affect engine performance, longevity, and fuel mileage. These articles have covered segments of emission controls, particularly diesel particulate filters (DPF) on 2007 and later trucks, and their effects on fuel mileage and engine operation; but putting it all together in a cohesive document should lead to greater understanding since each previous article dealt with one system only.

Over the past twelve years, particularly the last three (2007-2010), emission controls and electronic control of engine functions have become increasingly common and increasingly complex. Your writer has found that the average truck owner doesn't fully understand these controls and how the controls and other engine systems must function properly together for the engine and the truck to run in a satisfactory manner. Without this knowledge and understanding of the parts and of the whole, the average driver is clueless in the event of trouble in one of these systems. Fortunately, the engine computer that controls it all can also report trouble codes to lead to a diagnosis and a proper repair. See Issue 64, pages 46-48, for an example of how complete the diagnostic trouble code (DTC) list has become for 2010 trucks. Each trouble code on that list is tied to the reporting of a sensor somewhere in the system. The computer has powerful diagnostics built in to simplify the diagnostics involved in fixing problems.

As an aside, the owner of a 2007.5 or later diesel pickup truck should think very carefully before deciding to turn up the power or tamper with emission control devices. In addition to possibly voiding a valuable engine warranty, owner experience is proving that modifications to fueling often results in other unintended consequences whose cost to repair can run into the thousands of dollars. See Issue 67, page 30 for more details on fueling modification boxes, Issue 67, page 33 for the editor's comments; and page 42 for emissions non-compliance penalties.

It is now time to put these discussions of the various parts and systems together and bring to you a better understanding of the complications and balances involved, how it all works, and how it affects the newest trucks and engines. This primer is intended to put it all in simple language and, hopefully, will assist you in making decisions about upgrading your old ride to a new one, or in diagnosing and repairing problems on your out-of-warranty present truck. The goal is to make emission control more understandable amid the hodgepodge of regulations engine makers must meet in order to sell their products in markets around the world. Exhaust emissions and fuels really are a worldwide concern, and not so suddenly, except in the U.S., everybody wants their products to be "green."

I'll begin by saying that Cummins Incorporated still has the best pickup truck engine design in the marketplace, and has been able to meet all requirements of both the government and truck builders without undue owner burdens. In fact, the 6.7 liter Cummins engine in the newest Ram pickup trucks meets the 2010-2011 emission standards without the use of urea injection. They are the only company to do so, while Ford and GM have both been forced to use urea injection exhaust aftertreatment on all of their engines slated for use in pickup trucks. The cost per gallon of urea is said to be in excess of $12, and 7 gallons of the stuff will last about 3500 miles of normal driving. That would add $84 to the operating costs for 3500 miles of driving, a large hit to your operating bill. Almost all big rig truck engines built in 2010 and beyond will also use urea injection. As you can see, this additional and sizeable added expense raises operation cost per mile by many cents for the bowtie and blue oval brands. Diesel Urea Fluid contains 32.5% ammonia and the remainder is distilled water. This solution helps a NOx catalyst to reduce harmful exhaust gases to inert ones that can safely pass out a tailpipe to the atmosphere. The catalyst turns oxides of nitrogen into nitrogen and water.

If you think that current engine emission standards aren't tough to meet in terms of research and development, a good example to examine is Caterpillar's engine division. After many years of research, they decided the latest emission standards were too tough and the expense too great for compliance and they got out of the on-road engine business in 2007 after gaining a 30+% share of the lucrative trucking and motorhome chassis businesses. They now concentrate their research energies on the off-road engine business such as bulldozers, large generator sets, and drag pans, where emission control requirements are less stringent (for the time being), and where profits are apparently greater. They simply could not make their emissions strategy work using existing technology and without violating patents of other engine makers. They walked away from many millions of dollars of income. Cummins, on the other hand, did the research, developed some good ideas, and handily made the 2010 emissions cut in 2007 with their 6.7-liter diesel engine without the use of urea injection for their pickup truck engines. We, as customers, have surely benefited.

Much of exhaust emission control on current engines lies in combustion technology and the use of ultra low sulfur diesel fuel. The more complete the combustion of fuel particles in the cylinder combustion chamber, the less exhaust pollutants must be treated to meet emission standards. The strategy uses several methods to meet the need. The government decree for 2010-2016 says three standards must be met for tailpipe emissions.

The first is NO_x, oxides of nitrogen, which causes smog. The Ram pickup is vehicle certified on chassis-dyno, and the NO_x regulation is 0.2 g/mile. The Cab/Chassis is engine-dyno certified, and that regulation is 0.2 g/bhp-hr.

The second standard is HC, hydrocarbons, unburned fuel molecules, another contributor to smog, and a known carcinogen. The third is CO, carbon monoxide, which in higher concentrations can cause death because the blood in mammals (that includes us humans) has a greater affinity for CO than for oxygen (O_2). Unfortunately, concentration of CO in human blood is cumulative, so breathing small amounts over long periods can be fatal. The blood takes it in quickly, but exchanges it for oxygen very slowly. For our '07.5 and newer pickup trucks these standards are met using a diesel oxidation catalyst (DOC), a NO_x adsorber catalyst (NAC), and a diesel particulate filter (DPF) to catch carbon particles.

The emission control strategy for all three pollutants begins in the cylinder or combustion chamber of a diesel engine, where the goal is to keep combustion cool enough to limit NO_x, yet hot enough to completely burn as much HC as possible. CO and CO_2 (carbon dioxide) are a natural byproduct of combustion of hydrocarbon fuels and can easily be controlled by passing exhaust gases over a catalyst in a converter which strips away the oxygen molecule in the case of CO and the two molecules in the case of CO_2 and passes the remaining carbon on to the diesel particulate trap. The remaining carbon atoms are dealt with separately, along with the carbon atom in HC and the nitrogen atom and the remaining oxygen atom in NO_x, by burning them in a diesel particulate filter. The Nitrogen atoms are passed out the tailpipe as an inert gas. More about the DPF later.

As emissions controls became tighter, engine makers developed strategies to more carefully time the combustion event and to more carefully control the precise amount of fuel injected for each combustion event. They also developed combustion chamber designs to induce a correct amount of swirl to the incoming air to more completely atomize the fuel charge before combustion was completed. Thus we saw careful design of the combustion chamber in the cylinder head and the advent of a "shaped dish" in the piston top. The dish shape looks similar to that of an old metal milk pitcher. Research showed that too much air swirl actually inhibited combustion, while not enough swirl left unburned fuel particles at the edges of the combustion chamber, thus leading to higher emissions out the tailpipe. In the pictures, note that the top of the piston shows the spray pattern in gray, and favors keeping the fuel spray away from the edges of the piston top.

Piston top spray pattern area is visible as gray; incomplete combustion areas are black. This piston is from a vintage '94-'98 12-valve engine. Notice that the piston bowl is offset. The reason for this is that the injectors on 12-valve engines came into the cylinder head at an angle. On 24-valve engines ('98.5-'02) and HPCR engines ('03-current) the piston bowl is centered to match-up with the injector that comes into the cylinder head from directly above.

The next photo shows the shape of the bowl in the top of the piston. Using a blunt center area to disperse fuel and a carefully shaped bowl periphery, a swirl is induced in the incoming air to allow maximum combining of fuel and oxygen.

A close-up of the same 12-valve piston showing the piston bowl shape. Note the blunt center top, curved sides.

Fuel injector design was also improved to achieve better fuel atomization and more even dispersion of fuel droplets throughout the combustion chamber where they can better combine with their oxygen partners. This was done by spraying fuel at higher pressures through more holes at the nozzle to get more even dispersion of finer droplets.

Here's a little bit of history: Almost all diesel engines up to 1998 used a mechanical injection pump that sent a high pressure (3,000-14,000 psi) pulse of fuel from the injection pump, through a steel line, and into the fuel injector. The pressure rise at the injector opened the injector nozzle and fuel was sprayed into the cylinder as it neared top dead center where the air was squeezed tightly enough to raise its temperature high enough to light off the injected fuel. When air is compressed, it heats up, as discovered by Dr. Rudolf Diesel (I'll bet you've heard of him before) in the 1800s, and is still the principle of operation of all of today's diesel engines. Because the compressed air becomes so hot, no outside source of energy, such as a spark plug is required to initiate combustion. Just spray the fuel into the hot air and it lights off on its own. After 1993, diesel engines were required to meet an emissions standard, so there were modifications to limit injector pump fueling unless ample air was present, and a diesel catalytic converter was installed in the tailpipe (vintage '94.5-'98). Trucks still smoked, sometimes a lot. The smoke is a result of more fuel being injected into a cylinder than there is air to completely burn it, or from large fuel droplets sprayed into the combustion chamber that don't readily atomize and combine with available oxygen. Smoke is unburned/not completely burned fuel hydrocarbons.

In 1998.5, we saw the advent of electronic control of a mechanical fuel injection pump by means of a computer which controlled the timing and amount of fuel injected into the cylinder. The computer offered more precise control of the fuel charge timing to meet the then-new emission standard. As time went by, new requirements were made the law of the land, requiring ever more precise metering of fuel at the proper time. Maximum efficiency in a diesel engine is gained through combustion at highest cylinder temperatures and combustion pressures, but these parameters caused more exhaust pollution. What to do?

With mechanical injection pumps there was a delay between the time the pump sent the fuel squirt through the pipe to the injector and the time the injector took to react by putting a shot of fuel into the cylinder. To cut this delay and make the injection event more precise, the computer was called upon to time the opening and duration of the injection event by operating a solenoid on top of the injector. In all Cummins engines since 2003 (the high pressure, common rail fuel system design), fuel pressure is supplied by a high pressure pump (up to 26,000 psi) to a common rail manifold connected to each injector. Since fuel under high pressure is available at each injector at all times, the time between injector solenoid opening and the resulting shot of fuel is lessened.

To further complicate matters, current emission control strategy (2003 to present) requires that several shots of fuel be supplied for each combustion event, and that actual combustion take place over more degrees of crankshaft rotation rather than supplying one large shot at or near the piston's top dead center as was the plan prior to 2002 emission controls. Geez. A set of injectors that were formerly required to operate up to 250 times per minute, now must operate three to five times as often, and must meter smaller but increasingly precise amounts of fuel each and every time. The amount of fuel injected depends on fuel rail pressure and duration of injector opening. The computer counts its ones and zeros very fast to compute the fuel timing and duration, making up to 9,000 decisions per minute.

Current emission strategy requires that for each combustion event, a small amount of fuel is injected slightly before the piston reaches top dead center. As this small fuel charge heats up and begins to light off, the piston has passed top dead center. Another larger injection event occurs when the piston is just past top dead center, lighting more quickly than the first shot because heat has increased in the combustion chamber, and a third squirt occurs even later to squeeze the last bit of power out of the event. With the 6.7-liter engine, fuel can be injected after the combustion event. This raw fuel is used for the regeneration/cleaning events that occur in the truck's emissions control devices. See the next page for details on the 6.7-liter exhaust aftertreatment system. Thus with current emission strategy, less peak pressure is put on the piston to drive it downward, but it is applied over a longer period of time or over more degrees of crankshaft rotation. The piston is now doing "work" until it is almost 90 degrees past the top of its travel as hot combustion gases continue to expand. The goal is to keep the combustion chamber cooler by injecting less fuel at each injection event, yet get the maximum amount of "work" from the piston as it is forced down in the cylinder.

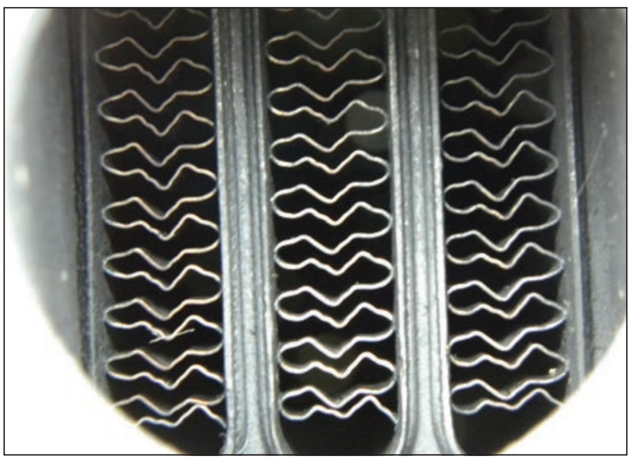
Meanwhile, other mechanical and electrical bits and pieces are doing their thing, too. One way to get more power from a given engine size is to force more air into the cylinder to allow more fuel to be burned. This is accomplished by use of a turbocharger. Think of it as a pair of fans on a common shaft where spent exhaust gases exiting the cylinder turn a set of fan blades attached to another fan that stuffs more incoming air into the engine. The drawback (there's always at least one) is that when you compress air it gets hot, as Dr. Diesel found, but in this case, hot air coming into an engine is an enemy. So intake air going into the engine from the turbocharger is first run through an intercooler, a big radiator, where the compressed air is cooled from, say, 350° to under 150° before it enters the engine's air intake tract. The cooled air is more dense, contains more oxygen molecules, and therefore can be combined with more fuel droplets to make more power. A small turbocharger that spools up quickly ensures excess air is always present to burn the injected fuel, although at the expense of high rpm power. At the same time, the cooled air does its part in helping control combustion chamber temperatures for lower NO_x emissions.

Focus on the 6.7's Exhaust Aftertreatment

On the latest engines ('07.5 and newer), under certain engine operating conditions, some of the exhaust gases are recirculated into the incoming air intake to further reduce exhaust emissions. This cooled exhaust gas recirculation (EGR) puts inert gases into the cylinder that would otherwise be occupied by oxygen rich air while a smaller amount of fuel is added to make power. The recirculated exhaust gas is therefore more completely burned, lessening exhaust emissions, and the cooled inert gas further cools the combustion chamber to reduce NO_x emissions. Exhaust Gas Recirculation is controlled by a valve that is actuated by the engine control computer.

These exhaust gasses are run through a small radiator mounted on the engine that is also supplied with a constant flow of coolant from the truck's radiator. It is a stainless steel tube with a small radiator mounted inside, where exhaust gasses up to 1,300° are cooled to around 200° before being routed into the engine's air intake manifold. Of course there is additional coolant plumbing and exhaust plumbing required for the EGR system. Unfortunately, a failure of the small EGR radiator will introduce coolant into the engine cylinders which can damage pistons and fuel injectors. This failure condition poses a particular problem with Ford 6.4-liter engine which uses three of these coolers; the GM Duramax engine uses two; and the Cummins 6.7-liter engine uses only one.

EGR cooler. Coolant enters and exits through round ports while exhaust gases enter and exit at ends.



End view of cooler shows radiator inside.

The other components that make up the 6.7-liter's exhaust aftertreatment system were mentioned before, the DOC, NAC and DPF. The DOC and NAC treat both NO_x and HC emissions by chemically changing them to more inert and less harmful gases. A catalyst causes chemical changes in a gas or liquid without changing itself.

How do these components operate? A quick look back at Issue 67 tells the story:

"The system begins with a close-coupled catalyst—essentially a conventional diesel oxidation catalyst (DOC) incorporating a metallic substrate—mounted to a short downpipe just off the back of the turbocharger. A short distance behind and below the close-coupled catalyst is the NO_x adsorber unit (NAC), which is followed by a diesel particulate filter (DPF). Both the NAC and DPF use ceramic substrates.

These components were taken from a Cummins test vehicle.

1. diesel oxidation catalyst (DOC)

2. NO_x adsorber catalyst (NAC)

3. diesel particulate filter (DPF)

"A NAC resembles a conventional catalyst, incorporating a catalytic substrate through which diesel exhaust is directed. Then the NO_x molecules are collected and held—'adsorbed'—onto the surface of the substrate, removing them from the exhaust stream. When the surface area of the substrate is full, the adsorber is regenerated with heat used to chemically change the NO_x into more benign gases, mostly nitrogen and oxygen.

"The NAC is regenerated every few minutes at approximately 600° to 800°F and the process takes about three to five seconds. The NAC will also, over time, collect sulfur from the fuel, which will gradually reduce its effectiveness. So depending on how much fuel is burned—typically every two tankfulls, a separate regeneration cycle is initiated to remove the sulfur. The use of high sulfur fuel is not allowed because it results in a high degradation rate of this catalyst."

The final part of the system is the DPF. The diesel particulate filter catches remaining carbon particles and burns them up. Where does the DPF get its heat for the burning process? Sensors in the DPF tell the computer when to go into its regeneration mode to burn away accumulated carbon. A few shots of raw diesel fuel are injected into a cylinder's combustion chamber while the exhaust valve is open. The late post-injected fuel is actually oxidized across the DOC and NAC, creating the higher temperatures (1050° – 1150°) required to oxidize the soot (carbon) off of the DPF. The fuel doesn't actually burn in the DPF to accomplish the DeSoot regeneration. About the only thing left to come out of the tailpipe is some moisture, some nitrogen, and carbon dioxide. The tailpipe exit on the newest trucks is cleaner than that of a gasoline engine. Nitrogen, coming out the tailpipe is the largest component of the air we breathe, so it poses no problem there as far as the EPA is concerned.

But wait... there's more! The engine control computer (ECU) mentioned earlier controls the whole thing and must have inputs from sensors in order to make proper decisions if it is to control the whole process from beginning to end. Stored in the computer are a bunch of "maps" that tell it how to operate and what commands to issue under any given engine operating condition. To know which map to use and what commands to issue, the computer requires inputs from a number of sensors, ranging from ambient air temperature, to intake manifold air temperature and pressure, to a throttle position sensor, to an engine speed sensor, and so on. Because it is all related, there must also be sensors to measure back pressure and oxygen content in the diesel particulate filter. The computer then also makes decisions about when to initiate burning off of the carbon particles in the particulate filter.

In the latest trucks, because the computer controls battery charging, a sensor even measures battery temperature while another measures voltage. There's a lot of electricity being used here and the computer must have a dependable and proper power supply to operate correctly. Yet another set of sensors inputs signals to the computer which then issues commands controlling automatic transmission operation. Of course, engine and transmission operation are interrelated, so the computer changes to a different control "map" at every transmission shift and at many changes in throttle position because engine operation changes as engine speed and load change.

There's even computer input from sensors in the brake system. For example: If vehicle speed is zero and your foot is on the brake pedal and the transmission is in gear, engine speed is limited if you simultaneously press on the "go" pedal. The computer decides this is a no-no and limits engine speed to about 1500 rpm to avoid transmission damage. It seems that the engine's control unit has thought of just about everything except how you like your coffee.

The 6.7-liter Cab and Chassis Engine

Urea injection will be used on Dodge Cab/Chassis models in 2011 because its EPA "duty cycle" is different than that of a pickup truck. Although urea is a commonly available chemical, and is a component of urine and fertilizer, Diesel Emission Fluid (DEF) is a highly refined, high quality urea chemical made from synthesizing natural gas. A spray nozzle with an opening smaller than a pencil lead dispenses the DEF fluid into the exhaust stream just as it passes over a catalyst to treat the NO_x component.

The urea injection, known as selective catalytic reduction (SCR), takes the place of the NAC unit that is used on the 6.7-liter engine in the 2500/3500 pickup trucks.

Almost all large truck engines used in 2010 and beyond will use urea injection in their emission control strategies. The cost of the system adds about $1,000 to the price of a diesel powered truck, and there is a space requirement for the urea tank, pump, and plumbing that must be found somewhere on the chassis. The system also uses sensors to report operation and tank quantity remaining, and DEF systems may not allow the vehicle to restart if the tank becomes empty. There is even a sensor that reports if the tank is filled with another liquid such as water, or fertilizer mixed in water, so you can't cheat it. A signal from this sensor will also prevent restart.

With the 2011 Cab/Chassis truck there is ample warning time before the engine will not restart. First a low DEF level warning on the EVIC with occasional chimes, and then a 500 mile countdown, with increasing frequency of chimes. If the driver ignores the 500 mile countdown warning on his EVIC display, after hitting zero miles, the engine will not restart due to starter lock-out. It won't restart until enough DEF is added to bring the level above the start of inducement (~ 2 gallon).

THE NEXT GENERATION

So what are the next generations of engines going to feature in the never ending quest for greater efficiency along with ever tougher emissions standards? In the near future, piezo electric actuators will replace fuel injector solenoids. In fact, they are already being used in some truck and automobile engines. Piezo crystals quickly swell when electricity is applied to them, so they can be used to operate fuel injectors. They're faster acting than solenoids so there would be another improvement in the accurate metering of fuel, so important in the emissions control game.

Piezo electric actuators could also be used to operate engine intake and exhaust valves to open and close at more precise times than those allowed by a camshaft, pushrods, and rocker arms, with the attendant "slop" in linkages. Not only would this eliminate the camshaft, pushrods, and rocker arms, all weighty pieces, but electronic control of valve timing would allow varying these events to further improve engine efficiency at various engine speeds and loads. The computer technology is already on board to accomplish these tasks, and variable valve timing is already proven in use in many gasoline engines for increased efficiency and power.

To meet upcoming increased fuel mileage mandates, research is in progress with the goal of cutting internal engine friction. This would yield more power while building less internal heat. At present, about 20 percent of fuel consumed by an engine goes to overcoming friction both inside the engine and throughout the rest of the drive train, including the tires.

The next area for further development will be the engine cooling system. Heat rejection from the combustion process wastes a large portion of the heat value of the fuel burned in the combustion chambers. Capturing this heat to do useful work other than warming your toes on cold mornings would offer further gains in fuel mileage.

With increasing electronics use comes more electrical power consumption. Look for future vehicles to use higher voltage electrical systems, either 24 or 48 volts. Doubling the voltage means one-half the amperage draw, so alternators, electrical motors, actuators, and batteries can all be made smaller, thus saving weight and space. Military vehicles have used 24 volt systems for many years, so the technology and hardware already exists.

There is little industry buzz about designing hybrid trucks. The power density of today's battery packs is simply too low to effectively move a load over long distances, and would be very marginal for even short distances with heavy loads. Diesel/hydraulic or diesel/electric power offers better returns as an alternative prime mover.

Today, only about ten percent of the fuel used by an engine does useful work in moving the vehicle. The other 90 percent is lost by factors mentioned above and by wind resistance. For example, in a truck moving at 60 miles per hour, about 50% of the engine's power is used just to overcome wind resistance. Cutting all of these losses means a net gain in fuel mileage and vehicle efficiency. That translates to good news at the fuel pump.

Jim Anderson
TDR Writer

SIDEBAR
YOUR CUMMINGS ENGINE THE CATALYTIC TRAP
by Robert Patton

Cummings? Mister Editor, you've committed a cardinal sin.

Doesn't it make you cringe when "Cummins" is misspelled or mispronounced? Actually, it is a tip-off that the publication or the person in the conversation is not well versed in all-things-diesel. Throw the publication away or run…

We have lived with the 6.7-liter engine for almost four years now. With the passage of time I am becoming more aware of the public's misuse of terms as they try to converse about the auxiliary emission control devices (AECDs for those that use government-speak). Oh, by the way, catalytic trap is a misuse of terms. Throw the publication away or run…

As we learned from Jim's article, there are three AECDs used on the '07.5 and newer 2500/3500 pickups and three AECDs on the Cab and Chassis trucks.

The trucks share the use of a diesel oxidation catalyst (DOC) and the diesel particulate filter (DPF). To address the NO_x component of the exhaust, the pickups use the NO_x adsorber catalyst (NAC); the Cab and Chassis trucks use the urea injection known as selective catalyst reduction (SCR).

As a diesel enthusiast and as one who is revered for his diesel knowledge, let's all pledge to know the meanings of and to use the terms correctly.

The following is a glossary that you can use in deciphering the alphabet soup of AECD terminology. (I'm getting good at sneaking that abbreviation in.)

NO_x: oxides of nitrogen, a key pollutant that reacts with hydrocarbons in the presence of sunlight to form ozone.

PM: particulate matter, another key diesel pollutant that is primarily soot and other combustion byproducts that form urban smog.

SCR: selective catalytic reduction, an aftertreatment technology that uses a chemical reductant (urea) that is injected into the exhaust stream where it transforms into ammonia and reacts with NO_x on a catalyst, converting the NO_x to nitrogen and water vapor.

EGR: exhaust gas recirculation, a technology that diverts a percentage of the oxygen-depleted, inert exhaust gas back into the cylinder to help lower the combustion temperatures, thus reducing NO_x.

DPF: diesel particulate filter, also known as a particulate trap. DPFs will be used to capture particles of soot in a semi-porous medium as they flow through the exhaust system. DPFs are available in passive or active configurations. Active DPFs use a control system to actively promote regeneration events.

NAC: NO_x adsorber catalyst, a catalyst that traps and then converts NO_x to nitrogen gas and water vapor.

VGT: variable geometry turbo, turbochargers that constantly adjust the amount of airflow into the combustion chamber, optimizing performance and efficiency. In essence, the turbine casing varies from a small to a large cross section.

ULSD: ultra low sulfur diesel. Over the years the sulfur in diesel fuel has all but been removed. The standards: prior to 1994 – 5000 ppm; 1994 – 500 ppm; 2006 – 15 ppm. It is interesting to note that the European standard is 50 ppm which was enacted in 2004. With ULSD in September 2006 the United States has the world's strictest standard.

ULSD has several beneficial effects. It inherently produces less PM from combustion, so it is a PM control strategy for all in-use equipment. And, just like unleaded gasoline in the early '70s, ULSD enables NO_x adsorber catalyst (NAC) technology to be highly effective and reduces the production of sulfuric acid.

HPCR: high-pressure, common-rail, this is the type of fuel system that is currently produced for our Dodge/Cummins pickup trucks.

HCCI: homogeneous charge compression ignition, a method of in-cylinder NO_x reduction. Think of HCCI as "massive EGR."

NMHC: non-methane hydrocarbons, these are primarily unburned fuel in the exhaust stream and are not a substantial part of the diesel emissions problem. In 2002 the EPA added the NMHC number to the NO_x number for a total standard of 2.5-g/bhp-hr (NO_x + NMHC).

THE AUTO CAT VERSUS THE DIESEL CAT

Through the years the Turbo Diesel pickup trucks have used a catalyst in the exhaust aftertreatment. To be technically correct, I consulted the Turbo Diesel Buyer's Guide to source the dates where the catalyst was used. The breakdown:

1/1/1994 – 12/31/1998, All 12-valve engines, all states

1/1/03 – Current, California trucks

1/1/04 – Current, all states

Also, to be technically correct, we should call the diesel catalyst by the accepted industry vernacular—a diesel oxidation catalyst (DOC).

For the enlightenment of the audience, I went back to Issue 18 to find out more about the diesel oxidation catalyst, how it operates, and the difference between the DOC and a catalytic converter used on an automobile. Let's start with the basics:

Catalyst 1: a modification and especially increase in the rate of a chemical reaction induced by material unchanged chemically at the end of the reaction.

Note from the definition that with the diesel exhaust catalyst we are simply trying to "increase the rate of a chemical reaction induced by a material unchanged at the end of the reaction," and this reaction is aimed at the particulate "component" of the diesel exhaust.

Understanding Automotive Cats

In my search for a simple explanation of the catalytic converter system being used in diesel applications, I ran across this article in the August '92 edition of Petersen's 4-Wheel & Off-Road. I know that the diesel and the automotive catalyst do not promote the same chemical reaction. But I didn't fully understand the auto cat or the differences between the first ones we saw in 1974 and the technology of today.

The automotive catalytic converter: With permission of Petersen's 4-Wheel & Off-Road, here are excerpts from "Exhaustive Research."

"In automotive use a catalytic converter is a device plumbed into the exhaust system that converts HC, CO and oxides of nitrogen (NO_x) into harmless carbon dioxide and water vapor. This is accomplished by routing the exhaust over catalyst materials (platinum, palladium, and rhodium) to start a chemical reaction which promotes further burning of the charge, and converts HC, CO, and NO_x to lower the emissions level of the exhaust gases.

"The first converters (vintage 1974-1979) were simple two-way units that filtered the exhaust through a bed of pellets coated with the precious metals. Those early cats converted only HC and CO and were very restrictive because the gases had to pass through the bed of pellets, rather than simply flow across the top of it. Though it was illegal, removing the first converters did improve engine performance. And because of this, the free-flowing cats of today unjustly receive a bad shake.

"Today's cats use a monolithic substrate instead of the pellet bed and are very free-flowing. The substrate is a ceramic honeycomb through which the exhaust gases must pass. The substrate is coated with the same precious metals as the pellets were. Many of the muffler and header companies with which we spoke said that their testing has found that the current monolithic-type cat adds very little backpressure, and that removing the cat has little performance benefit. However, freeing up the exhaust flow after the converter can have substantial gains. Provided noise regulations are met, it's legal to modify the exhaust plumbing downstream of the cat."

The background information on automobile catalytic converters was presented for general member knowledge. We all drive automobiles and it is great to know that today's (since 1979) converters combine performance with clean air and product longevity.

The Diesel Oxidation Catalyst

Again, introduced in 1994 on Turbo Diesel trucks, the catalyst used in diesel applications functions as an oxidation catalyst. In layman's terms, it uses the precious metals Palladium, Platinum and Rhodium as a coating over a honeycomb bee hive structure. The reason for a DOC is to address the particulate component of the diesel exhaust. There are two primary components to diesel particulates: Insolubles and Soluble Organic Fraction, or SOF. The insoluble portion is from dry soot (black smoke). The SOF consists of a small portion of unburned fuel, and mostly lube oil that was left on the cylinder walls or escapes past the piston rings and becomes entrained in the exhaust gasses.

As exhaust gasses pass over the honeycomb, the SOF particulates are captured. At exhaust gas temperature above 300-350°, the catalyst driven chemical reaction becomes active, converting upwards of 80% of the SOF into carbon dioxide and water. Keep the 300-350° temperature in mind and note that prolonged idling/low exhaust temperature is not healthy for the engine or the diesel catalyst.

So, if you'll check your notes from Jim's write-up, you'll find that both the DOC and the DPF are used to address particulate matter in the exhaust for the '07 and newer 6.7-liter engines. Technically speaking, the DOC and DPF are actually very different animals. The DOC works on unburned hydrocarbons (UHC), including SOF as was mentioned. However, it does nothing at all to soot. The DOC is a "flow-through" catalyst. There is no regeneration required of the DOC.

Introduced for use in '07.5 and newer trucks, the DPF is a "wall flow" catalyst, which is how it traps the soot particles. The DPF must be regenerated to oxidize the soot. Think of the DPF as a self-cleaning oven and you can get a layman's feel for the principle of operation.

Conclusion

I'm hopeful that Jim's write-up and my additional comments have given you a better understanding of the technology used to address diesel exhaust emissions. Go forth, but continue to beware of those "Cummings" people.

Robert Patton
TDR Staff

THE COST OF REGENERATION

ISSUE 74 – 6.7 HPCR

by Robert Patton

For the past two issues of the magazine I've given you my observations on fuel mileage using the Edge "Insight" gauge package and the truck's electronic vehicle information center (EVIC) fuel mileage display. As has previously been observed, I used the Insight's regeneration-on feature as a trigger to reset the EIVC's mpg monitor and to reset the odometer.

Thus far I have monitored two different types of driving: a total of 1,757 miles of interstate-only/cruise speed 75-78mph no load driving; and 2,415 miles of interstate travel at 67-69mph with a 12,000 pound trailer in tow. For this issue I can add some comments on around town mileage; I can add a 904 mile trip at 70mph pulling a small 4,500 pound trailer (a new category); and 412 additional miles towing the 12,000 pound trailer.

When I started the fuel mileage observations back in Issue 72, I gave these driving loops some names to describe the type of duty cycle. I will use the same descriptive:

Interstate trip (no load)
Interstate trip towing (4,500-pound load)*
Interstate trip towing (12,000-pound load)

*new category

The following are the data from my observations this past quarter.

Interstate Trip (No Load)

For this issue of the magazine I do not have any new data. In Issue 72 I did some backwards math to determine the "cost of regeneration" during two, no load interstate trips. The data from these no load trips:

713 No-load Trip as calculated		**713 Ideal trip**
609 miles	104 miles	713 miles
÷ 16.62 mpg	÷ 13.78 mpg	÷ 16.62 mpg
36.64 gallons +	7.54 gallons = 44.18	42.9 gallons

1.27 gallons for regeneration, 1.27 ÷ 42.9 = 3% penalty
1.27 gallons of fuel at $4 per gallon = $4.68

1044 No-load Trip as calculated
1044 Ideal trip

961 miles	83 miles	1044 miles
÷ 15.85 mpg	÷ 12.82 mpg	÷ 15.85 mpg
60.63 gallons +	6.47 gallons= 67.1	65.86 gallons

1.24 gallons for regeneration, 1.24 ÷ 65.86 = 1.88% penalty
1.24 gallons of fuel at $4 a gallon = $4.56

And now, the total "cost to regenerate": $4.68 + $4.56 = $9.64 for 1,757 miles of interstate travel. To do some further calculations the cost would be $548 per 100K travelled at $4 per gallon of diesel fuel or .548¢ per mile.

New Category – Interstate Trip
Towing 4,500-pound Load

This new category is simply the record of the trip that was travelled back in June to the Cummins CMEP Open House event in Columbus, Indiana. It is approximately a 1,000 mile round-trip. The data is presented as follows:

On – 9 miles N/R*
Off – 117 miles 12.3 mpg
On – 19 miles 11.1
Off – 175 miles 12.3mpg
On – 8 miles N/R*
Off – 57 miles 12.0mpg
On – 16 miles 10.9
Off – 107 miles 11.3mpg

*no reading

At this point we arrived at our destination and the truck went into the on-off-on-off cycle that I have described as the "dufus zone." To try and be more professional with my communication, let's officially call this the city driving cycle.

For the return trip we had a change of drivers and it took about 150 miles before the regeneration dinger chimed in and reminded the drivers to collect data for this article. They reached for the note pad and recorded the following:

On – 16 miles 11.1mpg
Off – 190 miles 12.9mpg
On – 16 miles 9.6mpg
Off – 164 miles 12.3mpg
On – 20 miles 11.7mpg

Arrive at destination.

Again, this is not a scientific collection of data, merely an observation using the truck's EVIC mpg feature. And, admittedly, it is a "lazy" observation in that we aren't doing a weighted averaging of the mpg numbers. We just add them up and divide by the number of driving cycles. So, the following are the averages from the data we collected:

Off cycles 6: total miles 810, mpg 12.18
On cycles 7: total miles 104, mpg 10.88
Percentage of time on 11%, off 89%

For this issue let's do the same backwards math to determine the "cost of regeneration" when towing the 4,500-pound trailer for 904 miles.

The 904 mile, 4,500-pound Towing Trip

904 No-load Trip as calculated		**904 Ideal trip**
810 miles	104 miles	904 miles
÷ 12.18 mpg	÷ 10.88 mpg	÷ 12.18 mpg
66.50 gallons	+ 9.56 gallons = 76.06	74.22 gallons

1.84 gallons for regeneration, 1.84 + 74.22 = 2.4% penalty
1.84 gallons of fuel at $4 per gallon = $7.36

And now, the total "cost to regenerate": $7.36 for 904 miles of interstate travel. To do some further calculations the cost would be $814 per 100K travelled at $4 per gallon of diesel fuel, or .814¢ per mile.

Existing Category – Interstate Towing 12,000-pound Trailer

In July I did a short trip with the trailer in tow to Charlotte, North Carolina. The trip covered 412 miles. Putting pencil to paper, this trip was right in line with the previous data that covered three trips totaling 2,003 miles.

Previous data for the 2003 miles:
Total miles on, 342 (17% of the time) 9.22 mpg
Total miles off, 1,661 (83% of the time) 9.53 mpg

New data from 412 miles:
Total miles on, 56 (14% of the time) 9.23 mpg
Total miles off, 356 (86% of the time) 9.65 mpg

For this issue let's do the same backwards math to determine the "cost of regeneration" when towing the 12,000-pound trailer for 2,415 total miles.

The 2415 mile, 12,000-pound Towing Trips

2003 No-load Trip as calculated		**2003 Ideal trip**
1661 miles	342 miles	2003 miles
÷ 9.53 mpg	÷ 9.22 mpg	÷ 9.53 mpg
174.3 gallons +	37.09 gallons = 210.4	210.18 gallons

1.22 gallons for regeneration, 1.22 ÷ 210.1 = .58% penalty
1.22 gallons of fuel at $4 = $4.88

412 No-load Trip as calculated		**412 Ideal trip**
356 miles	56 miles	412 miles
÷ 9.56 mpg	÷ 9.23 mpg	÷ 9.56 mpg
37.24 gallons +	6.07 gallons = 43.31	43.09 gallons

.21 gallons for regeneration, .21 ÷ 43.09 = .48% penalty
.21 gallons of fuel at $4 per gallon = 84¢

When you compare the cost of fuel for the ideal trip against the additional cost of fuel during the truck's regeneration events, I noted that the penalty for regeneration is .58% and .48%.

I think this quote has been used once or twice before, from the engineers at Cummins, "If the truck is being used as intended—moderate to high load in highway travel—the answer is the obvious: the engine's output of unburned fuel (particulates) is very low, the exhaust gas temperature is high and there is little need to fire-up the self-cleaning oven known as the diesel particulate filter. Consequently the mileage penalty is negligible, if any at all."

And now, the total "cost to regenerate": $4.88 + .84 = $5.72 for 2,415 miles of interstate travel. To do some further calculations the cost would be $236 per 100K travelled at $4 per gallon of diesel fuel, or .236¢ per mile.

It makes you wonder how much money the Ford or Chevy owner would have spent in diesel exhaust fluid (DEF or Urea) when travelling 2,415 miles.

On a final note, when towing a heavy load we've seen that it would be $236 to travel 100,000 miles. One of those fancy programmer units and an exhaust system retrofit will cost you at least $1,200. So the real cost to bypass the truck's exhaust aftertreatment system: a five year payback; you've lost any rights to warranty consideration; and your truck is illegal, subjecting you to a steep federal fine. Ouch.

Conclusion

Back in Issue 72 I installed the Edge Insight monitor and started to note the "regeneration on" events and their duration. In Issue 72 I wondered why such a report about regeneration-on events had not been filed since the introduction of the 6.7-liter engine four years ago. I can only assume it was because the previous Edge monitor was also sold with a performance package. And, when the owner installed the kit, likely the emissions aftertreatment components "fell off" the truck.

Regardless of the lack of reporting, I'm pleased to say that data from the Edge Insight has given me the ability to get us to the bottom-line, the total "cost to regenerate," which I noted in the three analysis of driving cycles. The cost was .548¢; .814¢ and .236¢ per mile respectively.

Now, compare these cost-per-mile numbers to the data on page 52 that gives us the DEF consumption that member "Plefever" is seeing with his 4500 series truck. his usage:

1 gallon (at $4 gallon) for 700 miles = .57¢ per mile
or
1 gallon (at $4 gallon) for 900 miles = .44¢ per mile

Next up, I'm going to try to compare our cost to regenerate to that of the Ford or GM engines and their use of diesel exhaust fluid (DEF).

Does anyone have a Ford or GM buddy with a new truck that has been tracking their use and cost of DEF?

Robert Patton
TDR Staff

TECHNICAL SERVICE BULLETINS FOR 2011

ISSUE 74 – TDRESOURCE

Have we not all heard comments by those unfamiliar with the Ram Turbo Diesel (a prospective buyer of either a new or used truck, or a visitor on the internet or at the truck show) that "the Turbo Diesel certainly has its share of problems"? To them, no doubt, the grass looks greener on the other side. However, thanks to the TDR membership group and the support from Chrysler and Cummins, we are equipped with answers and solutions, rather than the dismay and isolation that would exist without a support group.

THIS YEAR'S TECHNICAL SERVICE BULLETINS

Each year as a service for the TDR membership I purchase a subscription to Chrysler's online service and data system (www.techauthority.com). New for this year, the TechAuthority site offers an index of factory technical service bulletins (TSBs) that have been released in the past year. I scroll through the index and print those bulletins that are pertinent to all Turbo Diesel trucks (all years, all models with cab and chassis included). With the bulletins in hand, I summarize the bulletin for publication in the magazine. Should you need a complete copy of the bulletin, you can contact your dealer with Issue 74 in hand, or armed with your truck's vehicle identification number (VIN) and a credit card you can log on to www.techauthority.com and, for $29.95, you can view/print all of the TSBs that apply to your vehicle. The $29.95 buys you three consecutive days of access. However, for 2011 I found theTechauthority website to be cumbersome to navigate. More on this later.

In an effort to consolidate the TSBs for the magazine, we're going to use the same index system categories as Chrysler. Below are the index categories.

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

A note concerning the TSBs and their use: The bulletins are intended to provide dealers with the latest repair information. Often the TSB is specific to the VIN. VIN data on the Chrysler service network helps the dealer in his service efforts. A TSB is not an implied warranty.

WHAT DO THE MODEL CODES MEAN?

Throughout our summary pages you'll see model codes listed for the various Dodge trucks. The following is a chart of the model code meanings.

Series	**'08**	**'09**	**'10**	**'11**
2500 Pickup	DH	DH	DJ	DJ
3500 Pickup	D1	D1	D2	D2
3500 C/C	DC	DC	DC	DD
4500 C/C	DM	DM	DM	DP
5500 C/C	DM	DM	DM	DP

NEW RELEASES

Again, with the service at www.techauthority.com we've gathered information on Ram Technical Service Bulletins that have been released only during the past year. If you wish to review all of the TSBs for Third or Fourth Generation trucks, we have archived those as well as this update at the TDR's web site (Sitze Features: TSBs). Also, TDR Issues 66 and 58 have larger listings that allow the Third Generation owner to review the TSBs issued from 2003 to 2009.

Likewise, using Issue 70 as your resource, you can review the TSBs that were issued in calendar year 2010.

TECH AUTHORITY STUMBLES

I have long sung the praises of Techauthority. Not so for this year's review of technical service bulletins. In my previous yearly updates the system would ask for your VIN and the VIN number would unlock a world of information. This year the "search by VIN" resulted in "no items matching your criteria." And that was only after 10 attempts to log-in, and after 10 attempts to purchase the $29.95 subscription. (Okay, I'm embellishing with the "10 attempts," but you get the message, it was not an easy shopping experience.) And, ask my wife, I am good at purchasing items using the keyboard and the computer. For 2011, Techauthority proved to be a real time-waster. However, that is part of the reason you're reading the TDR, right? You trust the TDR's writers and staff to sift through the minutiae and bring you only the important details.

I'm hopeful our yearly TSB summary is helpful to you.

CATEGORY 7 COOLING

TSB#	MODEL	SUBJECT/DESCRIPTION
07-003-10 9/9/10	'07-'10 DC/DM '11 DD/DP	*High coolant temperatures on vehicles equipped with snow plows.* Customers that operate their vehicle with a snow plow attached to the vehicle may cause the airflow passing through the radiator to be disrupted resulting in higher than normal engine temperatures. The Cummins ECM is equipped with software that can fully engage the fan clutch to allow an increase of airflow through the radiator. Customers can initiate the fan clutch operation by performing the following button sequence: • Turn the ignition key to the run position or start the truck. • Simultaneously press and release the Cruise Control "Cancel" button/lever and the "Exhaust Brake" button. Repeat this sequence four times within five seconds. The chime will sound twice as an audible indicator that the function is engaged. • To disable the function, repeat the same procedure. The chime will sound four times as an audible indicator that the function is disengaged. Note: '07-'09 truck engine ECMs were not equipped with the fan engagement software. These engines would require the latest software update (18-020-10) in order to have the fan-on capability.
07-002-11 8/13/11	'11 DJ/D2	*Transmission cooler hose weepage.* This bulletin applies to vehicles equipped with the Cummins engine and an automatic transmission built between September 20, 2010, and January 17, 2011. Some of the listed vehicles have been built with a transmission cooler hose that may experience fluid weepage. Inspect the upper transmission cooler hose ("Hot" side line that runs near the battery) for date code 2440. If the upper transmission cooler hose has date code 2440 on the hose, verify whether or not the hose was built between 21:14 – 23:16 (Time Stamp). The date code may be on the lower side of the hose. It may be necessary to use a mirror or rotate the hose. This bulletin involves inspecting the upper transmission cooler hose for a specific date code and time stamp. If found within the suspect range, the transmission cooler hose must be replaced.

CATEGORY 8 ELECTRICAL

TSB#	MODEL	SUBJECT/DESCRIPTION
08-014-10 6/29/10	'10 D1/DJ	*Radio locks up.* This bulletin applies to vehicles equipped with a radio with sales code REN, REZ. The problem may be that the radio will not change stations or frequency intermittently. The only function that will be available is volume control. The repair involves upgrading the software of the REN/REZ radio.
08-026-10 Rev. A 12/18/10	'11 DD/DJ/DP/D2	*Park assist system for message clarity and false messages on 4x4 models.* This bulletin applies to vehicles built with the Parksense Rear Park Assist (sales code XAA). Customers may not understand the EVIC message display "Blinded". This indicates that the Parksense Rear Park Assist sensors require cleaning. The EVIC flash will change the display to indicate "Clean Sensors". The EVIC may display the message "Press 4 Low" when a shift into 4x4 is not allowed. This message has no meaning on these vehicles. The EVIC flash will prevent this message from being displayed. This bulletin involves reprogramming the EVIC with new software.

TSB#	MODEL	SUBJECT/DESCRIPTION
08-028-10 Rev. A 11/2/10	’10 DJ/DX/D2	*RBZ radio software enhancements.* This bulletin applies to vehicles built with a radio that has a sales code RBZ. The customer may experience one or more of the following problems: • The display may appear to be dimly lit when in backup camera mode (if equipped). • Screen fonts too small or unclear. • Video playback, display too bright. • Audio playback, sound quality/frequency response could be improved. • Hands free call information does not display caller ID. • Bluetooth streaming audio information is incomplete. The repair involves upgrading the software on the RBZ radio.
08-001-11 Rev. A 3/5/11	’10-’11 DJ/D2	*Radio software enhancements.* This bulletin applies to vehicles built with a radio/navigation units with sales codes RER, REW or REP. The problems experienced: • The radio may lock up when a U-Connect call ends, this may cause battery drain. • Intermittent/no sound from audio system. • Repeated “Updating Channels” message when in satellite radio mode. • Losing Bluetooth connection intermittently and not displaying accurate caller ID information when using U-Connect. This bulletin involves upgrading the software on the RER, REW, or REP Radio.
08-003-11 Rev. B 3/17/11	’10-’11 DD/DJ/DX/D2 ’11 D2	*Exterior mirror courtesy lamps stay on longer than the customer desires.* This bulletin involves checking the software version and, if necessary, flash reprogramming front door control modules with new software. This bulletin supersedes bulletin 08-003-11 revision A. This bulletin applies to vehicles equipped with exterior mirror courtesy lights (sales code LEC) built between January 1, 2010, and December 13, 2010.
08-018-11 Rev. A 7/1/11	’10-’11 DJ/D2	*Static, squeal, no sound, or intermittent sound from speakers.* This bulletin applies to DJ and D2 vehicles built between July 15, 2010, and November 30, 2010, equipped with 9 amplified speakers w/subwoofer (sales code RC3) or 9 amplified speakers (sales code RCZ). This bulletin also applies to DJ, and D2 vehicles built between July 15, 2010, and February 28, 2011, equipped with Premium I speakers (sales code RCK). The repair involves removing and replacing the amplifier.
08-024-11 Rev. A 7/1/11	’11 DD/DJ/DP	*Flash: Intermittent no start or intermittent RKE function.* This bulletin applies to DD, DJ, and DP vehicles built before April 7, 2011, equipped with remote keyless entry (sales code GXM). This bulletin involves flash reprogramming the wireless ignition node (WIN) with new software. The service flash corrects the following conditions • Intermittent no start. • Intermittent RKE. The above conditions may be caused by a software lockup in the module. The lockup condition may be cleared by removing the reinserting fuse M27. Flash reprogramming the WIN will correct these conditions.

CATEGORY 8 ELECTRICAL

TSB#	MODEL	SUBJECT/DESCRIPTION
08-015-11 4/6/11	’11 DJ/D2/DD/DP	*Loss of communications with the hands free module (HFM).* If there is a loss of the hands free module function the service bulletin involves performing a USB service flash of the hands free module.
08-033-11 6/22/11	’11 DJ/D2/DD/DP	*Intermittent diagnostic trouble code P0201 – Fuel injector 1 circuit open/closed.* This bulletin applies to a small number of vehicles equipped with the Cummins engine built between March 1, 2011, and March 11, 2011. Suspect vehicles may intermittently set DTC P0201 – Fuel injector 1 circuit open/closed. This bulletin involves replacing terminal number 26 from the powertrain control module (PCM) 76-way connector.
08-049-11 8/12/11	’11 DJ/D2/DD/DP/DX	*Front overhead ambient light intermittent operation or inoperable.* This bulletin applies to vehicles built between February 11, 2011, and March 9, 2011. If there is intermittent or no operation of the front overhead light this bulletin explains how to remove and repair the light.

CATEGORY 9 ENGINE

TSB#	MODEL	SUBJECT/DESCRIPTION
09-004-10 11/11/10	’11 DJ/D2/DD/DP	*Incorrect engine oil level indicator.* Cummins engines are equipped with an engine oil level indicator that identifies a “Safe” region on the end of the indicator. Some vehicles were equipped with an engine oil level indicator end that had “Add, Cold, Hot, and Do Not Add” increments on the end. These engine oil level indicators will need to be replaced. This bulletin involves inspecting the engine oil level indicator and replacing it if found to have an incorrect indicator end.

CATEGORY 13 FRAME & BUMPERS

TSB#	MODEL	SUBJECT/DESCRIPTION
13-001-11 5/13/11	’10-’11 DJ	*Front axle skid plate to oil pan contact.* This bulletin applies to vehicles equipped with 6.7-liter Cummins engine and TRX package (sales code AMW) built after September 1, 2009, and built prior to September 23, 2010. The front axle skid plate may contact the oil pan during extreme off road usage. The repair involves inspection of the oil pan and if necessary replacement of the front skid plate and oil pan.

CATEGORY 14 FUEL SYSTEM

TSB#	MODEL	SUBJECT/DESCRIPTION
14-005-10 9/21/10	’10-’11 DJ/D2	*Fuel filler housing pops out of sheet metal.* This bulletin applies to vehicles equipped with a single wheel rear axle only built before August 9, 2010. The customer may notice that the fuel filler housing has popped out from the body on one side or the other. This bulletin involves removing the fuel filler housing to file some material off of the tabs that will not lock into place. If tab(s) are broken it will be necessary to replace the fuel filler housing and it still may be necessary to file some material off of the tab(s) that will not lock into place.

CATEGORY 18 VEHICLE PERFORMANCE

TSB#	MODEL	SUBJECT/DESCRIPTION
18-004-11 Rev. A 2/18/11	'10 DJ/D2	*Diagnostic and system improvements.* This bulletin applies to trucks equipped with a 6.7-liter Cummins diesel. The bulletin describes a number of software improvements/enhancements that are available: P046C – EGR position sensor performance P051B – Crankcase pressure sensor circuit range/performance P0101 – Mass air flow sensor "A" circuit performance P2002 – Diesel particulate filter efficiency below threshold P2196 – O2 sensor 1/1 out of range low P245B – EGR cooler bypass status line intermittent P2262 – Turbocharger boost pressure not detected – mechanical P2271 – O2 sensor 1/2 out of range low This bulletin involves selectively erasing and reprogramming the engine control module (ECM) with new software.
18-029-11 5/28/11	'11 DD/DP	*Engine systems and PTO enhancements.* This bulletin applies to vehicles equipped with a Cummins engine built before January 1, 2011. These cab chassis trucks have a number of software improvements available. This latest service bulletin will include: Improvements to prevent unnecessary malfunction indicator lamp (MIL) illumination for: P0524 – fault for low oil pressure, set during low ambient temperatures. P051B – fault for crankcase pressure. Enhanced diagnostics for: • Variable geometry turbocharger. • Fuel level sensor. Other updates: • Low diesel exhaust fluid (DEF) level EVIC messaging strategy changes. • Diesel exhaust fluid (DEF) system tampering EVIC messaging strategy changes. • Oil change monitor – updated for easier reset (same basic procedure, easier to reset). • Scan tool display updates. • Enable mobile PTO capability. • Correct operation of remote PTO. • Correct EVIC messaging related to DEF level reporting. • System robustness improvements. • DEF tank level reporting erroneously at high DEF tank level. When DEF tank is overfilled, the EVIC may display low fluid level (20-22%). This bulletin involves selectively erasing and reprogramming the engine control module (ECM) with new software.

CATEGORY 19 STEERING

TSB#	MODEL	SUBJECT/DESCRIPTION
19-001-11 Rev. A 8/9/11	'08-'10 DM '11 DP '10-'11 DJ/D2/DD '06-'09 DH/D1 '07-'09 DC '05 DH '03-'04 DR	*Tie rod ball stud housing alignment procedure.* This bulletin describes the proper procedure to ensure parallel alignment of the right and left steering tie rod ball stud housings. The bulletin applies to 4x4 models of the 2500/3500 pickup truck and to all 3500/4500/5500 Cab Chassis trucks which have a solid front axle. The overview of this repair procedure: The right-to-left tie rod ball stud housings must be aligned parallel to one another and not exceed +/-3 degrees of combined parallelism. This procedure is required any time service is performed to either the tie rod or when performing a front end alignment or toe set procedure. Failure to properly perform the parallel alignment procedure may lead to tie rod damage.
19-003-11 2/2/11	'10-'11 DJ/D2 '11 DD	*Steering honk and/or groan sound during low speed parking lot maneuvers.* This bulletin applies to vehicles equipped with 6.7-liter Cummins engine built prior to November 23,2010. The customer may experience a honk and/or groan sound coming from the steering system during low speed parking lot maneuvers. This bulletin involves inspecting and, if necessary, replacing the power steering gear. This bulletin applies to 4x4 models of the 2500/3500 pickup truck.

CATEGORY 20 BODY

TSB#	MODEL	SUBJECT/DESCRIPTION
23-024-11 7/12/11	'11 DD/DP '10-'11 DJ/D2 '09-'10 DM/DC '09 DH/D1	*Whistle and/or high pitch windnoise at door near windshield A-pillar.* This bulletin applies to vehicles built before April 18, 2011. The customer may experience whistle and/or high pitch windnoise at door near windshield A-pillar. This bulletin involves installing a foam stuffer block into door weatherstrip.

CATEGORY 25 EMISSIONS CONTROL

TSB#	MODEL	SUBJECT/DESCRIPTION
25-002-10 9/22/10	'11 DD/DP	*Misassembled diesel exhaust fluid engine coolant control valve.* This bulletin applies to vehicles equipped with the Cummins engine built between March 3, 2010, and July 19, 2010. Some trucks may have been built with a DEF engine coolant control valve that may be internally misassembled which may not be able to completely shut the flow of coolant passing through the coolant tubes in the DEF tank. This allows the DEF temperature to rise above its normal operating range. DEF that has been exposed to elevated temperatures can cause the DEF to degrade. This bulletin involves replacing the diesel exhaust fluid (DEF) engine coolant control valve assembly. Some of the involved vehicles may also require draining and adding DEF.

RECALLS ISSUED IN 2010/2011

SAFETY RECALL K08
WIRELESS IGNITION NODE RECEIVER

Date: August 2010
Models: '10 (DJ) Ram Truck (2500 Series)
'10 (D2) Ram Truck (3500 Series)

This recall applies only to the above vehicles built at Saltillo Assembly Plant ("G" in the 11th VIN position) equipped with an automatic transmission from January 6, 2010 through February 16, 2010. This recall also affected other Chrysler vehicles.

The Wireless Ignition Node (WIN) receiver on about 8,900 of the above vehicles may experience a condition where the Frequency Operated Button Integrated Key (FOBIK) may be removed prior to placing the automatic transmission gear shift lever in the "PARK" position. This could result in unintended vehicle movement and cause a crash without warning.

To correct this condition, the Wireless Ignition Node receiver must be inspected and replaced if necessary. The new WIN must be programmed and all FOBIK transponders must be programmed so they are able to interface with the new WIN receiver.

CUSTOMER SATISFACTION NOTIFICATION K17
REPROGRAM HVAC CONTROL HEAD AND INSPECT/ REPLACE ACTUATORS

Date: September 29, 2010
Models: '10 (DJ) Ram Truck (2500 series)
'10 (D2) Ram Truck (3500 series)

This recall applies only to the above vehicles built through May 22, 2010

The HVAC mode door actuator gears on about 52,000 of the above vehicles may break and result in the inability to fully control the HVAC functions.

To correct this condition, all involved vehicles must have updated HVAC control head software installed and the mode door actuators must be tested and replaced as required.

SAFETY RECALL K28
LEFT TIE ROD END

Date: February 2011
Models: '08-'10 (DM) Ram Truck (4500/5500 Series Cab/ Chassis)
'11 (DP) Ram Truck (4500/5500 Series Cab/ Chassis)

This recall applies only to the above vehicles built through September 02, 2010.

The left outer tie rod end on about 15,500 of the above vehicles may fracture due to a misalignment condition. Under certain driving conditions, this may lead to a weakening and eventual fracture of the left outer tie rod ball stud. A fractured tie rod end could cause a loss of directional stability and a crash without warning.

The left outer tie rod end must be replaced, toe-in must be set, and the tie rod ends must be aligned.

CUSTOMER SATISFACTION NOTIFICATION L14
REPROGRAM HVAC CONTROL HEAD

Date: April 12, 2011
Models: '10 (D2) Ram Truck (2500 series)
'10 (DJ) Ram Truck (3500 series)

This notification applies only to the above vehicles built with Manual Temperature Control (MTC) from March 18, 2010, through June 24, 2010.

The Heating, Ventilation, and Air Conditioning (HVAC) control head software on about 10,330 of the above vehicles may cause the mode door actuator gears to make noise and/or break. This could cause the inability to fully control the HVAC functions.

To correct this condition, the HVAC control head must be reprogrammed with new software.

SAFETY RECALL K33
POWER STEERING RESERVOIR CAP

Date: February 1, 2011
Models: '10-'11 (DC/DM/DJ/D2/DD/DP) Ram Truck

This recall applies only to the above vehicles equipped with a Cummins engine built at the Saltillo Assembly Plant ("G" in the 11th VIN Position) through October 05, 2010.

The power steering reservoir cap on about 11,300 of the above vehicles may cause excessive vent pressure levels in the power steering/hydraulic brake booster system. This may cause the vehicle to have brake lights that remain illuminated for an extended period of time after the brake pedal has been released. Brake lights that are slow to turn off could increase the risk of a crash.

To correct this condition, the power steering reservoir cap must be replaced.

EMISSIONS RECALL K34
REPROGRAM ECM – EGR DIAGNOSTIC

Date: February 8, 2011
Models: ’10 (DJ/D2) Ram Truck (2500/3500 Series pickup)

This recall applies only to the above vehicles equipped with a Cummins engine built from October 1, 2009, through June 24, 2010.

The Engine Control Module (ECM) on about 1193 of the above vehicles may have been built with a software error that prevents the EGR cooler bypass valve diagnostic from running after detecting a pending fault, disabling deNOx without illuminating the MIL. This may cause the vehicle’s exhaust emissions to exceed the allowable limit for oxides of nitrogen.

To correct this condition, the Engine Control Module (ECM) must be reprogrammed (flashed).

CUSTOMER SATISFACTION NOTIFICATION L03
DOOR LATCHES

Date: March 2011
Models: ’11 (D2) Ram Truck (3500 Series) Pick up
’11 (DD) Ram Truck (3500 Series) Cab Chassis
’11 (DJ) Ram Truck (2500 Series) Pick up
’11 (DP) Ram Truck (4500/5500 Series) Cab Chassis

This notification applies only to the above vehicles equipped with power door locks (sales code JPB) built from July 01, 2010, through November 23, 2010.

The right front door latch, right rear door latch and/or swing gate latch on about 35,000 of the above vehicles may develop a ratcheting sound while using the power door locks.

The right front door latch and right rear door latch must be inspected and replaced if necessary.

ONE YEAR FOLLOW-UP

ISSUE 75 – YOUR STORY

by Robert Patton

As I stopped to refuel the truck, from the other side of the fuel pump the question came, “Hey, buddy, how long have you had that black truck?” I paused for a second and replied, “Gee, I’ve had ownership for a little over one year. It has been a really good truck.” The back-and-forth conversation continued and I made a mental note to write a one year follow-up for the TDR audience. The following is my story.

The truck was introduced in Issue 70. It was purchased in August of 2010. The truck was on the back lot at the dealership tucked in with several 1500 trucks with the same basic ST (read: no frills) trim. My first comment, “Now that is an ugly truck.”

However, the truck had two redeeming qualities. First, the truck was cheap. Not counting sales tax, this truck was $34,316 out-the-door, a mere $2,000 more than my comparably equipped (albeit with the sport trim) 2003 Dodge 2500 Quad Cab, SLT trim, that I had from 2003 to August of 2007. The second redeeming quality: The blank canvas nature of the ST truck would give me endless topics to write about for the TDR. And, considering the ST version was $6,000 less than the out-the-door price of the same truck (Crew Cab, automatic, two-wheel drive) in SLT trim...well, that’s $6,000 that could be spent on custom accessories.

However, the truck had two redeeming qualities. First, the truck was cheap.

The second redeeming quality: The blank canvas nature of the ST truck would give me endless topics to write about for the TDR.

And spend I did. In Issue 71 the “Your Story” feature took readers through the saga of “Purchase Confirmation or Buyer’s Remorse” and you could immediately see the truck’s transformation as 20” wheels and tires were installed on the truck. This change alone used up $2,000 of the $6,000 budget that I had saved in the purchase price of the truck. Then, in Issue 72, it did not take long to use up the other $4,000 when the shopping and installation of accessories began in earnest. Issue 73 presented “The Continuing Story of Mr. Schwarz,” and additional exterior and interior refinements were made to the truck.

Now it is time for the one-year review. What works, what doesn’t work; what was cost effective and what was a waste of money; what items were fun to install, what items were not worth the time.

I have done this style of evaluation in two previous issues of the magazine, in Issues 59 and 63. The truck that was accessorized was a 2007.5 Mega Cab, Long Box, 3500 with the 68RFE automatic transmission and two-wheel drive.

One thing you should remember is my disclaimer about objectivity. You might ask, do all these articles and evaluations attest to criteria shared by all the TDR staff, or have I arbitrarily selected evaluations that make similar judgments, to project my own criteria? That is, I concede, a good question. I’ll let you be the judge.

So, for this issue I will accept the challenge to keep my correspondence brief. The products are listed as they were in Issue 59 and 63 and my approval rating (one – least; five – best) using the ★ symbol to keep the text’s length to a minimum.

Except where noted, the products were in the Geno’s Garage catalog or have been added to the catalog. They are good enough to recommend to a friend and they are good enough to sell to a friend.

Here goes.

Mr. Schwarz, before any modifications.

Interior

Cup Holder
★★★★★
Geno's Garage. The cup holder continues to be the first item that I install on a new truck.

Seat Heater: Rostra
★★★★
Geno's Garage. The seat heaters would get a good five-stars were it not for the fact that the Ram folks have changed the way that their seat covers attach to the seat foam. That is correct: they use those dreaded hog-rings instead of the Velcro attachments used on '03-'09 seats. So, installation is a tad more difficult (Issue 72, page 73). The hassle of installation is outweighed by the effectiveness of the heaters on a bad back.

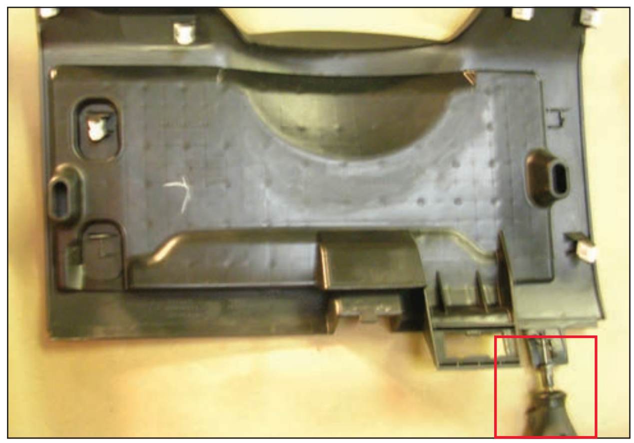
Seat Covers: Covercraft
★★★★
Geno's Garage. Great fit. I've used Covercraft seat covers in all of my trucks since 1996.

Stereo Unit: JVC
★★★
Crutchfield. I purchased the unit because I was spoiled by my previous 2003 truck's remote radio controls and this JVC stereo has a remote control fob. Occasionally the remote has a mind of its own and the unit is difficult to program (time, and radio outputs). It is not user friendly. However, the smaller size of the unit with the Crutchfield mounting kit gives you room underneath the stereo for miscellaneous storage.

Floor Mats: Husky and Avery's
★★★★
Geno's Garage. Either they catch water and muck or they don't. Four stars means the Husky liners do the job.

Electrical Accessories: Painless Wiring/Fuse Panel
★★★★
Geno's Garage. Since Mr. Schwarz did not come with a big list of options from the factory, I knew that I would need both of these electrical building blocks. The blocks are positioned under the dash for easy access. I made access to these two blocks a quick "snap," but not without some modifications to the knee bolster panel. With the panel on the workbench, I removed several of the plastic tabs that keep it in place—less is more. I permanently removed the two Phillips screws that are over-kill for the positioning of the knee bolster. I permanently removed the OBDII connector and tie wrapped it just to the left of the knee bolster. I modified the tangs on the hood release lever so that it easily drops off of the knee bolster.

If you have a Fourth Generation truck, and you need an easy-to-access area for electrical goodies I highly recommend these modifications to your knee bolster panel.



The knee bolster panel has been removed and the Dremel tool will soon be cutting the tab where the Phillips head screws were located.

Parking Partner: Sonadar
★★
Geno's Garage. I love this item, but as technology changes, and as the price of electronic gadgets (see rear view camera below) does a freefall, the Parking Partner has reached obsolescence. When I started the accessorizing of Mr. Schwarz I had to look through all of the Geno's product returns to piece together a working unit.

Rear View Camera: V3P/Peak
★★★
Pep Boys/Advance/Auto Zone. On writer Sam Memmolo's recommendation I purchased the camera kit. I love this camera because it allows you to hook up to a trailer hitch without getting out of the truck. There are so many of these units available and the price can be as low as $59 if you catch the item on sale. The camera installed on Mr. Schwarz is a wireless unit. I would give it a five-star rating if it weren't so temperamental and fuzzy some of the time. Regardless, it is only needed for hitch-up and the price was right.

Gauges: Edge Insight
★★★★
Geno's Garage. Adding gauges to your truck has never been so easy. Just plug it into the OBDII sensor and it is ready to display more information than I care to know with up to 20+ data points to choose from. With the Insight ($399) and the addition of an EGT probe ($99), it accomplishes the big three gauge functions (boost, EGT, transmission temperature) for about the same price as a set of independent gauges and a pod.

I know, this sounds like a sales pitch, so I'll stop and give you something to think about. The Insight simply displays data that is available on the OBDII. Why doesn't Ram give you access to all of the data at the electronic vehicle information center (EVIC) display?

Underhood

Compressor and Air Horns: Pacbrake and Chrome City
★★★
Purchased direct from Pacbrake. I love the compressor, air tank and horns. I also love the quick disconnect that I added at the area of the truck's license plate. This comes in real handy when you have to air up a trailer tire on the side of the road.

The three-star rating comes from my inability to keep the plumbing air-tight, thus requiring the compressor to operate too frequently. The horns sound great. Call me lazy for not crawling under the truck to find the slow air leak.

Engine Oil Drain Valve: Fumoto
★★★★★
Geno's Garage. This cost-effective item solves the truck's infamous oil drain problem.

Quick Grill Release Kit: Geno's Garage
★★★★★
Geno's Garage. Since I'm the guy that developed this kit, you can rest assured that it gets a five star rating. For the do-it-yourselfer, the instructions are in Issue 71, pages 141-143. The removal of the grill allows you to use the bumper as a step—just like the '94-'09 trucks that we've all become accustomed to.

Compressor and Air Horns: Pacbrake and Chrome City
★★★
Purchased direct from Pacbrake. I love the compressor, air tank and horns. I also love the quick disconnect that I added at the area of the truck's license plate. This comes in real handy when you have to air up a trailer tire on the side of the road.

The three-star rating comes from my inability to keep the plumbing air-tight, thus requiring the compressor to operate too frequently. The horns sound great. Call me lazy for not crawling under the truck to find the slow air leak.

Condenser Guard: Lanier Metal
★★★★★
Geno's Garage. The guard goes hand-in-hand with the QGRK. It keeps the condenser's fins from getting bent. Sandwich some nylon window screen between the guard and the condenser and you can eliminate the bug splatter problem.

Cab Fresh Air Filter Kit: Cab Fresh

★★★★

Geno's Garage. I like the fact that the filters help clean the outside air. I do not like the cheap, quick to rust screws provided with the kit. So the Geno's folks now send stainless screws with the kit.

Exterior

Tailgate Up/Down Assist: Gate Glide II

★★★★★

Geno's Garage. I'll start my list of exterior items with a must-have item. Every truck should have tailgate-up and tailgate-down assist. Many of the TDR writers have also given the Gate Glide II a big thumbs-up. If you haven't already purchased one, you need to give it a try.

Bed Liner: Spray-in, Line-X brand

★★★★

Local installation at Super Trucks, Cumming, Georgia. The Super Trucks guys continue to do a great job on my trucks. As a side note, have you noticed that a spray-in bed coating is now available as a factory option? Compare/contrast the thickness of the factory option to the aftermarket guy in your area and I think you'll choose to stay with the aftermarket product. And, although I've tried, I can't match the Line-X with any of the do-it-yourself kits. (Even the U-POL that I wrote favorably about in Issue 73.)

Bed Step: AMP Research

★★★★★

Geno's Garage. With a drop in the price to $199 this easy-to-use step is a five-star item. It bolts on in less than five minutes.

Foglights: Pilot

★★★★

Auto Zone. I installed some small sized, inexpensive lights from the local auto parts store for use on the front and rear (backup) of the truck. Using relays, the front lights come on whenever the low beams are operating, and the rear lights come on whenever reverse is selected.

Bed Cover: Agri-Cover Lite Rider

★★★★

Geno's Garage. Cost-effective, 99% waterproof easy to install, and, most importantly, it rolls/unrolls in about 10 seconds.

Wheels: American Racing ATX-181 Artillery 20"x9"

★★★★

Tire Barn Custom Wheel Warehouse. The Geno's staff purchased these wheels at the 2010 Scheid Diesel Extravaganza. The offset is not quite right or these wheels would get a five star rating. Yes, they stick out too far which necessitated Mopar fender flares to make the wheels/tires look correct. That is the drawback. The big plus: the wheels are Teflon coated. Initially I thought this was a bunch of bunk—kind of like Teflon that was used in Slick 50 lubricants back in the 90s. But, the ease of clean up has made me a believer in the Teflon coating idea for truck wheels. Should I need to purchase wheels in the future I will look for those with a Teflon coating.

Fender Flares: Mopar

★★★

Local Dodge dealer. As noted above, the fender flares were necessary to compensate for the incorrect (too wide) offset of the aftermarket wheels. The truck's wheels/tires now look acceptable.

Tire: Cooper 275/60/R20 Discover HT Plus
★★★★
Tire Barn Custom Wheel Warehouse. When the Geno's guys returned from the Scheid event with the 20" wheels and tires I was really concerned that these wider tires with their somewhat aggressive tread pattern (the stock tires were Michelin LTXs) would be louder. I was also concerned about the larger diameter, the Cooper's are 630 revolutions per mile, the OEM Michelins are 690. So I have effectively changed the rear end gearing by 60rpm or 60/690 = 8.6%. The stock 3.54 gearing is now a 3.23. But the truck pulls my 12,000-pound load okay through the rolling hills of Georgia and the southeast. And, I can always downshift to fifth-gear.

This inset photo shows the addition of Husky mud guards.

The correction for a wheel/tire that sticks out too far? A lighter wallet ($327) and Mopar wheel flares, part number 82212208 (molded black, grain texture, same as Power Wagon, wheel flares).

Mudflaps: Husky/Winfield Products
★★★★
Geno's Garage. Those mudflaps are perfectly contoured to the truck's wheelwells. Pricewise, they are about 25% less than the Mopar part. You can't go wrong with that!

Not So Good

All right, you've looked at my list of goodies that have a favorable rating. How about those that did not make the cut and were not installed on Mr. Schwarz?

I would be remiss if I did not give you an update. Here goes.

Fuel Door: Bully or All Sales
I don't think a chrome fuel door would look right on this all-black truck. The Geno's folks no longer sell the cheap chrome Bully door as it would rust too easily. The All Sales polished aluminum doors are a nice addition for those that like shiny things.

Lights: Anzo or Recon
The Geno's folks reported too many warranty problems with the Anzo lights. I tried the lights from a competitor, Recon, and I had too many problems with poor electrical connections. I cannot recommend either light to you.

Conclusion

Any item with four-stars or better you can correctly assume that I would use on my next truck. Three or less… time to evaluate the product or the poor workmanship of the installer. I'm hopeful my list of items is helpful to you as you upfit your truck.

Robert Patton
TDR Staff

NOTES:

SOME GOTTA WIN – RAM 3500 EVALUATION

ISSUE 75 – TDREVIEW

by Robert Patton

Often when I am in the process of writing an article the lyrics of a song will come to mind. I did a Google search on "some gotta win, some gotta lose" and the inquiry revealed the lyrics to "Good Time Charlie's Got the Blues." (If you have time for a diversion, search the internet and you find the song was written by Danny O'Keefe and recorded by the likes of Elvis, Dwight Yoakum, Willie Nelson, Charlie Rich, etc.)

Back to the subject, some gotta win, some gotta lose. In early September, a few days too late for the close of the previous magazine, a TDR member asked if I had read about the evaluation of one-ton, 3500 series pickups that was done at the web site www.pickuptrucks.com.

The reference to pickuptrucks.com sounded familiar. When I clicked on to the web site I realized why. If you will recall, back in Issue 71, I reported that pickuptrucks.com had done an extensive comparison of 2500 series diesel trucks that they titled "2010 Diesel Shootout." I was very impressed by the test and I used some of their data in my evaluation of my 2010 Ram 2500 truck.

However, the article referenced by the TDR member was talking about a one-ton, 3500 truck comparison. Sure enough, one year later, in August 2011, writers Mike Levine, Mark Williams, and Kent Sundling did a 2,234 mile towing test of comparable 3500 series trucks. My compliments go out to these writers for an excellent evaluation of these three trucks. Their August 2011 comparison of the 3500 series trucks is titled "The Hurt Locker."

Unfortunately, for the Ram/Dodge/Cummins Hoo-Ra crowd, our truck did not win. (Some gotta win, some gotta lose.) Regardless, the test was as unbiased as you will find and it answers many of the fuel mileage and performance questions that we all have about the 6.7-liter engine in the Fourth Generation truck.

As mentioned, the test was done in August 2011 and the newly released Cummins 350/800 engine was pitted against the Ford 400/800 and GM 397/765 power plants. Unlike the August 2010 comparison of 2500 series trucks where the engine numbers were 350/650, 390/735 and 397/765 respectively, this time the performance-type criteria was closely matched.

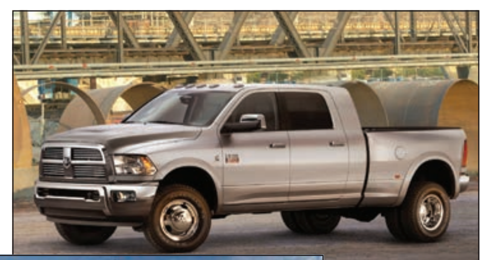
So, how did the Ram/Cummins 3500 truck compare? I've got 35 pages that I will summarize for you. To keep it simple, I'm going to follow the same format that the www.pickuptrucks.com writers used. The outline:

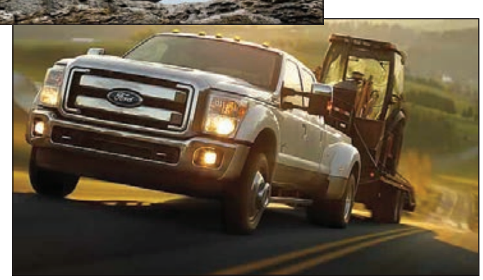
Background
Specifications
Quarter-Mile Unloaded
Quarter-Mile Loaded
Brake Test
Davis Dam Grade Climb
Davis Dam Grade Exhaust Brake
Eisenhower Pass Climb
Eisenhower Pass Exhaust Brake
Fuel Economy
Best Overall

Background

To the point, the writers at www.pickuptrucks.com described their test as follows: "Our test, the Heavy-Duty Hurt Locker is based on lessons learned from previous tests and feedback from readers. It's a 2,200-mile, four-state slog towing trailers that weigh almost 10 tons each and push each truck's gross combined weight to more than 90 percent of their gross combined weight rating.

"The test included driving up two of the nastiest mountain climbs in the U.S.—from hot summer temperatures of more than 100 degrees in the Arizona desert to the oxygen-starved peaks of the Colorado Rockies, 11,000 feet above sea level. Through it all, we measured fuel economy, acceleration, power and braking and evaluated the confidence that each truck gave its driver."





Specifications

As noted in the introductory paragraphs the www.pickuptrucks.com staff tested these 2011 trucks with the *latest and greatest* power ratings. (Emphasis on latest and greatest—when will the one-upmanship in horsepower and torque end?) Here are the numbers from their specification page.

	Ram	Ford	GMC
HP	350@3000	400@2800	397@3000
Torque	800@1500	800@1600	765@1600
Axle	4.10	3.73	3.73
Transmission			
1	3.23	3.97	3.10
2	1.84	2.32	1.81
3	1.41	1.52	1.41
4	1.00	1.15	1.00
5	.82	.86	.71
6	.63	.67	.61
Tire (rpm)	245/75/17 (662)	235/80/17 (656)	235/80/17 (656)
GCWR	29,000	30,000	29,200
Trailer	19,400	19,400	19,400
Price	$58,200	$56,900	$55,710

+The writers at www.pickuptrucks.com (PUTC) started their report with a quarter-mile test with the 19,400-pound trailer in tow. Careful consideration was given to make the testing equal (tow/haul, mirrors, air conditioning, traction control, launch technique). Their results:

Acceleration	Ram	Ford	GMC
0 to 30 mph	9.19	8.42	9.21
0 to 50 mph	23.09	21.05	20.60
30 to 50 mph	13.90	12.64	11.39
Quarter-Mile	26.39	25.63	25.88
	@ 53.46mph	@ 55.13mph	@ 56.75mph

(seconds with trailer)

GMC was judged as the winner.

Quarter-Mile Unloaded

The PUTC staff noted that this test was the only time the trucks were unloaded in their 2234 miles of testing. Their results:

Acceleration	Ram	Ford	GMC
0 to 30 mph	3.95	3.77	3.86
0 to 50 mph	10.40	9.53	9.23
30 to 50 mph	6.46	5.76	5.37
Quarter-Mile	18.02	17.56	17.22
	@ 79.94mph	@ 83.03mph	@ 84.97mph

(seconds without trailer)

GMC was the winner.

Brake Test

The PUTC staff did the brake test with the 19,400-pound load in tow and a 40mph to 0 stop. They tested these trucks with the exhaust brakes on. Each truck was equipped with the factory integrated brake controller. The brake test was also done without the trailer brakes connected to give the audience a feel for what can be expected in a fail-safe condition. Their results:

	Ram	Ford	GMC
40-0	100	94	100
40-0 w/o trailer brakes	164	143	165

Ford was the winner.

Davis Dam Grade Climb

Did you realize that the Society of Automotive Engineers has developed a trailer towing capacity test (J2807) so that truck buyers will have criteria for an apples-to-apples comparison? According to PUTC, the manufacturers are expected to implement this test in 2013. (See BITW page 64.) In the meantime the astute PUTC writers implemented one of the tests, the Davis Dam Grade, for their evaluation.

The steady 5% grade is Highway 68 outside of Bullhead City, Arizona. The test length is 11.17 miles. The entire 11.17 miles was run at wide-open throttle. Two runs were made up the grade. Their results:

The GMC's best time:
11 minutes, 11 seconds; average speed 58.35

The Ford's best time:
11 minutes, 50 seconds; average speed 54.9

The Ram's best time:
12 minutes, 54 seconds; average speed 50.6

GMC was the winner.

Davis Dam Grade Exhaust Brake

What goes up must come down. Likely you noticed the PUTC guys did two trips up the Davis Dam Grade which gave them two trips down to test the exhaust brakes. The method to test the effectiveness: start at 55mph; wait for gravity to take the speed to 60mph; apply service brakes to 48mph; wait for 60mph; apply service brakes to 48mph and repeat. The truck with the fewest applications of the service brakes was the winner. They let the truck "decide" which gear to be in. Their results:

Ram 2
GMC 4
Ford 5

The Ram was the winner.

Eisenhower Pass Climb

According to PUTC, Eisenhower Pass, located in Dillon, Colorado, on I-70, is the highest point in the US interstate system. The grade starts at 5% for two miles and increases to 7% for the remaining six miles. It was another wide open throttle test. Their results:

GMC	8 minutes, 47 seconds; average speed 51.7
Ford	10 minutes, 17 seconds; average speed 44.5
Ram	11 minutes, 20 seconds; average speed 40.4

GMC was the winner.

Eisenhower Pass Exhaust Brake

By this time in the evaluation the Ram faithful of the TDR are expecting that this will be a category for a Ram win.

Not so.

The PUTC staff noted that the Eisenhower test averages 2% steeper than the Davis Dam test and the finishing order changed. Their results:

GMC	5
Ram	12
Ford	13

In an effort to explain the difference it was noted that the GMC downshifted to second and the Ram stubbornly stayed in third and picked up speed; upshifting to fourth to keep from over-revving Fourth gear took the truck over 60mph and the service brakes were applied.

GMC was the winner.

Fuel Economy

Total up the fuel receipts and it is easy to do the math for fuel economy

Ford	9.5mpg
GMC	9.1mpg
Ram	8.5mpg

With receipts in hand for the 2000+ mile trip they noted the Ford to GMC difference of .4mpg cost $22. They noted the Ford to Ram difference of 1.0mpg cost $115 more to operate.

(How can this be? Someone's math is not correct. A .4mpg only cost $22; where as a 1.0mpg cost $115? By my calculation if 1.0mppg cost $115 then .4mpg cost $46. An unfortunate miscalculation or misprint in an otherwise excellent test.)

To verify for myself, I did some oversimplified math using $4/gallon as the cost for fuel.

Ford	2000 ÷ 9.5 × $4 = $842	
GMC	2000 ÷ 9.1 × $4 = $879	Advantage Ford by $37
Dodge	2000 ÷ 8.5 × $4 = $941	Advantage Ford by $99

It is also unfortunate that the PUTC staff did not note the amount of diesel exhaust fluid needed to refill the Ford or GMC at the end of the test. They started with both the Ford and GMC eight-gallon tanks at "full" and did not refill, nor were either low level lights on. To try and level the mpg disparity, let's just make an assumption that the Ford and GMC used 6 gallons. The cost of DEF is $3, so that only narrows the MPG gap between Ford and Ram by $18.

Best Overall

The PUTC scorecard gave points based on a scale of 100 for first and the second and third points were assigned relative to how close they finished to the leader. The example they gave: 1/4 mile fastest at 15 seconds, then a truck at 16 seconds would receive 15/16 or 93.7 points. Their totals:

GMC	807.97
Ford	754.60
Ram	751.61

If you read the PUTC score sheet you'll see that the Ford was killed by its poor exhaust brake performance.

However, I'm not going to get too bogged down in PUTC's numbers. Some gotta win, some gotta lose.

Although we did not fare well in the test, ours is a group of informed, level-headed enthusiasts who deserve truthful reporting. You've got the numbers from PUTC. Now if you are like me, when you weigh them, you will add your tried-and-true experience at the wheel, and balance the scales with your more-subjective appreciation of the Ram's looks and its sheer physical presence on the road, as well as our appreciation of comfort in the cab, room to work under the hood, faith in the legendary Cummins engine, and the support of a faithful community of fellow-TDR members. You get my drift. Yes, we do own a winner.

Robert Patton
TDR Staff

NOTES:

"PERFORM SERVICE" AT 67,500 MILES

ISSUE 75 – 6.7 HPCR

by Robert Patton

Since the 6.7-liter engine has been in the marketplace for over four years, I am long overdue in writing an article covering the 67,500 mile maintenance requirements that are called for in your Owner's Manual.

What? You did not realize that there were any requirements at 67,500 miles?

Yes, indeed: change the crankcase vent filter; clean the EGR valve; and clean the EGR cooler assembly.

The maintenance of these items sounds simple, but the folks at our sister company were getting reports from owners that this service would cost from $400 to $800; $200 for parts and the balance in labor, with the big variance due to labor rates and shop experience to get the job done quickly.

The parts involved in the service are as follows:

2) 68028729AA cleaner @ $19.85	$39.70
2) 68005184AA gasket @ $2.60	$5.20
1) 68026986AA gasket @ $14.08	$14.08
1) 68026987AA gasket @ $4.57	$4.57
1) 68038089AB gasket @ $24.85	$24.85
Sub-total	$88.40
1) 68002433AB crankcase vent (CCV) filter @ $132.00	$132.00
Total	$220.40

This is a magazine/membership group that is dedicated to the do-it-yourselfer. Can these parts be purchased for less? Yes. The quote from Cummins/Geno's Garage: $40 for the gaskets; $76.95 for the CCV filter, or $105 for the entire kit (cleaning solution not included).

A close inspection of the cleaning solution in the Mopar bottle yielded a smell and feel that was similar to a cross between Joy dishwashing detergent and Simple Green cleaner. With a $40 savings, you can guess that our DIY service procedure will use the less expensive cleaner(s).

Okay, with the preceding comments about saving money foremost on your mind, how should I continue with this article? Let's break the service down into its three components:

Part 1: Change the crankcase vent (CCV) filter

Part 2: Remove and clean the exhaust gas recirculation (EGR) valve

Part 3: Remove and clean the EGR cooler assembly.

Part 4: Change the CCV Filter

The first service item, change the CCV filter, is very easy to do. The instructions were covered in the Turbo Diesel Register, specifically Issue 64, page 40.

In an effort to do a comprehensive 67,500 mile service article, this is what we found:

The CCV sits on top of the valve cover and, from what looks like a last minute entry in the '07.5 Owners Manual, it requires inspection and/or changing every 67,500 miles. Furthermore, should the crankcase vent system become clogged, there are diagnostic trouble codes (DTCs for the uninitiated) that will be set, causing a malfunction indicator light (MIL for the uninitiated) to come on. Specifically the DTCs for CCV problems are: P1507 crankcase filter restriction; P1508 crankcase filter restriction—replace filter. If these codes are set the "Perform Service" message will illuminate on the overhead display.

Likewise, at the 67,500 mile interval the "Perform Service" will automatically illuminate, alerting you to check and clean the EGR valve, EGR cooler and to replace the CCV filter.

How do you change the CCV? The inspection and/or changing of the filter is very easy. The steps are:

- Remove the four 8mm bolts that hold the "batwing" cover in place. Remove the dipstick and then the cover.
- Remove the oil drain hose from the passenger side of the CCV filter. As you inspect the hose you should find that there is very little oil that makes it this far into the vent system.
- Remove the eight 8mm bolts that hold the CCV filter in place.

Removing the eight 8mm bolts that hold the CCV filter in place. DO NOT use the impact tool to reassemble and tighten the bolts.

• Remove the oil fill cap. For protection from debris, stuff a paper towel into the oil fill hole.
• With a large flat blade screwdriver, gently pry the CCV filter up and off.
• Upon inspection of the CCV filter, you'll see that it has two O-rings and a reusable V-gasket that effectively seal the filter in place.

New CCV filter on the left. At 30,000 miles the CCV filter on the right looked clean and was reinstalled.

• Replace the CCV filter.
• Reassemble in reverse order.

Reset the "Perform Service" Message

Oops…wait one minute, we're not quite finished. How do you reset the "Perform Service" reminder that is now illuminated on your overhead display?

The procedure is outlined in your Owner's Manual and it is written as follows:

• Turn the ignition switch to the ON position. (Do not start the engine.)
• Press and release the brake pedal two times.
• Fully depress the accelerator pedal slowly two times within 10 seconds.
• Turn the ignition switch to the OFF/LOCK position.

The message should now be erased. You can also do your favorite dance afterward!

Part 2: Clean the EGR Valve

This service procedure is almost as easy as Part 1, changing the CCV filter.

Let's pick up the instructions from the part where you have removed the dipstick and then the four 8mm bolts that hold the "batwing" in place.

• Remove the three 10mm bolts that hold the dipstick bracket in place.

• Next, remove the electrical connector that goes to the EGR valve. With a small pick move/slide the red clip out, allowing you to pinch the tang down to release the connector.

• Next remove the four 10mm bolts that hold the EGR valve in place. The bolts and the EGR valve can be removed. Lift the EGR valve off of the intake horn and it is ready for cleaning.

• Remove the four Phillips head screws that hold the valve motor to the EGR assembly. Lift the valve motor off.

Several shops that we've talked to suggested that you start the EGR valve cleaning process by blowing the carbon off of the EGR valve with regulated compressed air. Start at 10psi and increase the pressure as the dust flies—and the dust will fly. Your blowing should be done in the wide open spaces or, better yet, blow into an old shop vacuum that you no longer care about.

With the focus on saving you money, we wanted to test the effectiveness of the Mopar cleaner as compared to Simple Green cleaner. We poured two quarts of the Mopar fluid into a five-gallon bucket. Ditto with Simple Green.

The suggested concentration is 4 parts water to 1 part solution; the suggested soak time is 2 hours. Based on tips that we received from service shops, we suggest a 2-to-1 concentration and an overnight soak.

Upon removal of parts from the different solutions, the Mopar and Simple Green, we could not tell any real difference. Both solutions did a good job of cleanup.

• Drop the EGR housing and valve into the cleaning solution for an overnight soak.

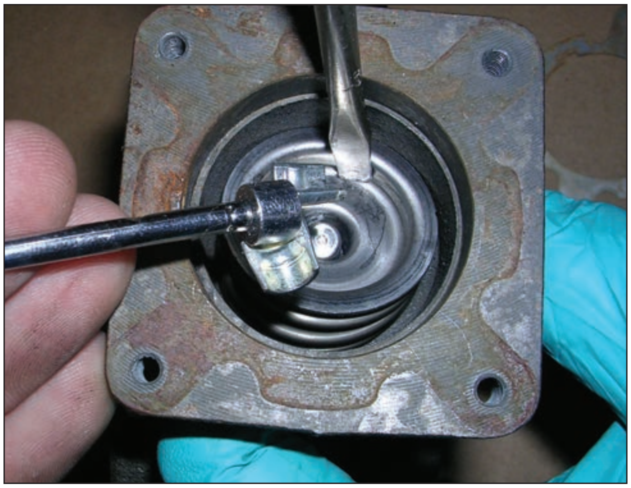
• Remove and do a preliminary cleanup with a toothbrush.

For complete cleaning you'll want to disassemble the EGR valve from the housing. The procedure is as follows:

• Using your fingers, a screwdriver or a socket, press down on the valve spring retainer.

• With the retainer pressed completely down the valve keepers should release from the valve. A light tap with a screwdriver or magnetic pick up tool may be needed.

• Remove the retainer and keepers.



Disassembling the EGR valve from the housing.

- The valve can now move freely. Clean the valve and the valve seats. We used a toothbrush and a Scotchbrite pad for cleaning.
- Reassemble the EGR valve. The valve motor is not indexed. Reassemble it so that its connector is pointed towards the front of the truck.
- Reassemble the EGR valve back onto the air intake.

Part 3: Remove and Clean the EGR Cooler

Unlike parts 1 and 2, this service procedure is cumbersome and time consuming. Notice we did not say "difficult," as the procedure is nothing more than removing and reinstalling parts. There is no heavy lifting; no precise measuring or alignment; and no machine work/outside services for which you have to wait. However, if you look at this procedure in the TDR-o-pedia, it exemplifies and gives definition to the word cumbersome.

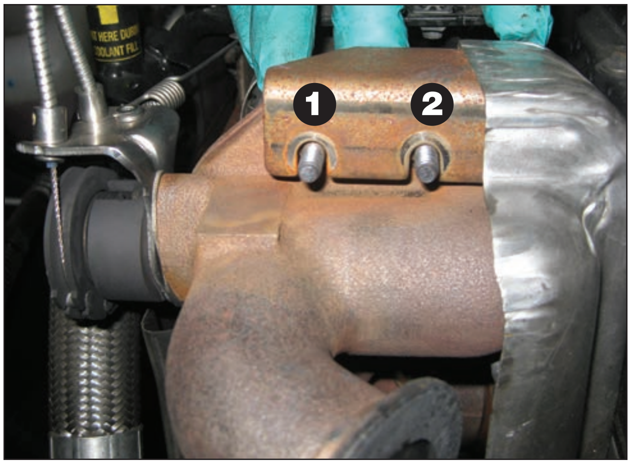
How so?

Here are some examples: Hidden nuts and bolts that you can't see, nuts and bolts that are difficult to access; nuts and bolts that require removal of other parts (air cleaner assembly) to access; and special flexible tools that you'll need to get into the aforementioned tight and awkward locations.

All right, you've been sufficiently warned that the procedure is cumbersome, but not necessarily difficult. Here are some general instructions with tips for easier disassembly.

- For easier access to the exhaust manifold, we started the project by removing the air snorkel that comes from the airbox to the turbocharger inlet. To remove the snorkel you need to disconnect the two sensors, loosen the hose clamps and disconnect the crankcase vent line that goes into the snorkel. To prevent debris from entering the turbocharger, stuff a clean rag into the turbocharger inlet.

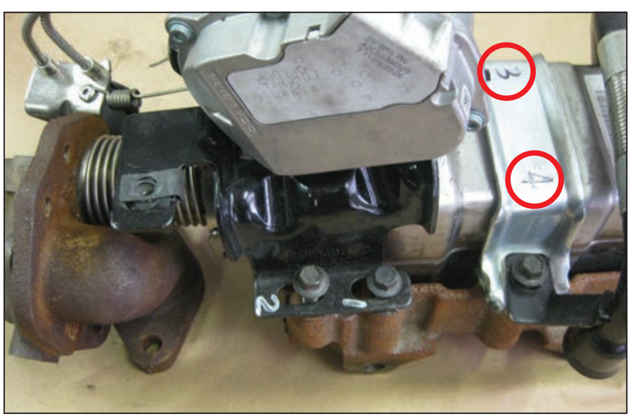
- Moving to the passenger side of the engine, remove the 11mm nut from the clamp that holds the EGR cooler assembly to the exhaust gas crossover pipe.
- Remove the 8mm bolt at the front of the engine that holds the crossover pipe in place. Removing this bolt loosens the crossover pipe, giving you room to wiggle the pipe to an out-of-the-way location.

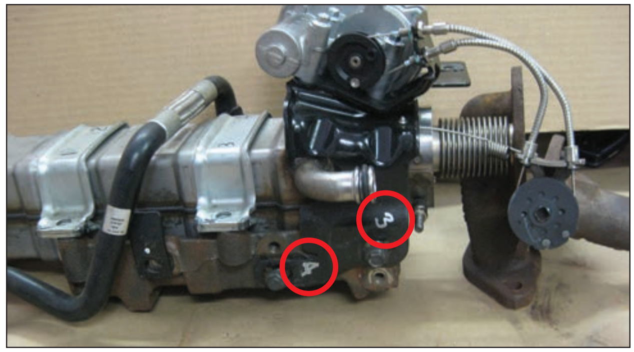


- There is a heat shield above the EGR servo control valve. Remove these two 10mm nuts (#1 and #2) that hold the heat shield in place. These two bolts also hold the butterfly onto the 90° elbow.

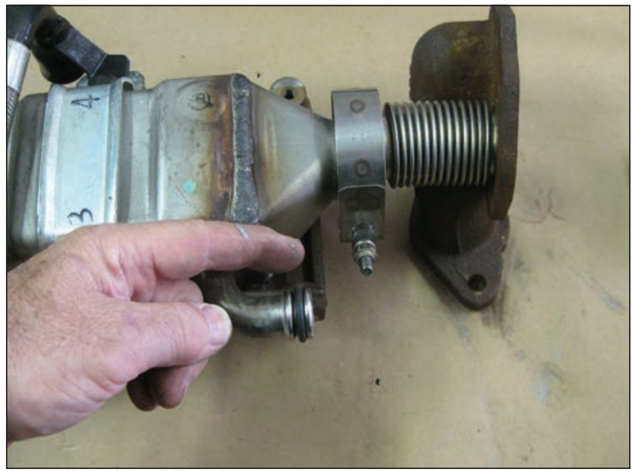
- Remove the top two 10mm bolts (#1 and #2) that hold the cast iron butterfly housing to the 90° elbow.

- Remove the bottom two 10mm bolts (#3 and #4) that hold the cast iron butterfly housing to the 90° elbow.





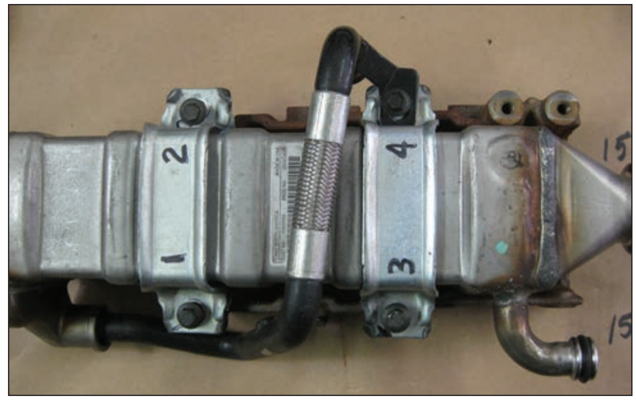
- Remove the four 10mm bolts that hold the servo motor plate to the cast iron butterfly/flex pipe assembly.



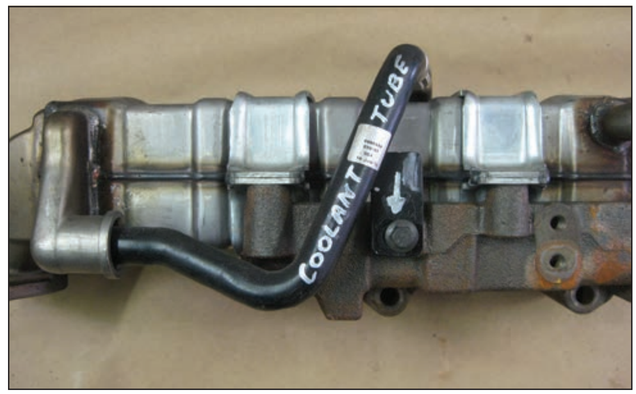
- Loosen the 11mm bolt on the V-clamp. Remove the clamp and the cast iron butterfly/flexpipe to be separated from the EGR cooler.

• Remove the two 15mm bolts that hold the butterfly/flex pipe onto the exhaust manifold.

• There are several 10mm bolts that hold the front coolant tube to the cooler assembly. Remove the bolts and the coolant tube can be pulled backward from the O-ringed nipple that goes into the cooler assembly. Catch the coolant in a paper cup.

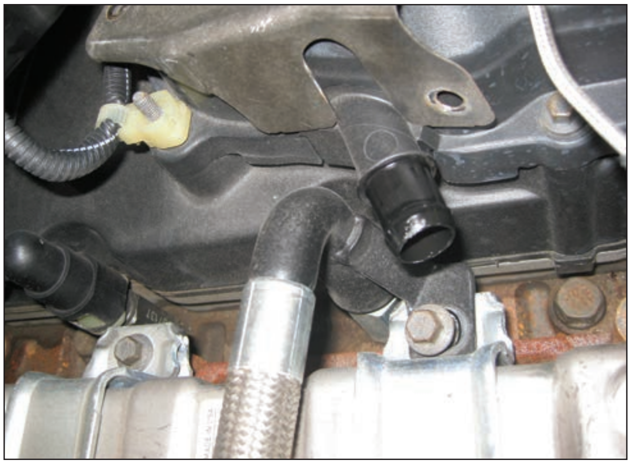


• Remove the four 10mm bolts that hold the EGR cooler to the manifold plate.

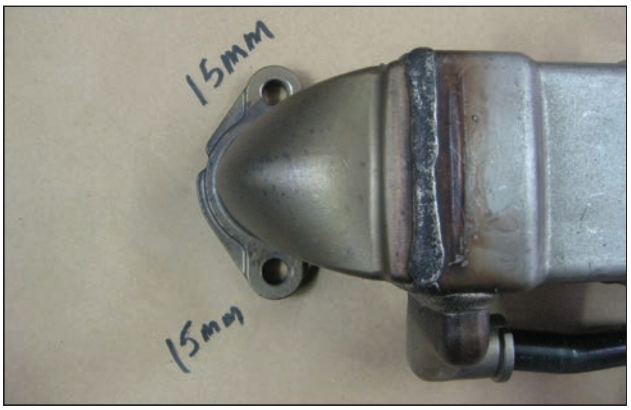


• Remove the remaining 10mm bolt that holds the coolant tube to the side of the manifold plate (see arrow).

• Now that the coolant tube is completely loose. Pull the tube up off of the vertical fitting that is on the cylinder head.

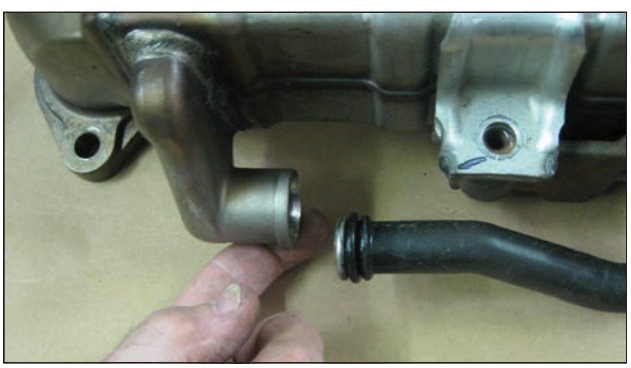


• Remove the CCV hose from over the EGR cooler.

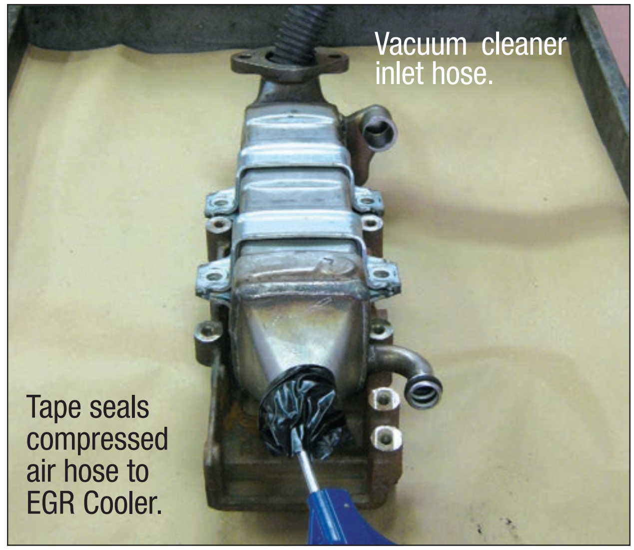


• Remove two 15mm nuts that hold the EGR cooler onto the exhaust manifold. Yes, these are hard to reach.

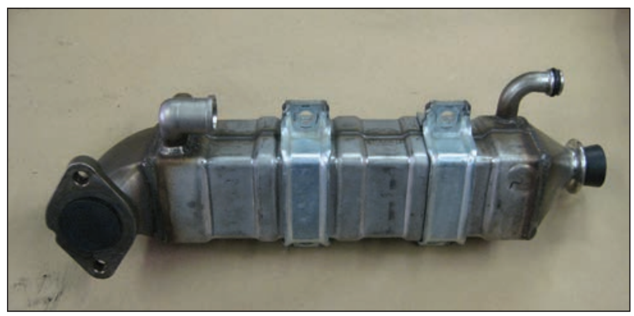
• Lift the cooler off of the exhaust manifold.



• Remove the rear coolant hose from the EGR cooler. Drain the remaining coolant from the EGR Cooler.



• With carefully regulated compressed air you can blow carbon into the inlet hose of a vacuum cleaner.



• Plug one end of the cooler with a rubber plug and fill with hot water and cleaning solution. Plug the other end and soak overnight.

Now that the cooler has been removed, it is time for the overnight soak. To save cleaning solution and the associated messy waste, I found two rubber plugs that fit into the cooler openings. Plug the cooler at both ends; fill it up with the solution and hot water; shake it like you would a paint can; and allow it to sit overnight.

The next morning remove the cooler and clean inside as best you can. A further trip to the local car wash/ pressure washer facility with the cooler and a bit of left-over solution will make sure that it is really clean. For good housekeeping take the crossover pipe and other associated EGR hardware for cleaning. Do a final blow-out with compressed air.

Reassemble the cooler to the exhaust manifold.

Now, don't forget to reset the pesky service reminder. (Forgetting is difficult to do when "Perform Service" is always illuminated.) The instructions for the reset are back on page 41.

Robert Patton
TDR Staff

LUBE OIL UPDATE

ISSUE 76 – TECHNICAL TOPICS

by Robert Patton and John Martin

A New Inquiry

Last October I received an e-mail from TDR member Desmond Rees:

I am looking for supplemental information following up John Martin's article from Issue 57 on engine oil. The August 2007 article is somewhat dated. With the switch to the new API requirements for EGR/DPF diesel engines, are there plans to revisit this topic regarding the best engine oils meeting the API CJ-4 requirement? John's article only looked at a handful of the CJ-4 oils and they ranked at the bottom of the pile when compared to the previous generation of oils. Thanks.
Desmond Rees

My response: Prior to Desmond's letter, there were no plans to revisit the topic. However, it has been five years and oils do change. I will purchase and test the CJ oils and John can comment on the data. We will see if John's previous conclusion holds: "If it meets a spec, it becomes a commodity. Low price can be the purchase criteria. Change the oil based on the Owner's Manual recommendations."

Thanks to Desmond for the letter.

Background Information

It seems like just yesterday that I met lube oil expert John Martin and we collaborated on a series of articles about lube oils.

Ouch! As Desmond reminded me, "yesterday" was Issue 54 of the TDR, which was published in December of 2006. The four-part series that we wrote took a year to complete.

The reason behind the year-long series of articles was the forthcoming change from lube oil category CI+4 (an industry specification that was implemented in 2002) to the new category CJ. The CJ formula of oil was developed for the lower diesel exhaust emissions engines that were being implemented starting 1/1/2007.

I wondered how the lube oil would change. John Martin was the guy to tell me. (More about John in just a minute.)

In a lengthy telephone conversation he shared his opinion about the forthcomming CJ lube oil specification. Bottom line: John felt that the CI+4 oils were some of the best to come out of the respective refineries. In his discussions with those in the oil business, he had formed the opinion that the new CJ oils would not necessarily be new-and-improved.

As I noted, the CJ formula was developed for the new lower emissions diesel engines. From John I understood that the CJ oil would not necessarily be new-and-improved. Without analysis of the lube oils, I asked John what were the proposed changes from the highly acclaimed CI+4 to the new CJ oils. His response: "Robert, this is a lengthy topic, but it is very important for the audience to understand what is happening in the oil business." So, I looked back to Issue 54 and made a couple of tweaks to its contents. The following is the updated text that gives you the insight that you need to understand the CI+4 to CJ change.

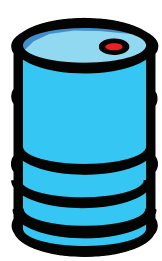
A Little Lube Oil History

Before we talk about what the additive industry and the oil companies have done to meet the EPA's latest directive, we need a brief lube oil history lesson. Years ago diesels were operated on refined crude oils containing virtually no additive chemistry. As power density increased oil companies found they needed to add specific chemical compounds to the oil to provide performance attributes that crude oils couldn't deliver. The additive industry was born.

Traditionally, each new diesel engine oil specification was issued because available oils couldn't provide the lube oil performance needed. For example, API CE was issued to create oils which solved an oil consumption problem in Cummins NTC-400 engines. For fifty years each new diesel engine oil specification meant a better performing diesel engine oil was available—all the way from API CD to API CI+4.

Today diesel engine oils look like the example shown in figure 1. From 20 to 30% of modern diesel engine oil is additives designed to improve performance in key areas. These additives are carefully engineered mixtures of compounds formulated to pass the various diesel engine tests which define a new lube oil specification like the CI+4 or the new CJ.

Typical Diesel Oil Composition



Base Oils:	69-80%
Performance Package	15-20%
Viscosity Modifier:	5-10%
Pour Point Depressant	0-1%

Pour point depressants are used to keep the oil fluid at very low temperatures. (They inhibit wax crystal formation.) Viscosity modifiers are used to make the oil thin out less as it is heated. This makes an oil which we call "Multigrade" and it simply means the multigrade oil acts like a thinner oil at low temperatures and a thicker oil at high temperatures. Multigrade diesel engine oils were a key part of the solution to the excessive oil consumption problem addressed by API formulation CE.

The performance additive package (see figure 2) is a mixture of 8-12 specialty chemicals, each of which is intended to impart specific properties to the oil's performance. The important thing to remember here is that most additive chemicals (particularly detergents) deplete or wear out in service. This is one of the reasons why the oil must be changed. Life *was* good.

Typical Diesel Oil Performance Package

- **Detergents**
  - Neutralize Combustion Acids
  - Minimize Wear
  - Inhibit Rust Formation
  - Oxidation Inhibitor
- **Dispersants**
  - Prevent Agglomeration of Soot Particles
  - Suspend Contaminants in Oil
- **Oxidation Inhibitors**
  - Retard Oil Decomposition
  - Slow Deposit Formation
- **Anti-Wear Agents**
  - Create Sacrificial Film Between Metal Parts
  - Minimize Valve Train Wear
- **Foam Inhibitors**
  - Prevent Oil Foaming

What Did the EPA Do To Us/Why Do We Need CJ-4 Oils?

First, let's discuss why this new oil was developed. The EPA tightened their exhaust emissions thumbscrew on diesel engines starting January 1, 2007, to reduce particulate matter (PM) and oxides of Nitrogen (NO_x) emissions even further. To meet those requirements most diesel engine manufacturers resorted to the use of diesel particulate filters (DPFs). A DPF differs from the catalytic converters we have used for years on gasoline engines in that a DPF actually filters the *entire* diesel exhaust stream.

On the surface you wouldn't think this would be a big deal—Europeans have been using DPFs for years. The difference is that Europeans don't accumulate mileage like Americans and they will tolerate much more frequent service intervals. Our EPA has decreed that the new DPFs must go 150,000 miles before needing removal for cleaning. This means the soot collected in the DPF must be burned off in the exhaust system frequently if trap life is to exceed 150,000 miles without removal and cleaning.

Now, don't take me wrong—I'm for a cleaner environment like everyone else is. The problem with the EPA is that they just decree which emissions will be reduced without once considering the cost, the technology needed or its effect on your operation. They refer to that as "Technology Forcing Legislation." In the case of diesel engine oils, the EPA forced the adoption of a low-sulfate ash, phosphorus, and sulfur (low SAPS) oil whose technology hasn't yet been proven extensively in the field.

I don't have to tell you that diesel exhaust is relatively dirty. It consists of lots of soot (That's what turns your oil black!) and unburned residues from both the fuel and the oil. Sulfur in the fuel can significantly hamper DPF performance. That's why the ultra low sulfur diesel (ULSD) fuel was implemented 1/1/2007. Phosphorus and sulfur in the lube oil can shorten DPF cleaning intervals considerably. Phosphorus (P) can "glaze over" and plug the tiny holes in the DPF, making the openings effectively smaller and quicker to plug. Sulfur (S) can "mask" the DPF, making it temporarily less effective. Sulfated Ash (SA) in the lube is thought to build up deposits on the DPF over time. These deposits that originate from diesel fuel and lube oil then make the DPF effectively smaller and quicker to plug.

What does this mean to you?

Low P means the Feds placed a limit on the amount of Zincdithiophosphate (ZDP) additive which can be utilized. ZDP is the most effective oxidation inhibitor and anti-wear agent currently available. Additive manufacturers are now forced to use more expensive and less effective ashless oxidation inhibitors and anti-wear agents.

Low S means the new oils can't rely on some of the least expensive Sulfur-based oxidation inhibitors used in the past. And, once again, many of the new ashless oxidation inhibitors haven't been thoroughly field proven in heavily loaded trucks. Low S also means more highly refined base oils, which is a positive thing. Average base oil quality is now significantly improved.

Low SA (less than 1 percent weight) effectively places a limit on the amount of detergent which can be used in these oils. But diesels love detergents. In over 25 years of inspecting various diesel engines in the field, I've yet to see one which didn't perform better on oils with higher levels of detergency.

So, What Oil Should I use?

If you have a diesel engine equipped with a DPF, you should probably use API CJ-4 oils. You really don't have a choice unless you want to clean your particulate trap more frequently. Pay particular attention to oil change intervals.

I know that the major oil marketers are telling their customers that CJ-4 oils are backward compatible (you can use them in pre-2007 engines), and that is somewhat true. But if you use less detergent in an oil, your oil change interval should be shortened accordingly. Oil marketers don't care if you have to change your oil more frequently—in fact, they love it! Remember oil companies are really in the business of moving as much base oil as possible. They love short oil change intervals.

In closing, remember to change your oil as frequently as possible, so we all can generate some more profits for those poor oil companies.

John R. Martin
TDR Writer

More About the Previous Series of Articles

Way back in Issue 54 I asked John how we might test the CI+4 oils and the new CJs. His response: "That's easy: You spend the $25 for a complete oil sample evaluation. Be sure the test includes total base number (TBN) and viscosity—and send me the results. Don't tell me what is what. Let's see if there is an obvious difference and let's see who makes the best lube oil(s). Who knows what we will find. Will purchasing a lube oil be as easy as purchasing a commodity? You know, as long as it meets a specification then it is 'good,' therefore you can shop for your lube oil based on price."

Answers to these questions gave me the basis for an excellent article. So, the oil analysis kits were purchased, $25 x 22 kits ($550) and I went on a shopping spree for oil, $15 x 22 oils ($330). A cool $880, just so John and Robert would know about lube oils.

Earlier I stated that John was the oil expert. Prior to retirement he was an engineer at Lubrizol, one of the companies that makes and sells the additive packages to the oil manufacturers. And, at John's stage in life, he was/is not beholden to anyone in the industry.

So, what conclusions could one draw from the year-long Martin and Patton examination of 22 different diesel lube oils? I've talked to many TDR members about the series of articles and each one has shared with me their own unique conclusion. Didn't we all read the same article?

I have often stated that, "changing a person's opinion about lube oils is like trying to change their opinion about religion. It is not going to happen." My take-away from the year long, $880 expenditure (oops… perhaps John Martin has brainwashed me) is as follows:

Back in 1999, it took a series of oil analyses samples before I was comfortable changing my 3,000 mile change-the-lube-oil/guy-on-TV mentality. Then again, it took a series of 22 oil samples to change my mentality concerning lube oil by brand name versus lube oil as a commodity.

I'm on the same page as John Martin; if it meets the specification you can purchase oil like a commodity. Change the oil based on the Owner's Manual recommendations.

LUBE OILS – VERSION 2012

Questions for 2012

So, the long answer to Desmond Rees has thus far taken 2.5 pages! However, I felt the background data was necessary before we just jumped into "Lube Oils—Version 2012." The following are the questions I wanted John to help me answer:

Q1 Could I find the good stuff, an old CI-4 specification oil?

Q3 Who has the best "John Martin" oil for 2012?

Q2 How would the CJ-4 oils blended today compare with the same oil that we sampled back in the summer of 2007?

Q4 What has changed in the world of John Martin in these past five years?

The Oil Analysis for 2012

As mentioned, back in 2007 we tested 22 different brands of lube oils: everything from Amsoil to Walmart; Caterpillar to John Deere; Red Line to Liqui Moly. The prices ranged from low of Walmart's Super Tech at $7.68 per gallon to the high of Red Line Diesel Synthetic at $35 per gallon. If you want the complete list of CI-4 plus and CJ-4 oils that were tested you'll want to look back at Issue 58, pages 52 and 53.

Why 22 oils back then and only 10 oils for 2012? Remember my comment about lube oils, religion and the change of opinion? Well, my opinion has been changed! How so? A look back at Issue 56 gives you some insight into my mindset prior to the testing of the 22 lube oils. Here is the recap:

"When new lube oil is analyzed you can get a good idea of the quality of the additive package that, as learned from Martin's experience, makes up 20–25% of the lube oil blend. Maintaining viscosity at higher temperatures, maintaining high alkalinity (total base number); and protecting against wear with the right blend of molybdenum, zinc, phosphorus and boron are important lube oil attributes. Readings for calcium are a way to measure dispersion detergency.

"In the blind-sampling-from-the-bottle done by Trailer Life magazine in January 2005, I was greatly disappointed to see that Walmart Super Tech 15W40 diesel oil stood toe-to-toe with other very respected brand names.

"Why disappointment? First, consider what John Martin said, 'Consequently there is less and less difference between engine oil that barely passes the API certification test and one that is designed to pass by a significant margin. Therefore, oils meeting a given performance spec are approaching commodity status.'

"Second, I am not a big fan of Walmart. I could go into a long tirade, but I will refrain.

"Third, for all of my vehicle ownership years (let's see, that is about 37 years) had I been duped? Had I fallen for the marketing hype? I did not want to believe that lube oil is just a commodity. Yet the Trailer Life grid did not lie."

What story did the forthcoming TDR grid tell?

Had I fallen for the marketing hype?
I did not want to believe that
lube oil is just a commodity

The previous 22 brand oil test did give me an education. For 2012 I did not feel the need to test every lube oil in the marketplace. As a matter of fact, I only went to two places for the various oils, Autozone (where each oil was priced at $17.99) and Walmart. The following is the blind sampling data:

Sample Description	Viscosity @ 100°	TBN	Calcium	Magnesium	Phosphorus	Zinc	Boron	Molybdenum
1	14.1	8.84	1050	777	975	1110	82	0
2	15.5	8.17	2183	9	1053	1152	3	1
3	15.1	8.69	1135	783	1020	1172	0	40
4	14.7	9.27	1299	837	941	1069	64	48
5	16.5	8.19	1412	395	1084	1250	503	89
6	15.5	9.15	1171	970	1088	1202	0	43
7	15.0	9.03	2209	10	1039	1156	35	0
8	15.1	9.09	2305	10	1077	1169	58	0
9	15.5	8.7	1134	787	1017	1169	0	40
10	14.3	9.22	770	1119	994	1171	60	58

Product Identification Chart

Item	Product	Viscosity	Price
1	Mobil 1 (Syn)	5W40	$26.33
2	Motorcraft	15W40	20.99
3	Walmart	15W40	10.97
4	Mobil Delvac	15W40	17.99
5	Chevron Delo	15W40	17.99
6	Valvoline	15W40	17.99
7	Shell Rotella	15W40	17.99
8	Castrol Tection	15W40	17.99
9	Warren	15W40	14.99
10	Shell Rotella (Syn)	5W40	27.99

And now, the answers for Lube Oils – Version 2012:

A1) I could not find any CI-4 lube oil.

A2) I'll turn this answer over to John Martin. John's response:

Robert and TDR audience, remember my often-used statement, "Diesels Love Detergents"? It appears from the oil analysis data that Samples 4, 5, 6, 7, 8, and 10 all have total base numbers (TBN) in excess of 9, which suggests to me that these oil marketers are trying to provide as much TBN as possible given the 1.0% weight sulfated ash limitation imposed by the API CJ-4 specification. They are doing this to satisfy those fleets whose oil change intervals are based on TBN depletion.

Samples 2 and 5 have the least amount of detergency of the oils tested. Sample 5 uses either a borated detergent or a boron-containing oxidation inhibitor. Borated detergents are thought by some to be more effective than traditional detergents. It is also possible that data in the last two columns for sample 5 has been transposed. *(Editor's note: the 503 and 89 numbers are as printed by the lab.)*

My field test experience has taught me that calcium (Ca) detergents are more effective than magnesium (Mg) detergents, so, to answer question 2, "Who has the best oil for 2012?" I think oils 7 and 8 would be the best of the oils you surveyed. Oils 4, 6, and 10 also have high TBN values for CJ-4 oils, but they depend heavily on magnesium detergents, so I don't think they would yield diesel performance as good as oils 7 and 8.

Oils 1, 4, 5, 7, 8, and 10 all contain boron, but I'm certain that the additive chemistry in sample 5 is different than the others (or the last two columns of data for sample 5 have been transposed). Boron oxidation inhibitors are evidently being utilized to improve the high temperature performance of these CJ-4 oils.

Now, if you allow me to look at the number-to-product identification report I can tell you that oil 5 has been completely reformulated, and I know why. Chevron Delo 400 is the most widely used oil in big trucking fleets. When CJ-4 came about, fleet operators told Chevron they preferred the old CI-4 oil, particularly when they found out that Chevron was going to ask more money for their CJ-4 oil. Neither Chevron nor the fleets would budge off their positions, and big marketers like Chevron only want one oil in their distribution systems. Chevron went back to the drawing board, reformulated, and retested until they could pass the API CI-4 tests with a CJ-4 oil. Then they dropped both earlier oils out of their systems and offered only the new, improved CJ-4 oil. I wonder if the big fleets paid them more money for the new oil?

Mobil and Shell also supply a lot of oil to truckers. If you compare sample 1 (a consumer oil, Mobil 1 synthetic) with sample 4 ((Mobil Delvac) you can see that Mobil added more detergency to oil 4 (Ca and Mg) to give their big fleets increased TBN and keep them happy. Fleets wouldn't use the Mobil oil in Sample 1. The Shell samples (7 and 10) are also very interesting. Shell is using different additive chemistry in their 15W40 (Rotella mineral, sample 7) than in their 5W40 (Rotella synthetic, sample 10). I'm guessing that the big fleets are mostly purchasing oil 7. I do not know why the chemistry is so different in oil 10, other than perhaps another additive supplier was able to pass the tests, allowing Shell to get the credentials they desired.

So, once again, my picks are oils 7 and 8. If you religiously adhere to your manufacturer's recommended oil change intervals, oil 3 would be the best performer on a cost per mile basis. Oils 1, 2, and 10 offer the highest cost per mile, so I would avoid them altogether.

A3) Now, let's compare the 2007 oils to the 2012 oils. I asked Robert to save you from going back to Issue 58 and present a comparison chart for you.

The CJ-4 Lube Oils Tested in Issue 58 were:

Shell Rotella T	15W40
Castrol Tection	15W40
Chevron Delo 400 LE	15W40
Cummins/Valvoline Premium Blue	15W40

The following chart gives you the "Then and Now" candidates:

Price	Description	Viscosity @ 100°	TBN	Calcium	Magnesium	Phosphorus	Zinc	Boron	Molybdenum
$10.96	**Shell Rotella T**	15.7	8.77	2488	8	1108	1147	37	2
17.99	**Same 2012**	15.0	9.03	2209	10	1039	1156	35	0
10.80	**Castrol Tection**	14.7	7.74	2011	6	876	1035	0	0
17.99	**Same 2012**	15.1	9.09	2305	10	1077	1169	58	0
12.99	**Chevron Delo 400 LE**	15.7	7.82	1593	416	1156	1268	83	570
17.99	**Same 2012**	16.5	8.19	1412	395	1084	1250	503	89
9.98	**Cummins/Valvoline**	15.6	8.42	1109	827	994	1041	0	41
17.99	**Same 2012**	15.5	9.15	1171	970	1088	1202	0	43

Now, to compare the 2012 results to the 2007 table, it appears that Shell has dropped their ZDP content by 10% in oil 7. Before interpreting data from this type of analysis remember that repeatability of these numbers is no better than 10%. Looking at the data in that light, two things could have happened in the last five years. Either the ZDP level could have been dropped 10% to enable Shell's additive supplier to put more detergent in the oil to increase TBN levels, or the data is on the outer edge of the repeatability limits. When comparing today's Shell oils, it looks to me like Shell may be using a different ZDP than they did in 2007.

But, audience, did you notice from your 2007 to 2012 comparative data that all of the oils cost more in 2012? Whether or not the oil marketer changed his initial CJ-4 formulation, he has managed to use the new credentials as a vehicle to raise the selling price of their oils significantly. As I said before, I don't know if oil marketers are getting more for their CJ-4 oils at major fleets, but they are certainly getting more from retail consumers. ***(Editor's note: I looked back to November 2007 and a barrel of crude oil was $88, today it is $106.)*** You and I get to pay for everything!

A4) What has changed in John Martin's world in the last five years?

For one thing, I spend much more time researching alternate fuels than diesel lube oils these days. Everyone wants to just jump into the future, be green and reduce our dependence on foreign sources of crude oil without even considering what these moves will do to the poor people who design the vehicles and systems that will have to make that happen.

For example, the public is finally beginning to discover that corn-based ethanol containing fuels (one of the worst jokes of the modern era) are actually worse than gasoline regarding greenhouse gas (GHG) emissions. It has taken the do-gooders billions of our tax dollars to discover what they've been told long ago by fuels researchers. The California Air Resources Board (CARB), a bastion of the most radical environmentalists in the world, has actually had their low carbon fuel standard (LCFS) overturned by a Federal judge.

Secondly, remember how the do-gooders tell us we should all be driving the Toyota Prius (Pious)? The latest GHG emissions research has shown that power plants are responsible for more GHG emissions than transportation vehicles. Where did the do-gooders think that electricity was coming from? Was it magic? Left-wing environmentalists never let facts get in the way of a good story. These are the same radicals who are currently stalling the Keystone pipeline project which could bring much needed crude oil from the North to refineries on the Gulf Coast. After the OPEC countries, China, and Hugo Chavez purchase all that valuable Canadian crude, we will decide to build the pipeline. Our environmentalists are getting to the point where they are very destructive. (My political rant is over. Don't send the editor hate mail.)

Our next new diesel lube oil spec (currently called PC-11) will occur sometime around 2015. The Federal government recently decreed that diesel trucks must provide significantly better fuel economy by 2016. The Engine Manufacturers Association (EMA) has already asked the lube oil industry for some improved fuel economy (FE) oils by 2015 so they can be field tested prior to production. Since the major fuel economy differences are observed by lowering oil viscosity, expect to see some very thin (5W30, 5W20) diesel oils in 2015. Very thin oils probably won't work well in current engines. (More about that in future TDR magazines?) This, too, won't be as easy as the EPA activists think it will be, but, as long as your tax money will hold out, they will be asking you to finance this research.

John Martin
TDR Writer

ADD OIL HERE/PC-11 AND CK-4 UPDATE

ISSUE 83 – TDREVIEW

ADD OIL HERE

by Robert Patton

Every now and then you'll stumble across an automotive writer that clicks with you. (See Motojournalism Connection, pages 4-7.)You find that their stories convey what you would say if you had their literary talent. Some of my favorite writers: the TDR's very own Greg Whale (all things automotive, Whale's "been there, done that"); Kevin Cameron (Kevin can make a nut and bolt into a fascinating story) and Mark Barnes (Mark's writings have reinforced that I'm not the only one that enjoys the solitude of a workshop); Peter Egan from Road & Track and Cycle World (Egan's writings can make a trip to the 7-11 store into an adventure); and Peter DeLorenzo from Autoextremist.com (his automotive rants/insights challenge the norm).

A quick story about Greg, Kevin, and Mark.

Back in the early days of the TDR (think 1994 for Greg Whale, 1996 for Kevin Cameron, 1998 for Mark Barnes) I was on the lookout for writers that could bring their insight to our new member/club organization. To reach these writers, I sent a request to their respective editors asking if I could contact them. As I have come to learn, automotive and freelance writing is not the glamor job you might envision, and the editors were willing to grant me access to these talented writers. After all, the TDR did not compete with the titles that Greg, Kevin or Mark were writing for. So, now you know the TDR writer story.

Oops, I'm a little off track.

I have here before me a story from Cycle World written by Egan that reminded me of the oil change woes that many of us have encountered with the 2013-and newer Turbo Diesel trucks. However, unlike the TDR's Donnelly, Roberts, Redmond or Langan that give you the steps to perform the task, Egan tells the oil change story of the average Joe, complete with a handful of mistakes.

Here are just a few excerpts from the story that will help me transition into a humorous story that was told to me by our very own Greg Whale.

Egan's original article in Cycle World was titled "Zen and the Art of the Oil Change." He starts the story with a long introduction and then a question from a CW reader:

"These days, a lot of younger, less experienced riders come up to me and say, 'Mr. Egan, you have an almost legendary reputation for being able to change the oil and filter on your motorcycles without spilling more than about 30 percent of the oil onto the garage floor or your own clothing. How the heck do you do it?'"

Next Egan gives the audience the step-by-step process that he used to tell this tale:

"Step 1: Place a 'suitable container' under the sump or oil reservoir—which, in the Buell's case, is in the hollow swingarm above the end of the muffler—and remove the plug. A stream of scalding hot oil will run down over the rear of the muffler and cascade into the pan, like Niagara Falls in a nightmare. Some will run down to the far end of the muffler and onto the floor. Or trickle warmly down your forearm and into your sleeve.

"Step 2: While oil is dripping from the drain hole and muffler, remove the small chin fairing and place another pan under the oil filter. Remove the filter with a web-type tool and stand back as oil from the engine and filter run over the front of the muffler and into the pan. Much of the oil will follow the bottom of the muffler and run onto the floor. Expect some to drip off the filter wrench onto your blue jeans. Accidentally drop the slippery, hot filter into the pan for a nice splash effect.

"Step 3: Carefully fill the new filter with oil, spilling hardly any at all, then screw it into the engine and put the drain plug back in. Here's where you give the drain pan an accidental kick so that a small tidal wave of oil flops onto the floor. Then refill the reservoir using a funnel with too small an opening so that it overflows immediately and burps oil onto the swingarm. Before putting the chin spoiler back on, use massive amounts of contact cleaner/degreaser to clean up the muffler and floor, along with ecologically friendly piles of oil-soaked paper towels.

"Step 4: Carry the main oil drain pan across the workshop and dump it down a large funnel into a disgustingly filthy, oil-streaked, red-plastic five-gallon gas can with the words 'DRAIN OIL' scrawled across it so people don't accidentally drink from it.

"Step 5: Check to make sure this can isn't already almost full. Otherwise, about two quarts of dirty drain oil will well up around the sides of the funnel and run onto the floor, as mine did. Expect some oil to run down the back side of the pouring spout on the drain pan and drip onto your running shoes.

"Step 6: Mop up the oil spill with more paper towels and wring them out over your drain pan. Clean the whole area with half a spray can of contact cleaner, but don't breathe any of the fumes. When everything is cleaned up, start the bike and check it for oil leaks. Mine was fine; not a sign of a drip.

"Step 7: Wipe your tools carefully, put them away and then go into the house. Throw all your clothes—including the running shoes—into the washer and then take a shower. Put on clean clothes and return to the workshop to have a beer and ponder the evening's work. Now, you're done.

Peter Egan
Cycle World

A "Zen" moment as the editor-dude changes the oil in his EcoDiesel. (Like it's big brother, it holds almost three gallons.) The unattended drain bucket almost overflowed.

As mentioned, I wish I could tell a story like that. The best I can do is to add a footnote to his yarn. From TDR's Greg Whale: "Dear Mr. Egan, please add steps 3a and 3b.

"3a: As you are pouring fresh oil into the engine make a note that the fresh oil ($8/quart) is leaking from the location of the oil drain plug. Oops, it's not leaking, it is pouring. STOP ADDING FRESH OIL!

"3b: Rush to install the oil drain plug."

Now, in fairness to the folks at Cycle World and to Peter Egan, I have to give credit where the credit is due. You can find all of Egan's books from his Cycle World days and from his Road & Track editorials by doing a quick search at Google for your favorite place to shop for books or go directly to Amazon.com.

The "Zen" quotes came from Egan's book "Leanings 3: On the Road and in the Garage with Cycle World's Peter Egan.

While you have your computer fired-up, take a few minutes to log onto www.cycleworld.com and start a new subscription! You'll not be disappointed.

Enjoy Mr. Egan's writing. Buy one (or all) of his books. Subscribe to Cycle World. I'm hopeful my endorsements prompt you to make a purchase. Again, some great reading material, you won't be disappointed!

Robert Patton
TDR Staff

While we're on the subject of lube oil...

The Motojournalism thing, combined with excerpts from Mr. Egan and Greg Whale tie-in give you a humorous look at the mundane oil change(s) that we all have to endure. I can only imagine those of you guilty of Steps 3a and 3b, myself included.

Now, let's move on to the serious look at oil in the news, the new lube oil specifications that will be introduced in December. In the update that follows, our oil-guru, John Martin, tells us about the new CK-4 and FA-4 oils.

Robert Patton
TDR Staff

PC-11 UPDATE
or
You're Getting Something Besides Red Socks for Christmas
by John Martin

If you readers will recall, I thoroughly discussed the upcoming new engine lube oil performance category, PC-11, in October of last year, TDR Issue 89. I mentioned that the API (American Petroleum Institute), the ASTM (American Society for Testing of Materials) and the SAE (Society of Automotive Engineers) were feverishly working to develop two new diesel engine oil performance categories as requested by the EMA (Engine Manufacturers Association) to improve diesel engine fuel economy. This is part of our nation's greenhouse gas (GHG) reduction effort.

Well, folks, on December 1, 2016, it's finally going to become a reality. This will be a major change for the diesel engine oil market for several reasons.

First, there will be two new performance categories, API CK-4 (PC-11A) for existing diesel engines and API FA-4 (PC-11B) for new/post 2017 engine designs which will tolerate lower viscosity oils. (Viscosity is still the most important parameter influencing both fuel economy and horsepower.)

API CK-4 is no big deal, other than the cost and time it takes to develop a new diesel engine oil. Current estimates are that it costs over one million dollars to develop a new oil even if it passes all the required laboratory tests the first time out. And that doesn't count the time and money it takes to field test the new product in a variety of engines in different types of service. In this day and age, you need at least two to three years of field testing to feel comfortable about the performance of any new diesel engine oil.

Now, the new FA-4 oil is creating quite a stir for several reasons. Oil marketers get very nervous when someone suggests putting an FA-4 oil in an older engine design with looser engine clearances, yet having to spend millions of dollars to develop a product to be used on only 2017 and later engine designs doesn't fully justify the tremendous expenditures involved.

So both end users and oil marketers will want to see how many other engines the FA-4 oils can safely be used in to maximize their investment. In the end it will probably be up to each engine manufacturer to determine which of their engines can tolerate FA-4 oils without sacrificing engine service life. Big Oil will want you to put this oil in everything to simplify logistics, but most end users will want to make sure FA-4 oils don't void their warranties. It's a shame oil marketers didn't better educate the end users ahead of time so they could make more intelligent selections.

Due to the extremely high costs associated with developing and marketing two completely new oils, many oil marketers are taking a closer look at product line simplification. ConocoPhillips, for example, currently markets four diesel engine oils under its brand umbrella, Conoco, Kendall, Phillips, and 76 Lubricants. To minimize developmental and marketing costs, they have decided to drop the Conoco and 76 Lubricants brands from their diesel engine oil lineup.

I'm sure other oil marketers are either reducing product lines or having a brand represent only one of the new oils. For example, Shell, which has both their Rimula and Rotella brands, also owns Pennzoil and Quaker State. Will they eliminate some oils from this complicated lineup? I predict that both Rimula and Quaker State won't offer the full range of FA-4 products to minimize expenditures.

It's going to be fun with a lot of to-ing and fro-ing. Take the time to carefully read the API label on the container (see examples). Note that the FA-4 label will be shaded to make it stand out a little. API CJ-4 oils will continue to be produced and marketed for at least a year before that performance category is obsoleted. The CK-4 oils shouldn't pose any problems for you.

Who knows, once there is product available (both CK-4 and FA-4), I might have the TDR guy go on a spending spree so we can check the composition of all these new-fangled oils and see what is really best for your truck.

John Martin
TDR Writer

6.7L AFTERTREATMENT DELETE

ISSUE 78 – TECHNICAL TOPICS

by Robert Patton

AND WE'RE OFF TO THE RACES

(Time to Ditch the 6.7-liter's Exhaust Aftertreatment System?)

With a title like "Off to the Races" one might assume that I had just returned from a trip to the Kentucky Derby.

Not so, I was simply having fun using the dictionary of idioms and phrases, searching for an expression that best describes the press release sent to our offices by the folks at Advanced FLOW Engineering (see page 130).

Their new "Atlas Exhaust System" is designed for the '07.5 and newer Ram/Cummins trucks with the 6.7-liter engine. Although not mentioned anywhere in the press release, close examination of their Atlas system reveals that the kit is a direct bolt-on (turbocharger back) aluminized steel pipe and muffler. Pipe and muffler—that's it.

Oops…what happened to the exhaust aftertreatment devices: the diesel oxidation catalyst; the nitrogen oxide adsorber; and the diesel particulate filter? Careful examination of other exhaust system web sites (and I mean careful), shows that an owner can piece together a turbo back, non-aftertreatment, non-legal exhaust system for a 6.7-liter engine. But none are so bold as to offer a single part number kit for such a product.

Perhaps a better idiom for this article: Open the Floodgates. "To allow water that had been held back to flow freely." Or, "If an action opens the floodgates, it allows something to happen or it allows many people to do something that was not previously allowed."

Oops…as the editor I'd better be careful using the second idiom. Let's be clear, the idiom says, "to do something that was not previously allowed." Removing the 6.7-liter's exhaust treatment components is not allowed, nor will it be allowed, subject to a penalty and fine from the EPA. (Section 205 of Clean Air Act: Penalty of up to $25,000 per day for violations.) The chapter and verse from the TDR where we have covered the subject: TDR's Turbo Diesel Buyer's Guide, pages 70-75, has the complete story.

So, is that the end of this correspondence: the editor stumbles across a press release; finds some cute idioms to make his point; cites the vendor for irreverence; identifies the reason that you should not consider the product; and then closes the story?

Well, perhaps that is where I should stop. However, to brush aside the rest of the story would prove—once and for all—that I am akin to the three wise monkeys: see no evil, hear no evil, speak no evil.

The following is an example from web site correspondence of how innocently the subject of the exhaust system delete comes up:

Can someone tell me if you can cut off the entire muffler system on a '07.5 truck? Will it start if you do it? If you can do it, who does it so I can get mine done? Has anybody else done this? If so please show pictures if you have them. Where I live we don't have emissions. My truck runs like crap.
Mr. Newbie

If you are asking if you can just delete the exhaust emission components, the answer is no. You have to do a downloader, like Smarty or H&S (an alternate engine program) to get the truck to run correctly without the emission components.
Mr. Experience

Legally a company cannot remove the aftertreatment system and replace it with standard pipe, it is a federal law. However, if you do remove the aftertreatment system DPF then you'll need a programmer to turn off the sensors. You also will want to check your state for local emissions testing.
Mr. Caution

I'm not in California. Okay, so let me see. In order to get the truck running right then, I need to buy and install an alternate engine program? Have you ever installed one of these systems in your truck?
Mr. Newbie

I have the Smarty J67 (stock programming) on my truck. To do the DPF/EGR deletes you'll need the J67-ME. The Smarty plugs into the OBDII port and then you select which programming you want to download. As I understand it, ME stands for a program used in Middle Eastern countries that ignore the unlugged sensors. It takes about 3-4 minutes.
Mr. Been There/Done That

Cool, dude! I can delete the system, add a programmer and experience all the great things I've read about at all the diesel web sites: better performance and better MPG.
Mr. Newbie

Not so fast. Remember the fines that you are subject to and you might want to reconsider those great "claims" you've heard. Our magazine's Editor had a close friend that tried it on his '07.5 truck. I strongly suggest you read Issue 72, page 34. The results on MPG were nowhere near as substantial as others would have you believe. If I recall correctly, the owner had problems at 35K miles with a regeneration when there was nothing to regenerate into. And, depending on the manufacturing date of ECM, you may have difficulty doing a program update (TDR Issue 65, page 42, "Secure bootloader software, or boot.").
Mr. Caution

Sorry, man. It's my truck and I'm going full speed ahead. I'll even put the junk back on my truck should I need some warranty.
Mr. Newbie

Not so quick, Mr. Newbie. You've just described the definition of FRAUD. I suggest you realize that you will be driving an illegal truck and that you are your own warranty station. You stated, "It's my truck," and you've been forewarned of the consequences of the modification. Accept responsibility and go ahead and do what you need to do.
Mr. Caution

A final story to consider:

Where I live we've seen customers delete the aftertreatment components and then come in to trade their truck. Imagine their surprise when we tell 'em the value is $2500-$3000 less than if the equipment was on the truck. They have to have us reinstall the hardware or we can't take it in trade.
Mr. Texas

Conclusion

If you do a web search on "EGR delete," "6.7-liter programmer" or "DPF delete" you'll find that there are hundreds of posts, threads and conversations that discuss these topics. I have done my best to caution against tampering with the emissions controls. And, until the press release by aFe, I've followed the mantra of three wise monkeys; see, hear and speak no evil.

Truthfully speaking (would you expect anything but the truth?), you've not seen any performance upgrade articles in the TDR about the 6.7-liter engine. And, considering the warranty, legal, and drivability implications there really is nothing to report. I'm still looking for the first vendor to send me a press release touting their new CARB Executive Order number (proof of continued low emissions) demonstrating that their accessory meets the guidelines.

Looking long term, could this hurt the TDR? Well, we've lived through almost six years without turbo-gizmos, injector-whizzes or tuner stacks and jacks, and, again, I really don't see any products of this nature coming down the pike. Yes, I know folks tweak the 6.7 and, if there is a positive to all this rambling, unlike the years prior to the 6.7-liter engine, those that tweak are assuming the responsibility of being"their own warranty station."

Would I like to see some factual reports about performance and fuel mileage? Without a doubt. However who is going to put their name on an article in which you tell the world, "Come check out my truck and send me a $25,000 fine?"

Robert Patton
TDR Staff

EPILOGUE – WHY THEN, BUT NOT NOW?

When I gave this issue's "Technical Topics" to the staff at Geno's Garage for review, the feedback I received was, "Wasn't/isn't the 5.9-liter engine owner subject to the same EPA fines that are discussed in the article?" And "Why did the TDR talk about performance prior to the 6.7-liter engine, but not now?"

The answer(s), "yes" and "but." (I really wanted to say, "Go read the TDBG, pages 70-75.)

More on the "yes" answer: Yes, an owner is subject to the strict $25,000 EPA fine if caught tampering with the emission control devices on their truck. However, and this is a big "however," the way I see it is that the EPA has much bigger fish to fry than an individual that modifies his truck or automobile.

If I were from the EPA, the first place I would go to crack down on non-compliance would be to the Walmart magazine rack and pick up the latest copy of Diesel-This-and-That. Turn to any page and you'll see the advertisement for "BlackSmoke.com's" latest Ford, GM or Cummins EGR delete kit. Turn to the next page and you'll see the advertisement for an ECU programmer. Wow, turn to our page 130 and the press release for an entire exhaust system that deletes the entire aftertreatment components.

More on the "but" answer: Looking at the big picture, prior to the 6.7-liter engine, but more specifically the 1/1/2007 emissions legislation date for all the manufacturers, there was not a central meeting or gathering of the aftermarket and EPA officials. Since 1/1/07 the aftermarket cannot say that the EPA has not given out dire warnings. The aftermarket cannot say that California's Air Resource Board (CARB) hasn't issued strict guidelines. The big meeting where the announcements about "look the other way" prior to 1/1/07 and "we intend to enforce" after 1/1/07 occur each year at the Specialty Equipment Market Association's (SEMA) meeting that is held in November. We have written about these meetings several times in the TDR. The reference location for dialog from previous SEMA meetings: TDBG, pages 70-75. It is a long and twisted story.

Further, looking at the big picture, emissions tests are done on a state by state and, in the case of my state, local region (a metropolitan city) by local region basis. These state emissions testers don't have a hot line to the EPA, they just do their job and send folks home to "clean up their act" if they do not pass the local test criteria. If my assessment of the emission test is different in your state, please let me know.

So, with the exception of California and a handful of other states, there is not a steadfast emissions check criteria for engines/trucks prior to 1/1/07. I've attended the SEMA meetings. The editorial staff has heeded the EPA's warnings.

I'm not going to jeopardize the magazine, this club, or my family's financial well being by telling you how to make illegal modifications. It surprises me the number of folks that do so on the different internet forums. I'll be happy to review and discuss 6.7-liter aftermarket products that have been through the EPA and CARB EO process. As mentioned, thus far I have nothing to report. Vendors, if I've missed something, please let me know.

Robert Patton
TDR Staff

CLEANING YOUR DIESEL PARTICULATE FILTER (DPF)

ISSUE 84 – TECHNICAL TOPICS

by Robert Patton

In this issue I have a letter from TDR member William Westwood who is looking ahead at doing some preventive maintenance on his '07.5 truck's exhaust aftertreatment system. "How to?" asks William. I call the folks at Cummins to try and help with an answer. The following is my response to William.

I have a '07.5 Turbo Diesel and it is equipped with the 6.7-liter engine and the associated exhaust aftertreatment equipment.

I'm looking to do some preventive maintenance on my truck at 125,000 miles. How can the do-it-yourselfer clean the diesel particulate filter (DPF)? Would this not be analogous to the grandparents cleaning ashes and soot from their chimney?

You can watch video on the internet where folks are shown using water and a Simple Green solution. Likewise, I have been told that brake cleaner works well. However, with the price of a new DPF, I am hesitant to try these shadetree solutions (literally). Are there some proven alternatives?

A local diesel shop says that they can clean the DPF at a cost of about $350. Unlike the grandparents' ashes and soot, there is concern here in California about disposal and hazardous waste. Grandpa and Grandma dumped the ashes in the garden compost. The guys from the video on the web let the black stuff dissolve into their gravel driveway.

Any ideas? And, clarification please, on the honeycomb substrate material used in the DPF.
William Westwood
Sonoma, CA

Any ideas on how to clean the DPF?

William asked, "Any ideas?" You bet. First, admit that I don't know the answer and ask for some help from Cummins.

The really short answer: whether it be the '07.5-'12 truck that uses diesel fuel to lightup and regenerate the diesel particulate filter (think to yourself, self-cleaning oven), or the '13-'14 trucks that inject urea into the DPF, the DPF should *never* have to be removed for cleaning. That's right, never.

I know, you find that answer to be suspect, after all we all know, have read about, or have experience with the "Diesel Particulate Filter full" message on the overhead display.

I vividly recall the introduction of the 6.7-liter engine in January of 2007. And, should you want a history lesson on Cummins, big oil companies, the EPA, ultra low sulfur fuel, and this engine's early introduction to the marketplace (it met the 2010 emissions guidelines), you'll want to reread Issue 78, pages 52-53.

Back to the story: the introduction in January 2007. The product launch had its share of teething problems. Cummins and Ram had a series of reflashes to update the engine's control of the exhaust aftertreatment. Cummins and Ram put together a DVD with TDR writer Sam Memmolo as the host that discussed the engine's aftertreatment. The video dispelled the buzz of misinformation about the engine. The bottom line—use the truck like a truck. At the time, putzing around town was causing too many of the bells and whistles to sound. Over time, and with the approved reflashes to update the controls, the engine has settled down and warranty numbers are lower than they have ever been. (Really, lower than the great '03-'07 engines, lower than 12-valve engines. This isn't marketing hype. It is from the blue-collar folks at the plant, CMEP, whose job it is to track the numbers.)

Okay, let's get back to the short answer of "never" and the long, long answer to William Westwood's inquiry.

Before calling Cummins I did the same research as William and found the same internet videos that show a liquid-type DPF clean-up. Realizing that Cummins is so much more than a 6.7-liter engine in a Ram pickup, what were/are their thoughts on liquid clean-up? Remember now, they've seen it all: from big rigs to construction equipment to generator sets. The answer: DO NOT use a liquid or brake cleaner as a clean up method. The concern is the ash mixed with a liquid can form a paste that, considering the tight tolerances of the DPF's honeycomb grid, when finally dry would render the DPF clogged and useless.

Again, realizing that Cummins is so much more than the 6.7-liter engine in the Ram pickup, I asked what was happening elsewhere in the industry and would they please help me relate the answer to William Westwood's "clean the DPF for $350" chimney sweep findings.

I went back to the internet and found several manufacturer-type and service organization-type videos to watch. The $350 "clean it" involves removal of your DPF; mount the DPF in an enclosed chamber; affix inlet and outlet collars to the DPF; and then blow high pressure air through the DPF. A phone call to my local Cummins distributor confirmed that that's the way they do it on the big rigs. And, the TDR audience should realize that the big rigs have a problem with ash build up in their DPFs. The ash is caused by lube oil that is burned as it escapes past the piston rings. With the 6.7-liter engine in the pickup the only problem is soot and the soot is cleaned in the regeneration process.

Yes, they make cabinets that will heat and pressure clean DPFs to clean them if they are contaminated with lube oil or coolant from a fouled engine.

So, this brings us back to the original short answer from Cummins—the Ram's DPF should never have to be taken off for cleaning. (Our engines do not suffer from oil consumption problems.)

SIDEBAR

IS THERE A DIFFERENCE FOR THE 2013-2014 TRUCKS?

If you read the article closely, the '13 and '14 trucks were discussed in my opening remarks to William (second paragraph) and the DPF should never have to be removed for cleaning.

End of conversation?

Not so fast.

As it turns out, the DPF used on '13 and '14 trucks is a bit different than that used in the '07.5-'12 trucks. When I discovered this, I immediately (logically?) made the assumption that the change was made to allow the use of urea with the DPFs self-cleaning oven. Not so.

For the 2013 and now 2014 trucks the material used inside the DPF is made of silicon carbide (SiC). The previous '07.5-'12 DPF used a material known as cordierite.

The new SiC cores are more expensive than those made of cordierite. However, the smaller packaging area of the 2013-2014 truck's undercarriage required the use of the more expensive SiC core. As a side note, I did learn that the SiC core also has a higher melting point than the cordierite core. The higher melting point gives the DPF a bigger cushion should there be unplanned problems with the aftertreatment or over-fuelling. The SiC units melt at approximately 1700°, the cordierite at approximately 1250°.

So, yes, there is a difference in the material used inside the DPF. However, the change was not necessarily related to the use of urea in the exhaust aftertreatment.

TECHNICAL SERVICE BULLETINS FOR 2012

ISSUE 78 – TDRESOURCE

Have we not all heard comments by those unfamiliar with the Ram Turbo Diesel (a prospective buyer of either a new or used truck, or a visitor on the internet or at the truck show) that "the Turbo Diesel certainly has its share of problems"? To them, no doubt, the grass looks greener on the other side. However, thanks to the TDR membership group and the support from Chrysler and Cummins, we are equipped with answers and solutions, rather than the dismay and isolation that would exist without a support group.

THIS YEAR'S TECHNICAL SERVICE BULLETINS

Each year as a service for the TDR membership I purchase a subscription to Chrysler's online service and data system (www.techauthority.com). New for this year, the TechAuthority site offers an index of factory technical service bulletins (TSBs) that have been released in the past year. I scroll through the index and print those bulletins that are pertinent to all Turbo Diesel trucks (all years, all models with cab and chassis included). With the bulletins in hand, I summarize the bulletin for publication in the magazine. Should you need a complete copy of the bulletin, you can contact your dealer with Issue 78 in hand; or armed with your truck's vehicle identification number (VIN) and a credit card you can log on to www.techauthority.com and, for $35, you can view/print all of the TSBs that apply to your vehicle. The $35 buys you three consecutive days of access. However, just like last year I found theTechauthority website to be cumbersome to navigate. More on this later.

In an effort to consolidate the TSBs for the magazine, we're going to use the same index system categories as Chrysler. Below are the index categories.

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

A note concerning the TSBs and their use: The bulletins are intended to provide dealers with the latest repair information. Often the TSB is specific to the VIN. VIN data on the Chrysler service network helps the dealer in his service efforts. A TSB is not an implied warranty.

WHAT DO THE MODEL CODES MEAN?

Throughout our summary pages you'll see model codes listed for the various Dodge trucks. The following is a chart of the model code meanings.

Series	**'08**	**'09**	**'10**	**'11**	**'12**
2500 Pickup	DH	DH	DJ	DJ	DJ
3500 Pickup	D1	D1	D2	D2	D2
3500 C/C	DC	DC	DC	DD	DD
4500 C/C	DM	DM	DM	DP	DP
5500 C/C	DM	DM	DM	DP	DP

NEW RELEASES

Again, with the service at www.techauthority.com we've gathered information on Ram Technical Service Bulletins that have been released *only* during the past year. If you wish to review *all* of the TSBs for Third or Fourth Generation trucks, we have archived those as well as this update at the TDR's web site (Site Features: TSBs). Also, TDR Issues 66 and 58 have larger listings that allow the Third Generation owner to review the TSBs issued from 2003 to 2009.

Likewise, using Issue 74 and 70 as your resource, you can review the TSBs that were issued in calendar years 2011 and 2010.

TECH AUTHORITY STUMBLES

In my previous yearly updates the Tech Authority web site would ask for your VIN and the VIN number would unlock a world of information.

After my frustration last year using the VIN for search purposes, I learned to spend my money ($35) and troll the site to finally discover the TSBs for 2012. With this magazine's summary we've saved you from fumbling around. That is part of the reason you're reading the TDR, right? You trust the TDR's writers and staff to sift through the minutiae and bring you only the important details.

As a secondary feature to the TSB review, I find myself saying, "we've been there, done that." So, after my summary of a TSB, you may find additional commentary and/or page numbers from TDR magazines to give you further insight into the story.

I'm hopeful our yearly TSB summary is helpful to you.

Robert Patton
TDR Staff

CATEGORY 8 ELECTRICAL

TSB# | **MODEL** | **SUBJECT/DESCRIPTION**

08-011-12
2/8/102

'12 DJ/DD/D2/DP

Radio anti-theft codes.

Starting in model year 2012 radios will come equipped with an anti-theft feature. Once a radio is installed in a vehicle, it learns the vehicle's VIN and cannot be used in another vehicle unless an anti-theft code is applied.

This "information only" TSB tells the dealer how to obtain the radio's anti-theft code. This bulletin also supersedes bulletin 08-051-11 dated 8/20/11 by providing updated service information

Editor's Comments – Radios

Have you tried to restore a car with a "coded" radio? I've been playing with BMW coded radios from cars that are now 25 years old. What a pain in the tail.

This brings several questions to mind: In today's market, where a replacement can be purchased for $69, does theft occur that often? Why is Chrysler 30 years behind the theft code thing? What implications will this have to Joe-second-owner/Joe-restoration who does not have TSB 08-011-12 to tell him how the dealer can unlock a code?

Geez.

CATEGORY 9 ENGINE

TSB# | **MODEL** | **SUBJECT/DESCRIPTION**

09-004-11
9/12/11

Any Cummins diesel engine that is still covered under the provisions of the factory warranty.

Dust-out diagnosis for Cummins diesel engines.

This "information only" bulletin involves proper inspection procedures to determine engine failure due to dust-out condition. Engines damaged due to the infiltration of dirt and/or debris through the air intake system are not warrantable.

Engines that exhibit particular symptoms that may have been caused by improper air filtration and/or lack of proper maintenance. Some of these symptoms are listed below (not limited to):

Knocking
Hard or no start
Low power/poor performance
Oil consumption
Lower end bearing failure
Broken rod
Smoking
Blow-by (rings not sealing)
Oil on turbo (dust damage to seal/bearing)

This nine-page bulletin supersedes bulletin 09-001-10 dated 7/2/10 and gives the service network an easy to print/easy to follow diagnosis procedure. The highlights:

- Major mechanical damage can be caused by fuel, fuel injectors, up-rate kits or programmers. Inspect vehicle for any device that adds more power (fuel), which may damage the engine mechanically. Check for any aftermarket power enhancer box or downloader. Repairs performed on engines with failures caused by these devices do not qualify for warranty coverage.
- Inspect for aftermarket cold air performance air filter housing, duct work and/or air filter type (wrong style air filter which may be used in a stock air filter box).
- Vehicles with extremely large amounts of visible dirt accumulation are candidates for dust out damage if not properly maintained or use of improper filters. Engines with excessive cylinder and/or ring wear will consume excess oil. Look for oil spilled near filler on valve cover which may indicate oil has been (or is) added often.

As mentioned, the bulletin continues for nine-pages that show the cause/effect from lack of proper air filtration.

CATEGORY 9 ENGINE

Editor's Comments – Dust Out

If you spend a day answering the tech line at Geno's Garage you would be surprised at the number of phone calls asking about air filters and cold air boxes.

The staffs' answer: If you value your rights to warranty consideration, leave the air intake system alone.

Prior to this TSB there was the 09-001-10 TSB. Prior to these TSBs there was the "K&N story," the short version being that testing was done on this filter in 1999 by Dodge and Cummins. Prior to the test, K&N was the number two selling item at Geno's Garage. After the test, K&N filters were no longer offered by Geno's. However, folks still want to know more as aftermarket advertising does an admirable job of selling these parts. So, if you need to help control exhaust gas temperatures due to the high horsepower you are making, you should consider a cold air box and a multi-layer filter. The Geno's folks do sell a multi-layer filter. See TDR Issue 56, page 150 and Issue 59, page 130 for the cold air box story. See TDR Issue 34, page 105 and Issue 77, page 56, for the K&N story.

CATEGORY 14 FUEL SYSTEM

TSB#	MODEL	SUBJECT/DESCRIPTION
14-004-11 4/1/11	'03-'09 (D1/DH/DR) '07-'10 (DC)	*Heavy duty filtration – Mopar retrofit or add on parts available.* This bulletin applies to D1/DH/DR vehicles equipped with a 5.9-liter Cummins engine built from 2003 model year and D1/DH/DC vehicles equipped with a 6.7-liter Cummins engine built from 2007.5 model year. Several fuel system add-on or retrofit parts are available to enhance the filtering capability for customers exposing their vehicles to extremely dirty conditions. The description of parts available for Cummins diesel equipped vehicles is listed below:

5.9-Liter Changes – Air Filter

- 5.9 upgraded air filter. This filter is similar in design to the current 6.7-liter air filter. The part number is: 53034249AA – Element, Air Filter – 2003-2007 5.9-liter

6.7-Liter Changes – Fuel Filter

- New fuel filter. This is the FS2 design. (5 and 10 micron filter-in-filter) fuel filter to retrofit earlier models (shell and element).

  68061633AA – FS2 Element, fuel filter and shell.

  68061634AA – FS2 Element, fuel filter – This filter to supersede the original 5183410AA filter when supplies are exhausted.

6.7-Liter and 5.9-Liter Changes – Tank Ventilation

- Fuel tank vent hose. 5.9 and 6.7 add-on or upgraded fuel tank vent hose kit with vent cap.

  68068997AA – Fuel Tank Vent ($66.10).
  Must be used in conjunction with the appropriate Fuel Tank Vent Kit listed below:

  68051906AA – Kit, Severe Duty Fuel Tank Ventilation – DC 52 Gallon Tank ($32.95)

  68061341AA – Kit, Severe Duty Fuel Tank Ventilation – D1/DH 35 Gallon Tank ($58.85)

  68061342AA – Kit, Severe Duty Fuel Tank Ventilation – D1/DH 34 Gallon Tank ($63.20)

6.7-Liter and 5.9-Liter – Auxiliary Fuel Filter

- Severe duty fuel filter kit. This kit supplies the owner with an auxiliary fuel filter, mounting bracket for under the frame installaiton, hoses, hardware and electrical connections to add annother fuel filter to the truck.

  68083851AA kit, '07-'12 Cab and Chassis

  68083853AA kit, '04-'12 Pickup (2500/3500)

  68026934AA wiring adaptor, for use with kit 6808353AA and in the model years '04.5-'07

CATEGORY 14 FUEL SYSTEM

Editor's Comments – HD filtration

This is one of those "been there, done that" TSBs. We discussed the merits of this TSB and specifically the "6.7-liter and 5.9-liter – Auxiliary Fuel filter" in last issue's magazine, Issue 77, pages 14-16.

In the cost analysis/conclusion part of the article, I closed by saying, "Ding, ding, ding, bottom line, what is the cost analysis?" The Mopar kit will cost about $450. From last issue, my "Fool Transfer Pump/Boy Scout" project for the '05 to current trucks cost $625.

"The Fool Transfer Pump/Boy Scout project gives you better filtration and a redundant pump for fuel supply. However, its installation requires removal of the fuel tank. Nonetheless, for my peace of mind, I'll spend the $625 and do the extra labor for the fool solution that I presented in Issue 76. Your decision?"

A lot can happen in the 11 months from the beginning of a project to magazine-in-hand. However, I continue to stand behind my decision to use the redundant FASS "Platinum 08-95G" fuel transfer pump and filter as I wrote about in Issue 76, pages 16-21.

CATEGORY 18 VEHICLE PERFORMANCE

TSB#	MODEL	SUBJECT/DESCRIPTION
18-004-11 Rev. B 12/21/11	'10 (DJ/D2)	*Diagnostic and system improvements.* This bulletin supersedes service bulletin 18-004-11 Rev. A, dated February 18, 2011. This bulletin applies to vehicles equipped with a 6.7-liter Cummins engine. The software flash provides a number of software improvements/enhancements. These include: P049D – EGR control position exceeded learning limit P2002 – Diesel particulate filter efficiency below threshold P2195 – 02 sensor 1/1 out of range high P2196 – 02 sensor 1/1 out of range low P2270 – 02 sensor 1/2 out of range high P2271 – 02 sensor 1/2 out of range low P241A – 02 sensor 1/1 and 1/2 oxygen concentration mismatch P2609 – Intake air heater system performance The previous TSB had software improvements for: P046C – EGR position sensor performance P051B – Crankcase pressure sensor circuit range/performance P0101 – Mass air flow sensor "A" circuit performance P245B – EGR cooler bypass status line intermittent P2262 – Turbocharger boost pressure not detected – mechanical The bulletin involves selectively erasing and reprogramming the engine control module (ECM) with new software.

CATEGORY 18 VEHICLE PERFORMANCE

TSB#	MODEL	SUBJECT/DESCRIPTION
18-045-11 10/19/11	All 6.7-liter diesel-equipped vehicles	*Cummins 6.7-liter Turbo Diesel common diagnostic process.* This bulletin supersedes service bulletins 09-002-09 dated June 13, 2009; 09-003-09 dated December 2, 2009; and 11-001-09 dated July 23, 2009. This diagnostic process was developed for any drivability concern with the 6.7-liter engine. Non-drivability engine issues or engine cooling system issues are not in the scope of this process. The process begins by identifying the customer's concern and applying it to one of the following symptoms: • MIL illumination • Engine cranks but does not start or starts and immediately stalls • Engine surges, bucks, runs rough – no MIL • Engine noise – no MIL • Excessive black smoke out exhaust – no MIL • Excessive white smoke out exhaust – no MIL • Excessive blue smoke out exhaust – no MIL Once the data has been collected and analyzed, the diagnostic process can continue. The tests are designed to direct the service technician to the diagnostic path that leads to corrective actions that repair conditions that occur most frequently for that specific concern.
18-005-12 1/28/12	'11 (DD/DP)	*Engine systems and PTO enhancements.* This bulletin supersedes service bulletin 18-029-11 dated December 17, 2011. Cab chassis trucks equipped with a 6.7-liter Cummins diesel have a number of software improvements available. This latest Service bulletin will include: Improvements to prevent unnecessary malfunction indicator lamp (MIL) illumination for: • P0524 – Engine oil pressure sensor circuit low • P051B – Crankcase pressure sensor circuit range/performance • P20EE – SCR NOx catalyst efficiency below threshold – Bank 1 • U010E – Lost communication with diesel exhaust fluid control unit • P2609 – Intake air heater system performance • P061A – ETC level 2 torque performance • P1123 – Power take off system monitor control error • P2579 – Turbocharger speed sensor circuit performance Enhanced diagnostics for: • Variable geometry turbocharger • Fuel level sensor • Misfire without MIL illumination Other updates: • Low diesel exhaust fluid (DEF) level EVIC messaging strategy changes • Diesel Exhaust fluid (DEF) system tampering EVIC messaging strategy changes • Oil change monitor – updated for easier reset (same basic procedure, easier to reset) • Scan tool display updates • Enable mobile PTO capability • Correct operation of remote PTO • Correct EVIC messaging related to DEF level reporting • System robustness improvements DEF tank level reporting erroneously at high DEF tank level. When DEF tank is overfilled, the EVIC may display low fluid level (20-22%). This bulletin involves selectively erasing and reprogramming the engine control module (ECM) with new software.

TSB#	MODEL	SUBJECT/DESCRIPTION
18-001-12 Rev A 1/28/12	'12 (DD/DP)	*Engine systems and PTO enhancements.* This bulletin supersedes service bulletin 18.001/12, dated January 07, 2112. Cab chassis trucks equipped with a 6.7-liter Cummins diesel have a number of software improvements available. This latest service bulletin will include: Improvements to prevent unnecessary malfunction indicator lamp (MIL) illumination for: • P061A – ETC Level 2 Torque Performance • P20EE – ACR NOx Catalyst Efficiency Below Threshold – Bank 1 • P229F – Aftertreatment NOx Sensor Circuit Performance – Bank 1 Sensor 2 • P2609 – Intake Air Heater System Performance • P1123 – Power Take Off System Monitor Control Error • U010E – Lost Communication With Diesel Exhaust Fluid Control Unit Enhanced Diagnostics For: • Selective Catalyst Reduction (SCR) efficiency diagnostic improvements. Other Update: • Idle shutdown message on EVIC. • Turbo protection feature (Not displayed if vehicle is in park or no vehicle speed). Limits RPM at cold ambient to prevent turbo damage. • Scan tool display updates. • Correct operation of remote PTO. • System robustness improvements. The bulletin involves selectively erasing and reprogramming the engine control module (ECM) with new software
18-013-12 3/17/12	'12 (DJ/D2)	*Diagnostic and system improvements.* This bulletin supersedes service bulletin 18-055-11, dated December 17, 2011. This bulletin involves selectively erasing and reprogramming the engine control module (ECM) with new software. The software package has improvements/enhancements available for the following DTC's: • P049D – EGR Control Position Exceeded Learning Limit • P2002 – Diesel Particulate Filter Efficiency Below Threshold • P2195 – 02 Sensor 1/1 Out of Range High • P2196 – 02 Sensor 1/1 Out of Range Low • P2170 – 02 Sensor 1/2 Out of Range High • P2171 – 02 Sensor 1/2 Out of Range Low • P241A – 02 Sensor 1/1 and 1/2 Oxygen Concentration Mismatch • P2609 – Intake Air Heater System Performance Vehicles flashed to address the above codes should be driven and repair validated. If code(s) return, follow diagnostic procedures available in DealerCONNECT/TechCONNECT. The software also updates the ECU with other improvements: • Correct water in fuel (WIF) parameter • ScanTool may report a code as stored, even though the fault has been cleared by completing a significant number of drive cycles without a repeat occurrence. • Active codes not always displayed correctly. • Engine derate with IOD removed. This will help prevent turbo damage due to oil thickening in cold climate start up on new vehicles in transit. • Scan tool readiness reporting issues. • Other drivability enhancements. • EGR Valve cleaning and monitoring enhancements to help reduce occurrences of P049D. • Erroneous, brief brake lamp flash at key on. • Improve EVIC message regarding idle shut down. • Ability to read EGR valve gap an wiTECH

CATEGORY 18 VEHICLE PERFORMANCE

TSB#	MODEL	SUBJECT/DESCRIPTION
18-012-12 3/19/12	’11 (DJ/D2)	*Diagnostic and system improvements.*

This bulletin supersedes service bulletin 18-002-11 Rev. B, dated December 16, 2011. This bulletin involves selectively erasing and reprogramming the engine control module (ECM) with new software. The new software will have improvements/enhancements available for the following DTC’s:

- P0101 – Mass Air Flow Sensor “A” Circuit Performance
- P2262 – Turbocharger Boost Pressure Not Detected – Mechanical
- P2457 – Exhaust Gas Recirculation Cooling System Performance
- P245B – EGR Cooler Bypass Status Line Intermittent
- P049D – EGR Control Position Exceeded Learning Limit
- P2195 – 02 Sensor 1/1 Out of Range High
- P2196 – 02 Sensor 1/1 Out of Range Low
- P2002 – Diesel Particulate Filter Efficiency Below Threshold (for high altitude failures)
- P2270 – 02 Sensor 1/2 Out of Range High
- P2271 – 02 Sensor 1/2 Out of Range Low
- P241A – 02 Sensor 1/1 and 1/2 Oxygen Concentration Mismatch
- P2609 – Intake Air Heater System Performance

Vehicles flashed to address the above codes should be driven and repair validated. If code(s) return, follow diagnostic procedures available in DealerCONNECT/TechCONNECT.

The software also updates the ECU with other improvements:

- WiTech turbo test revision.
- ScanTool may report a code as stored, even though the fault has been cleared by completing a significant number of drive cycles without a repeat occurrence.
- Active codes not always displayed correctly.
- Engine derate with IOD removed. This will help prevent turbo damage due to oil thickening in cold climate start up on new vehicles in transit.
- Enhancement to reduce shift clunk at stop.
- Other drivability enhancements.
- EGR Valve cleaning and monitoring enhancements to help reduce occurrences of P049D.

TSB#	MODEL	SUBJECT/DESCRIPTION
19-002-12 7/12/12	’03-’04 (DR) ’05-’09 (DH) ’06-’09 (D1) ’07-’09 (DC) ’10-’12 (D2/DJ/DD)	*The customer may experience steering wheel vibration typically while driving above 50 mph.*

Vehicles equipped with a solid front axle (4x4 or cab and chassis trucks) can be susceptible to steering shimmy. Often this condition is due to modifications to the vehicle that may involve aftermarket equipment that may not be compatible with the vehicle architecture or is not intended for on-road use. For original equipment, this condition can be corrected with routine inspection for properly maintained wheels and tires and replacement of damaged or worn components.

Troubleshooting of the problem begins with the verification of warranty coverage and discussion with the customer. The technician is directed to test drive the vehicle to confirm the complaint

Next, a long series of inspections, questions, verifications and corrections are presented. The following gives you an example of how the troubleshooting is done:

Is the vehicle equipped with aftermarket components or other modifications (e.g. lift kits, wheels, suspension components or tires) that can affect the performance of or wear upon steering components? If the answer is “yes,” the dealer is to notify the owner and document in the repair order that limited warranties do not cover conditions or damage caused by the use of aftermarket components, improper maintenance, or impact damage can cause steering shimmy or otherwise accelerate the wear of steering components that cause steering shimmy. The dealership can inspect steering components that were supplied by the manufacturer for defects in material, workmanship and factory preparation and determine if necessary repairs are covered under the terms of the warranties applicable to the vehicle. Clearly, aftermarket items may affect who pays for further inspection.

- Inspect the vehicle steering components for any damage.
- Are the tires on the vehicle properly inflated to the correct pressure?
- Do the tires exhibit a condition of excessive wear, cupping or damage?
- Verify proper wheel and tire balance.
- Inspect the steering damper.
- Does the track bar show signs of excessive wear or damage?
- Do the tie rods show signs of excessive wear or damage?
- Does the drag link show signs of excessive wear or damage?
- Verify vehicle wheel alignment is within specification and adjust accordingly.
- Do the ball joints show signs of excessive wear or damage?

Editor’s Comments – Death Wobble

If you spend a day answering the tech line at Geno’s Garage, you would be surprised at the number of phone calls asking about the “Death Wobble.”

More often than not, the customer wants a one-size-fits-all answer to the problem. It is not that easy, and the Geno’s staff suggests that they save money by crawling under the truck to diagnose the problem. So, it is refreshing to see that Dodge has helped us tackle the problem with a step-by-step repair procedure.

The TDR has also covered the death wobble problem and in Issue 74, pages 12-23, we presented “Steering Woes.” If you are having death wobble problems, this article is well worth your reread.

Finally, there is a part not mentioned in the Dodge TSB that can be added to your truck to help stabilize the front end. My guess as to why Dodge didn’t mention a steering box stabilizer is that it is an aftermarket item not offered through the Mopar parts system.

CATEGORY 21 TRANSMISSION AND TRANSFER CASE

TSB#	MODEL	SUBJECT/DESCRIPTION
21-011-11 11/4/11	'11 (DD/DP)	*Difficulty climbing steep grades at maximum gross combined weight rating in third and fourth gear.* This bulletin applies to Cab and Chassis vehicles equipped with a six-speed Aisin automatic transmission. Customers may notice they have difficulty climbing steep grades at maximum gross combined weight rating while the vehicle is in third and fourth gear. This usually happens while towing a trailer. This could also be described as a lug down feeling in third and fourth gear. A new feature has been added to the TCM logic that allows new downshift points for the 4-3 and 3-2 downshifts. These new shift points keep the engine at or near peak horsepower to avoid this performance issue. This bulletin involves flash reprogramming the transmission control module (TCM) with new software.

CATEGORY 23 BODY

TSB#	MODEL	SUBJECT/DESCRIPTION
23-006-10 3/10/10	'10 (D2/DJ)	*Hood creaking and squeaking sound.* This bulletin applies to D2/DJ vehicles built before January 29, 2010. The customer may experience a creaking and/or squeaking sound from the hood area when turning the vehicle and/or going over rough terrain. This repair involves adding Anti-squeak tape to the hood.
23-003-12 2/07/12	All Chrysler vehicles	*Light to moderate paint surface imperfections on factory applied paint finish.* This "information only" bulletin applies to vehicles with isolated light to moderate paint surface imperfections (scratches, bird dropping stains, chemical etching, etc.) on factory applied paint. The bulletin outlines a list of Meguiar's products that can be used to clean the paint. Service personnel are reminded to always begin with the least aggressive method to remove a paint condition. Work one section at a time. Always work on a cool paint surface free of bonded surface contaminants. Should above surface defects be present; prepare the surface with Meguiar's Detailing Clay. ***Editor's Comments – Paint Detailing*** ***When it comes to detailing a truck or car, nothing replaces good lighting, a sharp eye and lots of elbow-grease.*** ***Again, the TDR and its writers have "been there, done that," and the most recent article on detailing your truck is found in Issue 68, pages 58-65.***
23-019- 126/19/12	'12 (DJ/DD/D2/DP)	*Shaking motion in left rearview tow mirror assembly.* This bulletin applies to vehicles built before January 10, 2012. This bulletin involves inspecting and, if necessary, replacing the left rearview tow mirror assembly.

Body Style: Regular Cab, Crew Cab and Mega Cab

Layout: Longitudinal front engine, 2WD or 4WD

Seat Layout: Regular Cab: 2 or 3, Crew Cab and Mega Cab: 2/3 or 3/3

EPA Vehicle Class: Standard Pickup Truck

Assembly: Saltillo Assembly Plant, Coahuila, Mexico

RAM INTRODUCES "NEW CREW" OF ULTIMATE HEAVY DUTY PICKUP TRUCKS: 2010 RAM 2500 AND 3500

Ram continues to raise the bar with the boldest, most powerful and capable pickup truck lineup on the planet with the introduction of the all-new 2010 Ram Heavy Duty lineup, offering first-time innovations and features along with new standards of strength, utility and driveability.

The backbone of 2010 Ram Heavy Duty pickups is a hydro-formed, fully boxed frame with advanced torsional rigidity and stiffness. A coil-spring suspension setup is used up front, while the multi-leaf spring design is maintained in the rear for heavy-duty capability. Front and rear shocks and springs are tuned for optimum ride quality and capability.

Customers in the heavy-duty segment have a range of needs, and most of them involve high levels of capability. The new 2010 Dodge Ram 2500 and 3500 are designed to deliver a total package:

- Increased Gross Vehicle Weight Rating (GVWR) on 2500 4x4 crew cab diesel models to 9,600 pounds from 9,000 pounds
- Increased Gross Combined Weight Rating (GCWR) on 3500 dually models with diesel, auto transmission and 4.10 rear axle to 24,500 pounds from 24,000 pounds
- Increased GCWR on 3500 4x2 models to 24,000 pounds from 23,000 pounds
- Increased front Gross Axle Weight Rating (GAWR) on several models:
  - To 5,500 pounds from 5,200 pounds on diesel 4x4 pickups
  - To 5,000 pounds from 4,700 pounds on diesel 4x2 pickups

Suspension upgrades and larger front axle U-joints, combined with increased front GAWR, result in increased front-weight carrying capability – a must for larger snowplows.

(continued on next page)

NEW FOR 2010

- **Available for the first time in a crew-size cab model**
- **Choice of legendary diesel- and gasoline-fueled powerplants**
  - **Available 6.7-liter Cummins® Turbo Diesel produces 350 horsepower (261 kW) at 3,000 rpm and 650 lb-ft. of torque (881 N•m) at only 1,500 rpm. The 6.7-liter meets the most stringent of 50-state emission requirements and includes a segment-exclusive standard exhaust brake**
  - **Standard 5.7-liter HEMI® V-8 delivers 383 horsepower (286 kW) at 5,600 rpm and 400 lb.-ft. of torque (542 N•m) at 4,000 rpm and features variable-valve timing for greater efficiency and performance**
- **Ride greatly improved over previous generation with re-tuned suspension components**
- **New C-pillar with fluid-filled hydro mounts improves driving dynamics**
- **Handling of fully loaded vehicle greatly improved over previous generation with new suspension tuning**

(continued on next page)

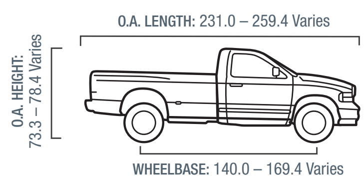
MODELS / POWERTRAINS

MODEL	ENGINES		TRANSMISSIONS		
	5.7-LITER HEMI V-8	6.7-LITER TURBO DIESEL	5-SPEED AUTO (545RFE)	6-SPEED MANUAL (G56)	6-SPEED AUTO (68RFE)
ST	S	O	S	S*	O*
SLT	S	O	S	S*	O*
TRX	S	O	S	S*	O*
Power Wagon	S	–	S	–	–
Laramie	S	O	S	S*	O*

* Diesel

DIMENSIONS, IN.

Regular Cab Shown.



O.A. Width[(a)]: 78.9, 79.1

Track, Front: 68.6 2WD, 68.3, 69.5 4WD

Track, Rear: 68.2, 75.8

[(a)] SgRP front

2010 RAM 2500/3500 HEAVY DUTY OVERVIEW

- **Ram Heavy Duty 3500 with dual-rear-wheels, diesel engine, automatic transmission and 4.10 rear axle has an increased Gross Combined Weight Rating (GCWR) of 24,500 pounds from 24,000 pounds**
- **Max Tow Package GCWR increases to 25,400 pounds (late availability)**
- **Ram Heavy Duty 3500 offers superior towing capability at 17,600 pounds and a maximum payload of 5,150 pounds**
- **Ram Heavy Duty 2500 Gross Vehicle Weight Rating (GVWR) increases to 9,600 pounds from 9,000 pounds, a 600 lb. increase on crew cab and Mega Cab 4x4 models equipped with the Cummins Turbo Diesel engine**
- **Increased front Gross Axle Weight Rating (GAWR) of 5,500 pounds on 4x4 models equipped with the 6.7-liter Cummins Turbo Diesel engine allows for more front-weight carrying capability, including greater snowplow weights**
- **Class IV receiver standard on all Ram Heavy Duty models**
- **Premium front seats with heat and ventilation; heated rear seats; heated steering wheel; automatic temperature control; two-tone upholstery; memory seats, radio and mirrors; navigation; adjustable pedals and numerous infotainment options, including SIRIUS Backseat TV™ with three channels of programming, Uconnect Multimedia with a 30-gigabyte hard drive and an available first-in-segment 10-speaker surround-sound system**
- **Offered in three cab styles (regular cab, crew-size cab and Mega Cab) and two cargo-box sizes (6 feet 4 inches and 8 feet), single-and dual-rear-wheel configurations**
- **All-new integrated trailer brake controller, offered with trailer tow package, improves trailer braking and stability**
- **Available in five distinct trim levels – ST, SLT, TRX, Laramie and Power Wagon**
- **Dual-rear-wheel fenders (3500 dually only) are new for 2010 and are integrated into the box stamping providing a sleek aerodynamic appearance**
- **B20 package available to fleet customers only**

Towing capability is a strong suit with the new 2010 Ram 2500 and 3500 pickups, with the only standard exhaust brake in the segment (diesel-equipped models). This feature prolongs brake life and provides confidence and safety when hauling heavy loads on downhill grades. Large front (360 mm) and rear (358 mm) brakes with integrated Anti-lock Brake System (ABS) increase brake life and braking stability.

An available integrated trailer brake control provides better driver control in towing situations. Trailer brake control information is conveniently displayed in the Electronic Vehicle Information Center (EVIC) which is standard on diesel models and available on gas SLT, TRX and Laramie models.

In addition, new 2010 Ram transmissions include Electronic Range Select, which enables the driver to manually limit the highest available transmission gear, allowing manual upshifts and downshifts based on road speed and engine speed. A tow/haul mode switch enhances tow capability while towing. Tow/haul mode is standard on both five-speed and six-speed automatic transmissions.

In terms of power, the new 2010 Ram Heavy Duty tops the charts with the legendary 6.7-liter Cummins Turbo Diesel engine, which produces 350 horsepower (261 kW) at 3,000 rpm and 650 lb.-ft. of torque (881 N•m) at only 1,500 rpm.

The most durable and reliable engine in its class, the 6.7-liter Cummins Turbo Diesel features standard oil-change intervals of 7,500 miles. It also has life-to-major overhaul intervals of 350,000 miles, providing more than a 100,000-mile advantage over the competition.

And it's as clean as it is durable. In order to meet stringent 2010.5 diesel emissions requirements, the Cummins 6.7-liter Turbo Diesel engine uses a diesel particulate filter (DPF) to virtually eliminate particulate matter emissions and an absorber catalyst to reduce oxides of nitrogen (NOx) by as much as 90 percent.

Backing up the 6.7-liter diesel is a choice of either a G56 six-speed manual transmission or a 68RFE six-speed automatic transmission. The six-speed manual has an ultra-low first-gear ratio, which makes it ideal for heavy hauling requirements, while the six-speed automatic offers ease of driveability and towing.

The other choice for 2010 Ram Heavy Duty customers is the standard 5.7-liter HEMI® V-8 gasoline engine, delivering 383 horsepower (286 kW) at 5,600 rpm and 400 lb.-ft. of torque (542 N•m) at 4,000 rpm.

The 5.7-liter HEMI comes standard with the heavy-duty 545RFE five-speed automatic. It offers Electronic Range Select and tow/haul capability that provide a unique shift schedule that minimizes gear hunting while towing heavy loads. It also provides automatic downshift capability while decelerating.

Ram Power Wagon returns for the 2010 model year, equipped with electric-locking front and rear differentials, electronic disconnecting sway bar, Bilstein shocks, 32-inch BF Goodrich off-road tires, underbody skid-plate protection, 4.56 axle ratio for hill climbing and a custom-built Warn® 12,000-lb. winch is accessible through the front bumper. The exterior has been enhanced with a new two-tone paint scheme and graphics package.

New dual-rear-wheel fender flares (3500 dually only) are now integrated into the sheet metal box stamping and offer an appearance that communicates quality and achieves improved aerodynamics.

Inside, the new 2010 Ram Heavy Duty offers abundant amenities, comfort and convenience. A new-for-2010 available center console features an upper bin that is large enough to hold a laptop computer (with an accessible power outlet), and a lower bin that accommodates hanging files. In addition, the console offers several other storage compartments.

2010 RAM 2500/3500 HEAVY DUTY OVERVIEW

New 2010 Ram 2500 and 3500 Mega Cab models retain their title of best-in-class interior room in the segment – including the largest, longest cab (143.2 cubic feet,111.1 inches long); largest interior cargo volume (72.2 cubic feet); largest cargo volume behind rear seat (7.7 cubic feet); largest flat-floor load area (16.8 square feet); largest second-row leg room (44.2 inches); largest rear-door opening (34.5 inches wide, 35.5 inches high); largest rear-door open angle (85 degrees); and first-ever reclining rear seats (22- to 37-degree seat-back angle).

Expanding business and commercial work applications, the 2010 Ram 2500 is available in a Box-Off configuration. Combining "Ram-tough" power and strength with enhanced handling, safety and durability, Ram 2500 Box-Off successfully blends the needs of the commercial and heavy-duty pickup truck customer.

2010 RAM 2500/3500 HEAVY DUTY AT A GLANCE

- The New Crew: the 2010 Ram Heavy Duty is available for the first time in a crew-size cab model – providing Ram with a formidable entry in the highest-volume part of the heavy-duty pickup segment (approximately 50 percent)
- Cummins and HEMI®: Choice of legendary diesel- and gasoline-fueled powerplants
  - – 6.7-liter Cummins Turbo Diesel produces 350 horsepower (261 kW) at 3,000 rpm and 650 lb-ft. of torque (881 N•m) at only 1,500 rpm. The 6.7L meets stringent 50-state emission requirements and includes a segment-exclusive standard exhaust brake
  - – 5.7-liter HEMI V-8 delivers 383 horsepower (286 kW) at 5,600 rpm and 400 lb.-ft. of torque (542 N•m) at 4,000 rpm. Features Variable-valve Timing (VVT) for greater efficiency and performance
- Improved driving dynamics:
  - – Ride greatly improved with re-tuned suspension components
  - – New C-pillar with fluid-filled hydro mounts
  - – Handling of fully loaded vehicle greatly improved with new suspension tuning
- Ram 3500 with dual-rear-wheels, diesel engine, automatic transmission and 4.10 rear axle has an increased Gross Combined Weight Rating (GCWR) of 24,500 pounds from 24,500 pounds
- Ram Heavy Duty 2500 Gross Vehicle Weight Rating (GVWR) increases to 9,600 pounds from 9,000 pounds, a 600 lb. increase on Crew Cab and Mega Cab 4x4 models equipped with the Cummins Turbo Diesel engine
- Increased front Gross Axle Weight Rating (GAWR) of 5,500 pounds on 4x4 models equipped with the 6.7-liter Cummins Turbo Diesel engine allows for more front-weight carrying capability including greater snowplow weights
- Premium front seating with heat and ventilation; heated rear seats, heated steering wheel; automatic temperature control; two-tone upholstery; memory seats, radio and mirrors; navigation; adjustable pedals and numerous infotainment options including SIRIUS Backseat TV™ with three channels of programming, Uconnect™
- Multimedia and an available first-in-segment 10-speaker surround-sound system
- Numerous storage options including in-floor storage
- Ram Heavy Duty 3500 offers superior towing capability at 17,600 pounds and a maximum payload of 5,150 pounds
- Offered in three cab styles (regular cab, crew-size cab and mega Cab) and two cargo-box sizes (6-foot-4-inches and 8 feet), single and dual-rear-wheel configurations
- Integrated trailer brake controller
- Available in five trim levels – ST, SLT, TRX, Laramie and Power Wagon
- Exterior styling differentiates light-duty and heavy-duty models with unique grille, hood and bumpers
- B20 bio-diesel capability available to fleet customers only

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

2010 DODGE RAM HEAVY DUTY 2500/3500 SPECIFICATIONS

All dimensions are in inches (millimeters) unless otherwise noted. All dimensions measured at curb weight with standard tires and wheels.

GENERAL INFORMATION

Body Styles	Regular Cab, Crew Cab and Mega Cab
Assembly Plants	Saltillo Assembly Plant - Coahuila, Mexico
EPA Vehicle Class	Standard Pickup

ENGINE: 5.7-LITER HEMI® V-8

Availability	Standard on 2500 Series Models(a)
Type and Description	Eight-cylinder, 90-degree V-8, liquid-cooled with Variable-valve Timing (VVT)
Displacement	343 cu. in. (5654 cu. cm)
Bore x Stroke	3.92 x 3.58 (99.5 x 90.9)
Valve System	Pushrod-operated overhead valves, 16 valves, hydraulic lifters with roller followers
Fuel Injection	Sequential, multi-port, electronic, returnless
Construction	Deep-skirt cast-iron block with cross-bolted main bearing caps, aluminum alloy heads with hemispherical combustion chambers
Compression Ratio	9.6:1
Power (SAE net)	383 bhp (286 kW) @ 5,600 rpm, 2500 Series(b)
Torque (SAE net)	400 lb.-ft. (542 N•m) @ 4,000 rpm, 2500 Series
Max. Engine Speed	5,800 rpm
Fuel Requirement	Unleaded mid-grade, 89 octane (R+M)/2—recommended Unleaded regular, 87 octane (R+M)/2—acceptable
Oil Capacity	7.0 qt. (6.6L)
Coolant Capacity	18.7 qt. (17.7L)
Emission Control	Dual three-way catalytic converters, internal engine features with knock sensors(b)

(a) Not available on 3500 Series models.

(b) All manual transmission equipped vehicles meet LEV I chassis-certified emission requirements in California, New York, Massachusetts, Maine and Vermont. Meets Tier 2 HDV 1, 2 chassis-certified emission requirements in 45 remaining states. Ram 2500 and 3500 models equipped with automatic transmission and sold in 45 states meet Tier 2 HDV 1, 2 chassis-certified emission requirements. Ram 2500 models equipped with automatic transmission and sold in California, New York, Massachusetts, Maine and Vermont meet LEV II—MDV 1 category chassis-certified emission requirements. Ram 3500 models equipped with automatic transmission and sold in California, New York, Massachusetts, Maine and Vermont meet LEV II—MDV 2 category chassis-certified emission requirements.

ENGINE: 6.7-LITER HIGH OUTPUT CUMMINS® TURBO DIESEL I-6

Availability	Standard on 3500 Series
Type and Description	Six-cylinder, inline, liquid-cooled, turbocharged, intercooled
Displacement	408 cu. in. (6690 cu. cm)
Bore x Stroke	4.21 x 4.88 (107 x 124)
Valve System	OHV, 24 valves, solid lifters
Fuel Injection	Electronic high-pressure common rail
Construction	Cast-iron block and head
Compression Ratio	17.3:1
Power (SAE net)	350 bhp (261 kW) @ 3,000 rpm
Torque (SAE net)	650 lb.-ft. (881 N•m) @ 1,500 rpm
Maximum High-idle Engine Speed	3,500 rpm
Fuel Requirement	Ultra Low Sulfur Diesel
Oil Capacity	12.0 qt. (11.3L) with filter
Coolant Capacity	29.5 qt. (28.0L)
Emission Controls	Exhaust after-treatment systems and internal engine features

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

ELECTRICAL SYSTEM

Alternator	
Availability	Standard—All
Rating	160-amp
Availability	Optional
Rating	180-amp included with Snow Plow Prep Package
Battery	
Availability	Standard—2500 and 3500 with gasoline engines
Description	Group 65, maintenance-free, 600 CCA
Availability	Standard—All with diesel engines; included in Heavy Duty Snow Plow and Trailer-tow Groups
Description	Group 65, maintenance-free, 750 CCA

TRANSMISSION: G56—MANUAL SIX-SPEED OVERDRIVE

Availability	Standard with 6.7-liter High-output Diesel
Description	Synchronized in all gears
Gear Ratios (6.7L Diesel)	
1st	5.94
2nd	3.28
3rd	1.98
4th	1.31
5th	1.0
6th	0.74
Reverse	5.42

TRANSMISSION: 545RFE—AUTOMATIC FIVE-SPEED

Availability	Standard with 5.7-liter engines on 2500 Series models
Description	Three planetary gear-sets, one overrunning clutch, full electronic control, electronically controlled converter clutch
Gear Ratios	
1st	3
2nd	1.67—upshift; 1.50—kickdown
3rd	1
4th	0.75
5th	0.67
Reverse	3
Overall Top-gear	2.50 with 3.73 axle ratio; 2.75 with 4.10 axle ratio; 2.14 with 3.42 axle ratio

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

TRANSMISSION: 68RFE—AUTOMATIC SIX-SPEED

Availability	Optional with 6.7L Cummins Turbo Diesel engine
Description	Three planetary gear-sets, one overrunning clutch, full electronic control, electronically controlled converter clutch
Gear Ratios	
1st	3.231
2nd	1.837
3rd	1.41
4th	1
5th	0.816
6th	0.625
Reverse	4.444
Overall Top-gear Ratio	2.33 with 3.73 axle ratio; 2.56 with 4.10 axle ratio

TRANSFER CASES: NV271/NV273

Availability	NV271—Standard 4WD ST NV273—Standard Laramie; Optional SLT
Type	Part-time
Operating Modes	2WD; 4WD High; Neutral; 4WD Low
Shift Mechanism	NV271—manual; NV273—electric
Low-range Ratio	2.72
Center Differential	None

2010 DODGE RAM HEAVY DUTY 2500 DIMENSIONS AND CAPACITIES

REGULAR CAB 140.5"WB 8' 0" BOX SRW

	4x2	4x4
Wheelbase	140.5	140.0
Track Width - Front	68.6	68.3
Track Width - Rear	68.2	68.2
Overall Length	231.0	231.0
Overall Width @ SgRP Front	78.9	78.9
Overall Height	73.3	75.7
Suspension or Axle to Ground - Front	7.6	7.5
Suspension or Axle to Ground - Rear	7.4	7.4
Approach Angle	16.4	18.1
Ramp Breakover Angle	16.5	16.9
Departure Angle	22.8	27.6

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

CREW CAB 149.5"WB 6' 4" BOX SRW

	4x2	4x4
Wheelbase	149.4	148.9
Track Width - Front	68.6	68.3
Track Width - Rear	68.2	68.2
Overall Length	237.4	237.4
Overall Width @ SgRP Front	79.1	79.1
Overall Height	73.7	77.7
Suspension or Axle to Ground - Front	7.1	7.4
Suspension or Axle to Ground - Rear	7.3	7.1
Approach Angle	12.5	21.8
Ramp Breakover Angle	15.1	18.2
Departure Angle	23.7	27.0

CREW CAB 169.5"WB 8' 0" BOX SRW

	4x2	4x4
Wheelbase	169.4	168.9
Track Width - Front	68.6	68.3
Track Width - Rear	68.2	68.2
Overall Length	259.4	259.4
Overall Width @ SgRP Front	79.1	79.1
Overall Height	73.5	77.6
Suspension or Axle to Ground - Front	7.1	7.3
Suspension or Axle to Ground - Rear	7.3	7.2
Approach Angle	12.5	21.8
Ramp Breakover Angle	14.1	16.5
Departure Angle	22.7	25.9

MEGA CAB 160.5"WB 6' 4" BOX SRW

	4x2	4x4
Wheelbase	160.5	160.0
Track Width - Front	68.6	68.3
Track Width - Rear	68.2	68.2
Overall Length	248.4	248.4
Overall Width @ SgRP Front	79.1	79.1
Overall Height	74.1	78.3
Suspension or Axle to Ground - Front	7.8	8.1
Suspension or Axle to Ground - Rear	7.8	7.7
Approach Angle	14.0	23.4
Ramp Breakover Angle	15.8	18.3
Departure Angle	24.2	27.6

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

2010 DODGE RAM HEAVY DUTY 3500 DIMENSIONS AND CAPACITIES

REGULAR CAB 140.5"WB 8' 0" BOX DRW

	4x2	4x4
Wheelbase	140.5	140.0
Track Width - Front	68.6	69.5
Track Width - Rear	75.8	75.8
Overall Length	231.0	231.0
Overall Width @ SgRP Front	78.9	78.9
Overall Height	73.6	77.9
Suspension or Axle to Ground - Front	8.0	8.4
Suspension or Axle to Ground - Rear	7.6	7.7
Approach Angle	17.2	25.5
Ramp Breakover Angle	14.4	20.9
Departure Angle	23.1	26.5

CREW CAB 149.5"WB 6' 4" BOX SRW

	4x2	4x4
Wheelbase	149.4	148.9
Track Width – Front	68.6	68.3
Track Width – Rear	68.2	68.2
Overall Length	237.4	237.4
Overall Width @ SgRP Front	79.1	79.1
Overall Height	74.2	78.4
Suspension or Axle to Ground - Front	7.8	8.1
Suspension or Axle to Ground - Rear	7.8	7.8
Approach Angle	13.9	23.4
Ramp Breakover Angle	16.3	19.4
Departure Angle	24.2	27.7

CREW CAB 169.5"WB 8' 0" BOX SRW

	4x2	4x4
Wheelbase	169.4	168.9
Track Width – Front	68.6	68.3
Track Width – Rear	68.2	68.2
Overall Length	259.4	259.4
Overall Width @ SgRP Front	79.1	79.1
Overall Height	74.1	78.3
Suspension or Axle to Ground - Front	7.8	8.1
Suspension or Axle to Ground - Rear	7.8	7.7
Approach Angle	14.1	23.5
Ramp Breakover Angle	15.4	17.6
Departure Angle	23.1	26.4

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

CREW CAB 169.5"WB 8' 0" BOX DRW

	4x2	4x4
Wheelbase	169.4	168.9
Track Width – Front	68.6	69.5
Track Width – Rear	75.8	75.8
Overall Length	249.4	259.4
Overall Width @ SgRP Front	79.1	79.1
Overall Height	74.1	78.3
Suspension or Axle to Ground - Front	7.9	8.3
Suspension or Axle to Ground - Rear	7.6	7.6
Approach Angle	14.4	23.8
Ramp Breakover Angle	12.0	17.8
Departure Angle	22.9	26.3

MEGA CAB 160.5"WB 6' 4" BOX SRW

	4x2	4x4
Wheelbase	160.5	160.0
Track Width – Front	68.6	68.3
Track Width – Rear	68.2	68.2
Overall Length	248.4	248.4
Overall Width @ SgRP Front	79.1	79.1
Overall Height	74.1	78.3
Suspension or Axle to Ground - Front	7.8	8.1
Suspension or Axle to Ground - Rear	7.8	7.7
Approach Angle	14.0	23.4
Ramp Breakover Angle	15.8	18.3
Departure Angle	24.2	27.6

MEGA CAB 160.5"WB 6' 4" BOX DRW

	4x2	4x4
Wheelbase	160.5	160.0
Track Width – Front	68.6	69.5
Track Width – Rear	75.8	75.8
Overall Length	248.4	248.4
Overall Width @ SgRP Front	79.1	79.1
Overall Height	74.1	78.3
Suspension or Axle to Ground - Front	7.9	8.3
Suspension or Axle to Ground - Rear	7.6	7.5
Approach Angle	14.3	23.8
Ramp Breakover Angle	12.5	18.5
Departure Angle	23.9	27.3

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

2010 RAM 3500 TOWING CHARTS

NOTE: BASE WEIGHTS CAN CHANGE

RAM CREW CAB 2WD SHORT BED - ST DJ 2L91

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	3,030	5,769	3,187	2,581	4,750	6,500	15,000	9,100
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	3,030	5,769	3,187	2,581	4,750	6,500	17,000	11,100
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,270	6,731	4,066	2,664	5,000	6,500	19,000	12,100
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,270	6,731	4,066	2,664	5,000	6,500	20,000	13,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,380	6,622	3,971	2,652	5,000	6,500	17,000	10,250
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,380	6,622	3,971	2,652	5,000	6,500	20,000	13,250
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,380	6,622	3,971	2,652	5,000	6,500	20,000	13,250

RAM CREW CAB 2WD SHORT BED - SLT DJ 2H91

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,960	5,839	3,249	2,590	4,750	6,500	15,000	9,000
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,960	5,839	3,249	2,590	4,750	6,500	17,000	11,000
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,180	6,819	4,133	2,686	5,000	6,500	19,000	12,050
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,180	6,819	4,133	2,686	5,000	6,500	20,000	13,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,290	6,710	4,038	2,673	5,000	6,500	17,000	10,150
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,290	6,710	4,038	2,673	5,000	6,500	20,000	13,150
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,290	6,710	4,038	2,673	5,000	6,500	20,000	13,150

RAM CREW CAB 2WD SHORT BED - LARAMIE DJ 2P91

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,950	5,852	3,229	2,623	4,750	6,500	15,000	9,000
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,950	5,852	3,229	2,623	4,750	6,500	17,000	11,000
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,130	6,871	4,164	2,707	5,000	6,500	19,000	12,000
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,130	6,871	4,164	2,707	5,000	6,500	20,000	13,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,240	6,763	4,069	2,695	5,000	6,500	17,000	10,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,240	6,763	4,069	2,695	5,000	6,500	20,000	13,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,240	6,763	4,069	2,695	5,000	6,500	20,000	13,100

RAM CREW CAB 2WD LONG BED - ST DJ 2L92

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,860	5,942	3,329	2,613	4,750	6,500	15,000	8,900
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,860	5,942	3,329	2,613	4,750	6,500	17,000	10,900
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,110	6,885	4,189	2,696	5,000	6,500	19,000	11,950
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,110	6,885	4,189	2,696	5,000	6,500	20,000	12,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,190	6,813	4,149	2,665	5,000	6,500	17,000	10,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,190	6,813	4,149	2,665	5,000	6,500	20,000	13,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,190	6,813	4,149	2,665	5,000	6,500	20,000	13,050

NOTES: Note that all the payload and Max Trail weights are ESTIMATED values.

1. Payload is rounded to the nearest 10 pounds Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 pounds
   Maximum Trailer Weight = GCWR - Curb wt. -150 pounds (allowance for driver)

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

RAM CREW CAB 2WD LONG BED - SLT DJ 2H92

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,690	6,114	3,366	2,747	4,750	6,500	15,000	8,750
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,690	6,114	3,366	2,747	4,750	6,500	17,000	10,750
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,000	6,998	4,207	2,791	5,000	6,500	19,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,000	6,998	4,207	2,791	5,000	6,500	20,000	12,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,070	6,926	4,167	2,760	5,000	6,500	17,000	9,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,070	6,926	4,167	2,760	5,000	6,500	20,000	12,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,070	6,926	4,167	2,760	5,000	6,500	20,000	12,900

RAM CREW CAB 2WD LONG BED - LARAMIE DJ 2P92

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,610	6,187	3,416	2,771	4,750	6,500	15,000	8,650
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,610	6,187	3,416	2,771	4,750	6,500	17,000	10,650
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	1,920	7,083	4,255	2,828	5,000	6,500	19,000	11,750
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	1,920	7,083	4,255	2,828	5,000	6,500	20,000	12,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,990	7,011	4,215	2,796	5,000	6,500	17,000	9,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,990	7,011	4,215	2,796	5,000	6,500	20,000	12,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,990	7,011	4,215	2,796	5,000	6,500	20,000	12,850

RAM REGULAR CAB 2WD LONG BED - ST DJ 2L62

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,650	3,160	5,492	3,062	2,430	4,750	6,500	15,000	9,350
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,650	3,160	5,492	3,062	2,430	4,750	6,500	17,000	11,350
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,490	6,512	4,020	2,492	5,000	6,500	19,000	12,350
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,490	6,512	4,020	2,492	5,000	6,500	20,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,590	6,407	3,926	2,481	5,000	6,500	17,000	10,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,590	6,407	3,926	2,481	5,000	6,500	20,000	13,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,590	6,407	3,926	2,481	5,000	6,500	20,000	13,450

RAM REGULAR CAB 2WD LONG BED - SLT DJ 2H62

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,650	3,130	5,518	3,121	2,397	4,750	6,500	15,000	9,350
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,650	3,130	5,518	3,121	2,397	4,750	6,500	17,000	11,350
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,430	6,569	4,050	2,519	5,000	6,500	19,000	12,300
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,430	6,569	4,050	2,519	5,000	6,500	20,000	13,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,540	6,464	3,955	2,509	5,000	6,500	17,000	10,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,540	6,464	3,955	2,509	5,000	6,500	20,000	13,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,540	6,464	3,955	2,509	5,000	6,500	20,000	13,400

NOTES: Note that all the payload and Max Trail weights are ESTIMATED values.

1. Payload is rounded to the nearest 10 pounds Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 pounds
   Maximum Trailer Weight = GCWR - Curb wt. -150 pounds (allowance for driver)

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

RAM CREW CAB 4WD SHORT BED - ST DJ 7L91

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,560	6,239	3,587	2,652	5,200	6,500	15,000	8,600
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,560	6,239	3,587	2,652	5,200	6,500	17,000	10,600
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,420	7,176	4,434	2,741	5,500	6,500	19,000	11,650
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,420	7,176	4,434	2,741	5,500	6,500	20,000	12,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,500	7,100	4,348	2,752	5,500	6,500	17,000	9,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,500	7,100	4,348	2,752	5,500	6,500	20,000	12,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,500	7,100	4,348	2,752	5,500	6,500	20,000	12,750

RAM CREW CAB 4WD SHORT BED - SLT DJ 7H91

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,460	6,340	3,630	2,710	5,200	6,500	15,000	8,500
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,460	6,340	3,630	2,710	5,200	6,500	17,000	10,500
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,320	7,276	4,546	2,730	5,500	6,500	19,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,320	7,276	4,546	2,730	5,500	6,500	20,000	12,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,400	7,201	4,460	2,741	5,500	6,500	17,000	9,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,400	7,201	4,460	2,741	5,500	6,500	20,000	12,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,400	7,201	4,460	2,741	5,500	6,500	20,000	12,650

RAM CREW CAB 4WD SHORT BED - LARAMIE DJ 7P91

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,400	6,398	3,666	2,732	5,200	6,500	15,000	8,450
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,400	6,398	3,666	2,732	5,200	6,500	17,000	10,450
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,250	7,349	4,580	2,769	5,500	6,500	19,000	11,500
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,250	7,349	4,580	2,769	5,500	6,500	20,000	12,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,330	7,274	4,493	2,780	5,500	6,500	17,000	9,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,330	7,274	4,493	2,780	5,500	6,500	20,000	12,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,330	7,274	4,493	2,780	5,500	6,500	20,000	12,600

RAM CREW CAB 4WD SHORT BED - SLT DJ 7H91- POWER WAGON

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.56	8,510	1,940	6,572	3,832	2,740	5,200	6,500	17,000	10,300

RAM CREW CAB 4WD LONG BED - ST DJ 7L92

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,450	6,345	3,685	2,660	5,200	6,500	15,000	8,500
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,450	6,345	3,685	2,660	5,200	6,500	17,000	10,500
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,320	7,280	4,533	2,747	5,500	6,500	19,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,320	7,280	4,533	2,747	5,500	6,500	20,000	12,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,400	7,200	4,444	2,756	5,500	6,500	17,000	9,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,400	7,200	4,444	2,756	5,500	6,500	20,000	12,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,400	7,200	4,444	2,756	5,500	6,500	20,000	12,650

NOTES: Note that all the payload and Max Trail weights are ESTIMATED values.

1. Payload is rounded to the nearest 10 pounds Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 pounds
   Maximum Trailer Weight = GCWR - Curb wt. -150 pounds (allowance for driver)

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

RAM CREW CAB 4WD LONG BED - SLT DJ 7H92

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,350	6,450	3,685	2,766	5,200	6,500	15,000	8,400
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,350	6,450	3,685	2,766	5,200	6,500	17,000	10,400
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,260	7,335	4,525	2,810	5,500	6,500	19,000	11,500
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,260	7,335	4,525	2,810	5,500	6,500	20,000	12,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,340	7,256	4,437	2,819	5,500	6,500	17,000	9,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,340	7,256	4,437	2,819	5,500	6,500	20,000	12,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,340	7,256	4,437	2,819	5,500	6,500	20,000	12,600

RAM CREW CAB 4WD LONG BED - LARAMIE DJ 7P92

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,270	6,535	3,732	2,803	5,200	6,500	15,000	8,300
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,270	6,535	3,732	2,803	5,200	6,500	17,000	10,300
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,190	7,409	4,575	2,834	5,500	6,500	19,000	11,450
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,190	7,409	4,575	2,834	5,500	6,500	20,000	12,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,270	7,329	4,487	2,843	5,500	6,500	17,000	9,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,270	7,329	4,487	2,843	5,500	6,500	20,000	12,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,270	7,329	4,487	2,843	5,500	6,500	20,000	12,500

RAM REGULAR CAB 4WD LONG BED - ST DJ 7L62

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,650	2,740	5,915	3,466	2,449	5,200	6,500	15,000	8,950
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,650	2,740	5,915	3,466	2,449	5,200	6,500	17,000	10,950
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,140	6,861	4,322	2,539	5,500	6,500	19,000	12,000
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,140	6,861	4,322	2,539	5,500	6,500	20,000	13,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,250	6,746	4,286	2,460	5,500	6,500	17,000	10,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,250	6,746	4,286	2,460	5,500	6,500	20,000	13,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,250	6,746	4,286	2,460	5,500	6,500	20,000	13,100

RAM REGULAR CAB 4WD LONG BED - SLT DJ 7H62

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,650	2,660	5,994	3,518	2,476	5,200	6,500	15,000	8,850
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,650	2,660	5,994	3,518	2,476	5,200	6,500	17,000	10,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,040	6,962	4,402	2,560	5,500	6,500	19,000	11,900
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,040	6,962	4,402	2,560	5,500	6,500	20,000	12,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,150	6,847	4,366	2,481	5,500	6,500	17,000	10,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,150	6,847	4,366	2,481	5,500	6,500	20,000	13,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,150	6,847	4,366	2,481	5,500	6,500	20,000	13,000

2500 RAM MEGA CAB 2WD SHORT BED - SLT DJ 2H81

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,570	6,227	3,381	2,846	4,750	6,500	15,000	8,600
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,570	6,227	3,381	2,846	4,750	6,500	17,000	10,600
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	9,000	1,910	7,090	4,228	2,862	5,000	6,500	19,000	11,750
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	9,000	1,910	7,090	4,228	2,862	5,000	6,500	20,000	12,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,980	7,019	4,145	2,874	5,000	6,500	17,000	9,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,980	7,019	4,145	2,874	5,000	6,500	20,000	12,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,980	7,019	4,145	2,874	5,000	6,500	20,000	12,850

NOTES: Note that all the payload and Max Trail weights are ESTIMATED values.

1. Payload is rounded to the nearest 10 pounds Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 pounds
   Maximum Trailer Weight = GCWR - Curb wt. -150 pounds (allowance for driver)

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

2500 RAM MEGA CAB 2WD SHORT BED - LARAMIE DJ 2P81

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,540	6,256	3,410	2,846	4,750	6,500	15,000	8,600
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,540	6,256	3,410	2,846	4,750	6,500	17,000	10,600
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	9,000	1,810	7,193	4,331	2,861	5,000	6,500	19,000	11,650
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	9,000	1,810	7,193	4,331	2,861	5,000	6,500	20,000	12,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,880	7,122	4,249	2,873	5,000	6,500	17,000	9,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,880	7,122	4,249	2,873	5,000	6,500	20,000	12,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,880	7,122	4,249	2,873	5,000	6,500	20,000	12,750

2500 RAM MEGA CAB 4WD SHORT BED - SLT DJ 7H81

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,120	6,683	3,763	2,920	5,500	6,500	15,000	8,150
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,120	6,683	3,763	2,920	5,500	6,500	17,000	10,150
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	9,600	2,070	7,533	4,563	2,970	5,500	6,500	19,000	11,300
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	9,600	2,070	7,533	4,563	2,970	5,500	6,500	20,000	12,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,140	7,455	4,398	3,057	5,500	6,500	17,000	9,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,140	7,455	4,398	3,057	5,500	6,500	20,000	12,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,140	7,455	4,398	3,057	5,500	6,500	20,000	12,400

2500 RAM MEGA CAB 4WD SHORT BED - LARAMIE DJ 7P81

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,180	6,620	3,759	2,861	5,500	6,500	15,000	8,250
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,180	6,620	3,759	2,861	5,500	6,500	17,000	10,250
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	9,600	2,030	7,573	4,679	2,895	5,500	6,500	19,000	11,300
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	9,600	2,030	7,573	4,679	2,895	5,500	6,500	20,000	12,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,100	7,495	4,513	2,982	5,500	6,500	17,000	9,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,100	7,495	4,513	2,982	5,500	6,500	20,000	12,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,100	7,495	4,513	2,982	5,500	6,500	20,000	12,350

Note that all the payload and Max Trail weights are ESTIMATED values.

1. Payload is rounded to the nearest 10 pounds Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 pounds
   Maximum Trailer Weight = GCWR - Curb wt. -150 pounds (allowance for driver)

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

2010 DODGE RAM HEAVY DUTY 3500 TOWING CHARTS

NOTE: BASE WEIGHTS CAN CHANGE

RAM CREW CAB 2WD SHORT BED - ST D2 3L91 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,360	6,740	4,031	2,709	5,000	6,500	19,000	12,100
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,360	6,740	4,031	2,709	5,000	6,500	21,000	14,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,460	6,635	3,945	2,690	5,000	6,500	17,000	10,200
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,460	6,635	3,945	2,690	5,000	6,500	21,000	14,200
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,460	6,635	3,945	2,690	5,000	6,500	24,000	17,200

RAM CREW CAB 2WD SHORT BED - SLT D2 3H91 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,250	6,846	4,151	2,696	5,000	6,500	19,000	12,000
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,250	6,846	4,151	2,696	5,000	6,500	21,000	14,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,360	6,741	4,065	2,676	5,000	6,500	17,000	10,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,360	6,741	4,065	2,676	5,000	6,500	21,000	14,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,360	6,741	4,065	2,676	5,000	6,500	24,000	17,100

RAM CREW CAB 2WD SHORT BED - LARAMIE D2 3P91 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,210	6,892	4,121	2,771	5,000	6,500	19,000	11,950
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,210	6,892	4,121	2,771	5,000	6,500	21,000	13,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,310	6,787	4,035	2,752	5,000	6,500	17,000	10,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,310	6,787	4,035	2,752	5,000	6,500	21,000	14,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,310	6,787	4,035	2,752	5,000	6,500	24,000	17,050

RAM CREW CAB 2WD LONG BED - ST D2 3L92 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	11,500	4,190	7,310	4,280	3,030	5,000	9,750	19,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	11,500	4,190	7,310	4,280	3,030	5,000	9,750	21,000	13,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	11,500	4,280	7,219	4,186	3,033	5,000	9,750	17,000	9,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	11,500	4,280	7,219	4,186	3,033	5,000	9,750	21,000	13,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	11,500	4,280	7,219	4,186	3,033	5,000	9,750	24,500	17,150

RAM CREW CAB 2WD LONG BED - ST D2 3L92 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,120	6,975	4,284	2,691	5,000	6,500	19,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,120	6,975	4,284	2,691	5,000	6,500	21,000	13,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,220	6,884	4,190	2,694	5,000	6,500	17,000	9,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,220	6,884	4,190	2,694	5,000	6,500	21,000	13,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,220	6,884	4,190	2,694	5,000	6,500	24,000	16,950

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

RAM CREW CAB 2WD LONG BED - SLT D2 3H92 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	11,500	4,180	7,323	4,301	3,022	5,000	9,750	19,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	11,500	4,180	7,323	4,301	3,022	5,000	9,750	21,000	13,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	11,500	4,270	7,231	4,207	3,024	5,000	9,750	17,000	9,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	11,500	4,270	7,231	4,207	3,024	5,000	9,750	21,000	13,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	11,500	4,270	7,231	4,207	3,024	5,000	9,750	24,500	17,100

RAM CREW CAB 2WD LONG BED - SLT D2 3H92 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,110	6,991	4,307	2,685	5,000	6,500	19,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,110	6,991	4,307	2,685	5,000	6,500	21,000	13,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,200	6,900	4,213	2,687	5,000	6,500	17,000	9,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,200	6,900	4,213	2,687	5,000	6,500	21,000	13,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,200	6,900	4,213	2,687	5,000	6,500	24,000	16,950

RAM CREW CAB 2WD LONG BED - LARAMIE D2 3P92 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	11,500	4,030	7,471	4,348	3,123	5,000	9,750	19,000	11,400
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	11,500	4,030	7,471	4,348	3,123	5,000	9,750	21,000	13,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	11,500	4,120	7,380	4,254	3,126	5,000	9,750	17,000	9,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	11,500	4,120	7,380	4,254	3,126	5,000	9,750	21,000	13,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	11,500	4,120	7,380	4,254	3,126	5,000	9,750	24,500	16,950

RAM CREW CAB 2WD LONG BED - LARAMIE D2 3P92 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,030	7,073	4,317	2,756	5,000	6,500	19,000	11,800
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,030	7,073	4,317	2,756	5,000	6,500	21,000	13,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,120	6,981	4,223	2,759	5,000	6,500	17,000	9,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,120	6,981	4,223	2,759	5,000	6,500	21,000	13,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,120	6,981	4,223	2,759	5,000	6,500	24,000	16,850

RAM REGULAR CAB 2WD LONG BED - ST D2 3L62 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	11,500	4,650	6,847	4,048	2,799	5,000	9,750	19,000	12,000
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	11,500	4,650	6,847	4,048	2,799	5,000	9,750	21,000	14,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	11,500	4,750	6,745	3,960	2,785	5,000	9,750	17,000	10,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	11,500	4,750	6,745	3,960	2,785	5,000	9,750	21,000	14,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	11,500	4,750	6,745	3,960	2,785	5,000	9,750	24,500	17,600

RAM REGULAR CAB 2WD LONG BED - SLT D2 3H62 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	11,500	4,530	6,967	4,076	2,892	5,000	9,750	19,000	11,900
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	11,500	4,530	6,967	4,076	2,892	5,000	9,750	21,000	13,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	11,500	4,630	6,866	3,988	2,878	5,000	9,750	17,000	10,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	11,500	4,630	6,866	3,988	2,878	5,000	9,750	21,000	14,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	11,500	4,630	6,866	3,988	2,878	5,000	9,750	24,500	17,500

NOTES: Note that all the payload and Max Trail weights are ESTIMATED values.

1. Payload is rounded to the nearest 10 pounds Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 pounds
   Maximum Trailer Weight = GCWR - Curb wt. -150 pounds (allowance for driver)

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

RAM CREW CAB 4WD SHORT BED - ST D2 8L91 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,050	7,051	4,300	2,751	5,500	6,500	19,000	11,800
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,050	7,051	4,300	2,751	5,500	6,500	21,000	13,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,130	6,970	4,216	2,754	5,500	6,500	17,000	9,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,130	6,970	4,216	2,754	5,500	6,500	21,000	13,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,130	6,970	4,216	2,754	5,500	6,500	24,000	16,900

RAM CREW CAB 4WD SHORT BED - SLT D2 8H91 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,850	7,254	4,497	2,756	5,500	6,500	19,000	11,600
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,850	7,254	4,497	2,756	5,500	6,500	21,000	13,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,930	7,172	4,412	2,760	5,500	6,500	17,000	9,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,930	7,172	4,412	2,760	5,500	6,500	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,930	7,172	4,412	2,760	5,500	6,500	24,000	16,700

RAM CREW CAB 4WD SHORT BED - LARAMIE D2 8P91 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,790	7,310	4,546	2,764	5,500	6,500	19,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,790	7,310	4,546	2,764	5,500	6,500	21,000	13,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,870	7,228	4,461	2,768	5,500	6,500	17,000	9,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,870	7,228	4,461	2,768	5,500	6,500	21,000	13,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,870	7,228	4,461	2,768	5,500	6,500	24,000	16,600

RAM CREW CAB 4WD LONG BED - ST D2 8L92 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,200	4,680	7,525	4,465	3,060	5,500	9,750	19,000	11,350
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,200	4,680	7,525	4,465	3,060	5,500	9,750	21,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,200	4,760	7,444	4,380	3,064	5,500	9,750	17,000	9,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,200	4,760	7,444	4,380	3,064	5,500	9,750	21,000	13,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,200	4,760	7,444	4,380	3,064	5,500	9,750	24,500	16,900

RAM CREW CAB 4WD LONG BED - ST D2 8L92 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,950	7,152	4,434	2,719	5,500	6,500	19,000	11,700
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,950	7,152	4,434	2,719	5,500	6,500	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,030	7,071	4,348	2,723	5,500	6,500	17,000	9,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,030	7,071	4,348	2,723	5,500	6,500	21,000	13,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,030	7,071	4,348	2,723	5,500	6,500	24,000	16,800

RAM CREW CAB 4WD LONG BED - SLT D2 8H92 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,200	4,460	7,743	4,606	3,137	5,500	9,750	19,000	11,100
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,200	4,460	7,743	4,606	3,137	5,500	9,750	21,000	13,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,200	4,540	7,662	4,520	3,141	5,500	9,750	17,000	9,200
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,200	4,540	7,662	4,520	3,141	5,500	9,750	21,000	13,200
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,200	4,540	7,662	4,520	3,141	5,500	9,750	24,500	

16,700NOTES: Note that all the payload and Max Trail weights are ESTIMATED values.

1. Payload is rounded to the nearest 10 pounds Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 pounds
   Maximum Trailer Weight = GCWR - Curb wt. -150 pounds (allowance for driver)

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

RAM CREW CAB 4WD LONG BED - SLT D2 8H92 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,720	7,379	4,579	2,800	5,500	6,500	19,000	11,450
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,720	7,379	4,579	2,800	5,500	6,500	21,000	13,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,800	7,298	4,494	2,805	5,500	6,500	17,000	9,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,800	7,298	4,494	2,805	5,500	6,500	21,000	13,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,800	7,298	4,494	2,805	5,500	6,500	24,000	16,550

RAM CREW CAB 4WD LONG BED - LARAMIE D2 8P92 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,200	4,580	7,618	4,602	3,016	5,500	9,750	19,000	11,250
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,200	4,580	7,618	4,602	3,016	5,500	9,750	21,000	13,250
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,200	4,660	7,537	4,516	3,021	5,500	9,750	17,000	9,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,200	4,660	7,537	4,516	3,021	5,500	9,750	21,000	13,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,200	4,660	7,537	4,516	3,021	5,500	9,750	24,500	16,800

RAM CREW CAB 4WD LONG BED - LARAMIE D2 8P92 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,910	7,190	4,543	2,648	5,500	6,500	19,000	11,650
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,910	7,190	4,543	2,648	5,500	6,500	21,000	13,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,990	7,109	4,457	2,652	5,500	6,500	17,000	9,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,990	7,109	4,457	2,652	5,500	6,500	21,000	13,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,990	7,109	4,457	2,652	5,500	6,500	24,000	16,750

RAM REGULAR CAB 4WD LONG BED - ST D2 8L62 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,200	5,050	7,152	4,234	2,918	5,500	9,750	19,000	11,700
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,200	5,050	7,152	4,234	2,918	5,500	9,750	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,200	5,130	7,069	4,144	2,925	5,500	9,750	17,000	9,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,200	5,130	7,069	4,144	2,925	5,500	9,750	21,000	13,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,200	5,130	7,069	4,144	2,925	5,500	9,750	24,500	17,300

RAM REGULAR CAB 4WD LONG BED - SLT D2 8H62 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,200	4,940	7,262	4,340	2,923	5,500	9,750	19,000	11,600
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,200	4,940	7,262	4,340	2,923	5,500	9,750	21,000	13,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,200	5,020	7,180	4,250	2,929	5,500	9,750	17,000	9,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,200	5,020	7,180	4,250	2,929	5,500	9,750	21,000	13,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,200	5,020	7,180	4,250	2,929	5,500	9,750	24,500	17,150

3500 RAM MEGA CAB 2WD SHORT BED - SLT D2 3H81 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,100	2,970	7,127	4,254	2,872	5,000	6,500	19,000	11,700
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,100	2,970	7,127	4,254	2,872	5,000	6,500	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,050	7,051	4,175	2,877	5,000	6,500	17,000	9,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,050	7,051	4,175	2,877	5,000	6,500	21,000	13,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,050	7,051	4,175	2,877	5,000	6,500	24,000	16,800

NOTES: Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 pounds Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 pounds
   Maximum Trailer Weight = GCWR - Curb wt. -150 pounds (allowance for driver)

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

3500 RAM MEGA CAB 2WD SHORT BED - SLT D2 3H81 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,500	3,060	7,442	4,252	3,190	5,000	9,750	19,000	11,400
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,500	3,060	7,442	4,252	3,190	5,000	9,750	21,000	13,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,500	3,130	7,367	4,172	3,195	5,000	9,750	17,000	9,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,500	3,130	7,367	4,172	3,195	5,000	9,750	21,000	13,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,500	3,130	7,367	4,172	3,195	5,000	9,750	24,500	17,000

3500 RAM MEGA CAB 2WD SHORT BED - LARAMIE D2 3P81 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,100	2,980	7,116	4,366	2,750	5,000	6,500	19,000	11,750
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,100	2,980	7,116	4,366	2,750	5,000	6,500	21,000	13,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,060	7,041	4,286	2,754	5,000	6,500	17,000	9,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,060	7,041	4,286	2,754	5,000	6,500	21,000	13,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,060	7,041	4,286	2,754	5,000	6,500	24,000	16,800

3500 RAM MEGA CAB 2WD SHORT BED - LARAMIE D2 3P81 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,500	3,000	7,496	4,396	3,100	5,000	9,750	19,000	11,350
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,500	3,000	7,496	4,396	3,100	5,000	9,750	21,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,500	3,080	7,421	4,316	3,105	5,000	9,750	17,000	9,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,500	3,080	7,421	4,316	3,105	5,000	9,750	21,000	13,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,500	3,080	7,421	4,316	3,105	5,000	9,750	24,500	16,950

3500 RAM MEGA CAB 4WD SHORT BED - SLT D2 8H81 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,100	2,590	7,513	4,659	2,853	5,500	6,500	19,000	11,350
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,100	2,590	7,513	4,659	2,853	5,500	6,500	21,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,670	7,429	4,573	2,856	5,500	6,500	17,000	9,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,670	7,429	4,573	2,856	5,500	6,500	21,000	13,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,670	7,429	4,573	2,856	5,500	6,500	24,000	16,400

3500 RAM MEGA CAB 4WD SHORT BED - SLT D2 8H81 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,500	2,640	7,861	4,690	3,171	5,500	9,750	19,000	11,000
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,500	2,640	7,861	4,690	3,171	5,500	9,750	21,000	13,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,500	2,720	7,777	4,603	3,174	5,500	9,750	17,000	9,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,500	2,720	7,777	4,603	3,174	5,500	9,750	21,000	13,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,500	2,720	7,777	4,603	3,174	5,500	9,750	24,500	16,550

Note that all the payload and Max Trail weights are ESTIMATED values.

1. Payload is rounded to the nearest 10 pounds Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 pounds
   Maximum Trailer Weight = GCWR - Curb wt. -150 pounds (allowance for driver)

2010 RAM 2500/3500 HEAVY DUTY SPECIFICATIONS

3500 RAM MEGA CAB 4WD SHORT BED - LARAMIE D2 8P81 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,100	2,590	7,508	4,699	2,808	5,500	6,500	19,000	11,350
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,100	2,590	7,508	4,699	2,808	5,500	6,500	21,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,680	7,424	4,612	2,812	5,500	6,500	17,000	9,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,680	7,424	4,612	2,812	5,500	6,500	21,000	13,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,680	7,424	4,612	2,812	5,500	6,500	24,000	16,450

3500 RAM MEGA CAB 4WD SHORT BED - LARAMIE D2 8P81 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,500	2,580	7,920	4,762	3,158	5,500	9,750	19,000	10,950
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,500	2,580	7,920	4,762	3,158	5,500	9,750	21,000	12,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,500	2,660	7,836	4,675	3,161	5,500	9,750	17,000	9,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,500	2,660	7,836	4,675	3,161	5,500	9,750	21,000	13,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,500	2,660	7,836	4,675	3,161	5,500	9,750	24,500	16,500

Note that all the payload and Max Trail weights are ESTIMATED values.

1. Payload is rounded to the nearest 10 pounds Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 pounds
   Maximum Trailer Weight = GCWR - Curb wt. -150 pounds (allowance for driver)

2010 RAM 2500/3500 HEAVY DUTY FEATURE AVAILABILITY

LEGEND: S = Standard, O = Optional, P = Package, — = Not available
Complete package information is listed at the end of the Feature Availability section.
NOTE: Information shown is correct at time of publication and is subject to change.
Some unique exceptions showing Dodge Ram 3500 complexity are included.

	ST	SLT	TRX	Power Wagon®	Laramie
EXTERIOR					
Bumpers–Front					
Painted Mineral Gray	S	–	S	–	–
Chromed	–	S	–	S	S
Bumpers–Rear					
Painted Mineral Gray	S	–	S	–	–
Chromed	–	S	–	S	S
Headlamp Filler Panel					
Black	S	–	–	S	–
Body-color	–	S	S	–	S
Fog Lamps	–	0	S	S	S
Grille					
Chromed Surround with Black Billets	S	S	–	S	–
Body-color Surround with Black Billets	–	–	S	–	–
Chromed Surround with Chrome Billets	–	–	–	–	S
Mirrors					
2500–Standard Size 6-inch x 9-inch					
Manual (Black)	S	–	–	–	–
Power / Heated (Black)	0	S	S	S	–
Power / Heated / Puddle / Turn / Auto-dim (Black)	–	0	0	0	–
Power / Heated / Puddle / Turn / Auto-dim / Memory (Chromed)	–	–	–	–	S
2500–Optional Size 7-inch x 11-inch Trailer-tow mirrors – two position fold-away with convex edge)					
Manual (Black)	0	–	–	–	–
Power / Heated / Puddle / Turn (Black)	–	0	0	0	–
Power / Heated / Puddle / Turn / Memory (Chromed)	–	–	–	–	0
Colors					
Bright White, Brilliant Black, Inferno Red, Bright Silver, Mineral Gray, Deep Water Blue, Rugged Brown, Austin Tan, Light Graystone	0	0	0	0	0
Remote Keyless Entry					
Controls for Power Door Locks, Illuminated Entry System, Panic Alarm	–	S	S	S	S
Skid Plate (4x4)					
Front Suspension	0	0	S	–	0
Transfer Case	0	0	S	S	0
Fuel Tank	–	–	–	S	–
Tow Hooks					
6.7L Diesel Engine	S	S	S	S	S
5.7L Gas Engine	0	0	S	S	0
Trailer-tow					
4-Pin / 7-Pin Trailer Harness Plug (Combination Receptacle)	S	S	S	S	S
Class IV Receiver	S	S	S	S	S
Electronic Trailer-brake Controller	0	0	0	S	0

2010 RAM 2500/3500 HEAVY DUTY FEATURE AVAILABILITY

	ST	SLT	TRX	Power Wagon®	Laramie
Windows					
Manual Windows (Regular Cab Only)	S	–	–	–	–
Power Windows, Front One-touch Down (Regular Cab)	–	S	–	–	–
Power Windows, Front One-touch Up/Down (Crew/Mega Cab)	S	S	S	S	S
Rear Fixed Window (Regular Cab Only)	S	S	–	–	–
Rear Fixed Heated Window	–	0	0	0	0
Rear Sliding Window - Manual (Regular Cab)	0	S	–	–	–
Rear Sliding Window – Power Mega Cab® and Crew Cab)	–	S	S	S	S
Windshield Wipers					
Variable Intermittent	S	S	S	S	S

INTERIOR

	ST	SLT	TRX	Power Wagon®	Laramie
Air Conditioning (Base A/C)	S	S	S	S	–
Air Conditioning with Dual-zone Control	–	–	–	–	S
Console – Floor					
Mini Floor Console (with six-speed Manual Transmission Only)	0	0	0	–	0
Full-size Floor Console with Bucket Seats	–	0	0	0	0
Console					
Overhead Console with Universal Garage Door Opener	–	–	–	–	S
Defroster					
Rear window	–	0	0	0	0
Door Locks					
Power Door Locks (*Regular Cab ST Only)	0*	S	S	S	S
Floor Covering					
Black Vinyl	S	0	0	0	–
Carpet	0	S	S	S	S
Floor Mats					
Front, Carpeted	0	S	S	S	S
Front and Rear, Carpeted	0	S	S	S	S
Memory System					
Seats, Mirrors, Pedals, Radio Presets	–	0	0	0	S
Pedals					
Non-adjustable	S	S	S	S	–
Power-adjustable	–	0	0	0	S
Power outlet					
12-volt DC Auxiliary (two available)	S	S	S	S	S
115-volt AC Auxiliary	–	0	0	0	S
Seats					
Vinyl 40/20/40 Manual Split-bench: Front seat with adjustable head restraints for outboard seating positions, driver and front passenger recliners and folding center armrest (Mega Cab® & Crew Cab models include a folding rear bench seat)	S	–	–	–	–
Premium Cloth 40/20/40 Manual Split-bench: Front seat with adjustable head restraints for outboard seating positions, driver and front passenger recliners and folding center armrest/business console (Crew Cab & Mega Cab® models include 60/40 split-bench folding rear seat)	0	S	S	S	–

2010 RAM 2500/3500 HEAVY DUTY FEATURE AVAILABILITY

	ST	SLT	TRX	Power Wagon®	Laramie
Premium Cloth 40/20/40 Power Split-bench: Front seat with adjustable head restraints for outboard seating positions, driver and front passenger recliners and folding center armrest/business console (Crew Cab & Mega Cab® models include 60/40 split-bench folding rear seat)	–	0	0	0	–
Premium Cloth Power Bucket: Seats with adjustable head restraints, driver and front passenger recliners and folding center armrest/business console (Crew Cab & Mega Cab® models include 60/40 split-bench folding rear seat)	–	0	0	0	–
Premium Leather 40/20/40 Power Split-Bench: Front seat with adjustable head restraints for outboard seating positions, heated, and front passenger recliners, fold-flat steel load floor and folding center armrest/business console (Crew Cab & Mega Cab® models include 60/40 split-bench folding rear seat)	–	–	–	–	S
Premium Leather High Shoulder Power Bucket: Heated and ventilated with adjustable head restraints, driver and front passenger recliners, fixed center console and rear fold-flat steel load floor (Crew Cab & Mega Cab® models include 60/40 heated split-bench folding rear seat)	–	–	–	–	0
Ten-way power driver's seat and six-way power passenger seat	–	0	0	0	S
Power lumbar support (included with all power seats)	–	0	0	0	S
Steering Wheel					
Urethane	S	S	S	S	–
Leather-wrapped (Audio Controls)	–	0	0	0	–
Leather-wrapped (Audio Controls and Heated)	–	0	0	0	S
Steering Column					
Tilt Steering	S	S	S	S	S
Speed Control					
Stalk-mounted Control – 6.7L Diesel Engine	S	S	S	S	S
Stalk-mounted Control – 5.7L Gas Engine	0	S	S	S	S
Storage					
Front, Behind Seat (Regular Cab Only)	S	S	–	–	–
Rear, Under-Seat Compartment (Crew Cab Only)	S	S	S	S	S
Rear In-floor Storage Boxes (Crew Cab Only)	S	S	S	S	S
Sunroof					
Power Sunroof	–	0	0	0	0
Radios					
AM/FM/CD/MP3	S	S	S	S	–
AM/FM/CD/DVD/HDD/MP3	0	0	0	0	S
AM/FM/CD/NAV/MP3	–	0	0	0	0
SIRIUS® Satellite Radio(1)	0	S	S	S	S
Six-speaker System	S	S	S	S	–
Nine Amplified Speakers with Subwoofer (Surround Sound)	–	0	0	0	S
Uconnect Phone	–	0	0	0	S

2010 RAM 2500/3500 HEAVY DUTY FEATURE AVAILABILITY

	ST	SLT	TRX	Power Wagon®	Laramie
POWERTRAIN AND CHASSIS					
Alternator					
160-amp	S	S	S	–	S
180-amp	–	0	0	S	0
Axle–Front XLE (4x4 Only)					
9.25-inch Front Axle	S	S	S	S	S
Axle – Rear					
Anti-spin Rear Differential	0	0	S	–	0
Electronically Locking Differentials	–	–	–	S	–
3.42 Ratio	0	0	–	–	0
3.73 Ratio	0	0	0	–	S
4.10 Ratio (* TRX with 4x4 Only)	0	0	S*	–	0
4.56 Ratio	–	–	–	S	–
Battery					
730-amp, Maintenance-free (Two Required For Diesel)	S	S	S	S	S
Brakes					
Anti-lock 4-Wheel Disc Brakes	S	S	S	S	S
Engine–6.7L Cummins® Turbo Diesel					
6.7L Diesel Engine	0	0	0	–	0
6-speed Manual Transmission (G56)	S	S	S	–	S
6-speed Automatic Transmission (68RFE)	0	0	0	–	0
Engine Block Heater	S	S	S	–	S
Exhaust Brake	S	S	S	–	S
Remote Start (Automatic Transmission Only)	–	0	0	–	0
Engine–5.7L HEMI® Gasoline					
5.7L Gas Engine	S	S	S	S	S
5-speed Automatic Transmission (545RFE)	S	S	S	S	S
Remote Start	0	0	0	0	0
Engine–Cooling					
5.7L - Heavy Duty Cooling	S	S	S	S	S
6.7L - Cummins Diesel Cooling	S	S	S	–	S
Fuel Tank					
34-Gal. (128.7 L) Tank (6-foot 4-inch Box)	S	S	S	S	S
35-Gal. (132.5 L) Tank (8-foot Box)	S	S	–	–	S
Steering					
Power Rack-and-pinion (4x2 Only)	S	S	S	–	S
Power Recirculating Ball (4x4 Only)	S	S	S	S	S
Suspension					
Front Electronic Disconnecting Stabilizer Bar	–	–	–	S	–
Front Stabilizer Bar	S	S	S	–	S
Transmissions					
5-speed Automatic (545RFE) (5.7L Gas Only)	S	S	S	S	S
6-speed Manual (G56) (6.7L Diesel Only)	S	S	S	–	S
6-speed Automatic (68RFE) (6.7L Diesel Only)	0	0	0	–	0
Transfer Cases (4x4 Only)					
Manual Shift-on-the-fly (NV271)	S	–	–	S	–
Electronic Shift-on-the-fly (NV273)	–	S	S	–	S

2010 RAM 2500/3500 HEAVY DUTY FEATURE AVAILABILITY

	ST	SLT	TRX	Power Wagon®	Laramie
Tires					
2500					
LT245/70R17E BSW All-season Tires	S	–	–	–	–
LT245/70R17E BSW On/Off-road Tires	0	–	–	–	–
LT265/70R17E BSW All-season Tires	–	S	–	–	S
LT265/70R17E OWL On/Off-road Tires	–	0	S	–	0
LT285/70R17D BSW All-terrain Tires	–	–	–	S	–
3500 Single Rear Wheel	–	–	–		
LT265/70R17E BSW All-season Tires	S	S	–	–	S
LT265/70R17E OWL On/Off-road Tires	0	0	–	–	0
3500 Dual-Rear-Wheel					
LT235/80R17E BSW All-season Tires	S	S	–	–	S
LT235/80R17E OWL On/Off-road Tires	0	0	–	–	0
Wheels Single Rear (2500 and 3500)					
17x7.5 Steel Argent Painted	S	–	–	–	–
17x8.0 Chrome-clad Steel Chrome Clad Stainless Steel	0	S	–	–	–
17x8.0 Forged Aluminum Polished	–	0	0	–	–
17x8.0 Forged Aluminum Polished	–	–	S	S	–
17x8.0 Aluminum Polished	–	–	–	–	S
Wheels Dual Rear (3500 only)					
17x6.0 Steel Argent Painted	S	–	–	–	–
17x6.0 Steel With Bright Wheel Skin and Cap	0	S	–	–	S
Wheel Flares					
Black	–	–	–	S	–
Mineral Gray	–	–	S	–	–
Light Graystone	–	–	–	–	S

SAFETY AND SECURITY

	ST	SLT	TRX	Power Wagon®	Laramie
Airbags					
Advanced Multistage Front Airbags(2)	S	S	S	S	S
Supplemental Side-curtain Airbags (All Cabs)	S	S	S	S	S
Door Locks					
Manual (Regular Cab Only)	S	–	–	–	–
Power	S	S	S	S	S
Locking Tailgate	S	S	S	S	S
ParkSense® Rear-parking Assist System	–	0	0	0	S
Seat Belts					
Front, Height-adjustable Shoulder (Outboard Positions Only)	S	S	S	S	S
Rear Back-up Camera	–	0	0	0	0
Security Alarm					
Detects Break-In	–	0	0	0	S
Sentry Key® Theft Deterrent System					
Engine Immobilizer	0	S	S	S	S
Tire-pressure Monitoring (TPM)					
Base TPM System-Gauge Light Only (2500 Only)	S	–	–	–	–
Premium TPM System – Electronic Vehicle Information Center (EVIC) Tire-pressure Display (2500 Only)	–	S	S	S	S

2010 RAM 2500/3500 HEAVY DUTY FEATURE AVAILABILITY

	ST	SLT	TRX	Power Wagon®	Laramie
PACKAGES / EQUIPMENT GROUPS					
Box Delete–2500, Regular Cab, Crew Cab, 5.7L Gas Engine	0	0	–	–	0
Chrome Appearance Group Chrome Appearance Group includes the following: • Chromed Front Bumper • Chromed Rear Bumper • 17x8 Steel Chrome-clad Wheels	0	–	–	–	–
Chrome Accent Group Chrome Accent Group includes the following: • Chromed Exhaust Tip • Chromed Fuel Filler Door • Chromed Body-side Molding • Chromed Tubular Side Steps	0	0	–	–	0
Chrome Side Step and Rail Group Chrome Side Step and Rail Group includes the following: • Chromed Steel Bed Rails • Chromed Tubular Side Steps	0	0	–	–	0
Regional Group (Lone Star and Big Horn) Regional Group includes the following: • Luxury Group • Trailer Brake Control • Limited-slip Differential • Chrome Door Handles • Quad Headlamps • Bright Grille • Aluminum Wheels • Special Badging (Crew Cab & Mega Cab® Only)	–	0	–	–	–
Luxury Group Luxury Group includes the following: • Switchable Dome Lamp • Ashtray Lamp • Glove Box Lamp • Under-hood Lamp • Illuminated Vanity Mirror • Auto Day/Night Mirror • Exterior Mirrors With Signal and Puddle Lamps • Overhead Console With Universal Garage Door Opener (UGDO) • Leather-wrapped Steering Wheel	–	0	0	0	S
TRX Group TRX Group includes the following: • Lower Two-tone Paint • Limited-slip Differential • Fog Lamps • Painted Front and Rear Bumpers • Body-color Grille • Painted Fender Flares • TRX or TRX4 Badging (2WD vs 4WD) • Tow Hooks • Skid Plates • LT265/70R17E OWL All-terrain Tires • 17-inch Aluminum Wheels • Premium Cloth Bucket Seats • Black Door Handles • Quad Headlamps	–	–	S	–	–

2010 RAM 2500/3500 HEAVY DUTY FEATURE AVAILABILITY

	ST	SLT	TRX	Power Wagon®	Laramie
Power Wagon Group					
Power Wagon Group includes the following:					
• Trailer-tow					
• 180-amp Alternator					
• Manual Transfer Case					
• Tru-Lock Front and Rear Axles					
• 4.56 Axle Gears					
• Black Door Handles					
• Tow Hooks					
• Black Fender Flares					
• Fuel-tank Skid Plate					
• Transfer Case Skid Plate					
• Winch 12,000 pounds Capacity					
• Special Badging					
• Cab Clearance Lamps					
• Fog Lamps					
• Quad Headlamps					
• Headlamp Filler Panel Black					
• Uconnect Phone					
• Front Electronically Disconnecting Sway Bar					
• LT285-70R17D All-terrain Tire					
• 17-inch Aluminum Wheels					
• GVW = 8510 pounds	–	–	–	S	–
Protection Group (4x4 Only)					
Protection Group includes the following:					
• Tow Hooks					
• Transfer Case Skid Plate					
• Front Suspension Skid Plate	–	0	0	0	S
Trailer-tow Group (Canada Only)					
Trailer-tow Group includes the following:					
• Class IV Hitch Receiver					
• Electronic Trailer Brake Controller	0	0	0	S	0
Power Accessory Group (Fleet Only)					
Power Accessory Group includes the following:					
• Hi Line Door-Trim Panel					
• Power Windows (Driver One-touch)					
• Power Locks					
• Power Mirrors (Regular Cab Only)	0	–	–	–	–
Power and Remote Entry Group (Fleet Only)					
Power and Remote Entry Group includes the following:					
• Sentry Key® Theft Deterrent					
• Remote keyless entry					
• Power Windows (Driver One-touch)					
• Power Locks					
• Power Mirrors (Regular Cab Only)	0	–	–	–	–

S = Standard Equipment
0 = Optional Equipment
N/A = Not Available.
(1) Includes one-year subscription provided by SIRIUS®
(2) Certified to the Federal Regulations that allow less forceful front airbags. Always use seat belts. Children 12 and younger can only be in the front seat with the passenger airbag turned off, or in a back seat, correctly using an infant seat child restraint system, or a seat belt positioned correctly for the child's age and weight

2011 RAM 2500 PICKUP TOWING CHART

NOTE: BASE WEIGHTS CAN CHANGE

RAM CREW CAB 2WD SHORT BED ST — DJ 2L91

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	3,030	5,769	3,188	2,582	4,750	6,000	15,000	9,100
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	3,030	5,769	3,188	2,582	4,750	6,000	18,000	12,100
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,270	6,732	4,067	2,665	5,000	6,000	19,000	12,100
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,270	6,732	4,067	2,665	5,000	6,000	20,000	13,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,370	6,628	3,975	2,653	5,000	6,000	17,000	10,200
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,370	6,628	3,975	2,653	5,000	6,000	20,000	13,200
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,370	6,628	3,975	2,653	5,000	6,000	22,000	15,200

RAM CREW CAB 2WD SHORT BED SLT — DJ 2H91

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,930	5,874	3,233	2,641	4,750	6,010	15,000	9,000
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,930	5,874	3,233	2,641	4,750	6,010	18,000	12,000
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,050	6,948	4,210	2,738	5,000	6,010	19,000	11,900
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,050	6,948	4,210	2,738	5,000	6,010	20,000	12,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,160	6,845	4,118	2,727	5,000	6,010	17,000	10,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,160	6,845	4,118	2,727	5,000	6,010	20,000	13,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,160	6,845	4,118	2,727	5,000	6,010	22,000	15,000

RAM CREW CAB 2WD SHORT BED LARAMIE — DJ 2P91

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,860	5,940	3,246	2,694	4,750	6,010	15,000	8,900
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,860	5,940	3,246	2,694	4,750	6,010	18,000	11,900
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	1,990	7,012	4,241	2,772	5,000	6,010	19,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	1,990	7,012	4,241	2,772	5,000	6,010	20,000	12,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,090	6,909	4,148	2,760	5,000	6,010	17,000	9,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,090	6,909	4,148	2,760	5,000	6,010	20,000	12,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,090	6,909	4,148	2,760	5,000	6,010	22,000	14,950

RAM CREW CAB 2WD SHORT BED LONGHORN — DJ 2R91

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,840	5,960	3,270	2,690	4,750	6,010	15,000	8,900
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,840	5,960	3,270	2,690	4,750	6,010	18,000	11,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,060	6,937	4,156	2,781	5,000	6,010	17,000	9,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,060	6,937	4,156	2,781	5,000	6,010	20,000	12,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,060	6,937	4,156	2,781	5,000	6,010	22,000	14,900

NOTES:

Note that all the payload and Max Trail weights are ESTIMATED values.1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.2. Maximum trailer weights are rounded to the nearest 50 lbs. Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM CREW CAB 2WD LONG BED ST — DJ 2L92

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,800	5,995	3,360	2,635	4,750	6,000	15,000	8,850
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,800	5,995	3,360	2,635	4,750	6,000	18,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,110	6,887	4,190	2,697	5,000	6,000	19,000	11,950
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,110	6,887	4,190	2,697	5,000	6,000	20,000	12,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,200	6,796	4,118	2,677	5,000	6,000	17,000	10,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,200	6,796	4,118	2,677	5,000	6,000	20,000	13,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,200	6,796	4,118	2,677	5,000	6,000	22,000	15,050

RAM CREW CAB 2WD LONG BED SLT — DJ 2H92

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,680	6,119	3,367	2,752	4,750	6,010	15,000	8,750
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,680	6,119	3,367	2,752	4,750	6,010	18,000	11,750
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,000	7,004	4,207	2,796	5,000	6,010	19,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,000	7,004	4,207	2,796	5,000	6,010	20,000	12,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,090	6,913	4,136	2,776	5,000	6,010	17,000	9,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,090	6,913	4,136	2,776	5,000	6,010	20,000	12,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,090	6,913	4,136	2,776	5,000	6,010	22,000	14,950

RAM CREW CAB 2WD LONG BED LARAMIE — DJ 2P92

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,610	6,193	3,417	2,776	4,750	6,010	15,000	8,650
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,610	6,193	3,417	2,776	4,750	6,010	18,000	11,650
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	1,850	7,154	4,326	2,828	5,000	6,010	19,000	11,700
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	1,850	7,154	4,326	2,828	5,000	6,010	20,000	12,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,940	7,063	4,255	2,808	5,000	6,010	17,000	9,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,940	7,063	4,255	2,808	5,000	6,010	20,000	12,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,940	7,063	4,255	2,808	5,000	6,010	22,000	14,800

RAM CREW CAB 2WD LONG BED LONGHORN — DJ 2R92

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,590	6,212	3,440	2,772	4,750	6,010	15,000	8,650
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,590	6,212	3,440	2,772	4,750	6,010	18,000	11,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,920	7,085	4,288	2,796	5,000	6,010	17,000	9,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,920	7,085	4,288	2,796	5,000	6,010	20,000	12,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,920	7,085	4,288	2,796	5,000	6,010	22,000	14,750

NOTES:

Note that all the payload and Max Trail weights are ESTIMATED values.

1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.

2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)

3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.

4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM REGULAR CAB 2WD LONG BED ST — DJ 2L62

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,650	3,120	5,532	3,081	2,451	4,750	6,000	15,000	9,300
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,650	3,120	5,532	3,081	2,451	4,750	6,000	18,000	12,300
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,490	6,513	4,021	2,492	5,000	6,000	19,000	12,350
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,490	6,513	4,021	2,492	5,000	6,000	20,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,580	6,416	3,951	2,465	5,000	6,000	17,000	10,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,580	6,416	3,951	2,465	5,000	6,000	20,000	13,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,580	6,416	3,951	2,465	5,000	6,000	22,000	15,450

RAM REGULAR CAB 2WD LONG BED SLT — DJ 2H62

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,650	3,050	5,596	3,101	2,495	4,750	6,010	15,000	9,250
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,650	3,050	5,596	3,101	2,495	4,750	6,010	18,000	12,250
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,430	6,575	4,050	2,524	5,000	6,010	19,000	12,300
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,430	6,575	4,050	2,524	5,000	6,010	20,000	13,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,520	6,478	3,981	2,497	5,000	6,010	17,000	10,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,520	6,478	3,981	2,497	5,000	6,010	20,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,520	6,478	3,981	2,497	5,000	6,010	22,000	15,350

NOTES:
Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM CREW CAB 4WD SHORT BED ST — DJ 7L91

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,550	6,246	3,618	2,627	5,200	6,000	15,000	8,600
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,550	6,246	3,618	2,627	5,200	6,000	18,000	11,600
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,340	7,261	4,573	2,689	5,500	6,000	19,000	11,600
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,340	7,261	4,573	2,689	5,500	6,000	20,000	12,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,430	7,175	4,508	2,667	5,500	6,000	17,000	9,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,430	7,175	4,508	2,667	5,500	6,000	20,000	12,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,430	7,175	4,508	2,667	5,500	6,000	22,000	14,700

RAM CREW CAB 4WD SHORT BED SLT — DJ 7H91

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,490	6,311	3,646	2,665	5,200	6,010	15,000	8,550
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,490	6,311	3,646	2,665	5,200	6,010	18,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,220	7,382	4,585	2,797	5,500	6,010	19,000	11,450
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,220	7,382	4,585	2,797	5,500	6,010	20,000	12,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,300	7,296	4,520	2,776	5,500	6,010	17,000	9,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,300	7,296	4,520	2,776	5,500	6,010	20,000	12,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,300	7,296	4,520	2,776	5,500	6,010	22,000	14,550

RAM CREW CAB 4WD SHORT BED LARAMIE — DJ 7P91

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,360	6,440	3,685	2,755	5,200	6,010	15,000	8,400
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,360	6,440	3,685	2,755	5,200	6,010	18,000	11,400
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,140	7,458	4,648	2,810	5,500	6,010	19,000	11,400
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,140	7,458	4,648	2,810	5,500	6,010	20,000	12,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,230	7,372	4,583	2,789	5,500	6,010	17,000	9,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,230	7,372	4,583	2,789	5,500	6,010	20,000	12,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,230	7,372	4,583	2,789	5,500	6,010	22,000	14,500

RAM CREW CAB 4WD SHORT BED LONGHORN — DJ 7R91

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,340	6,459	3,708	2,751	5,200	6,010	15,000	8,400
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,340	6,459	3,708	2,751	5,200	6,010	18,000	11,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,210	7,386	4,563	2,822	5,500	6,010	17,000	9,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,210	7,386	4,563	2,822	5,500	6,010	20,000	12,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,210	7,386	4,563	2,822	5,500	6,010	22,000	14,450

NOTES:
Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM CREW CAB 4WD SHORT BED 2TP — DJ 7X91- POWERWAGON

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.56	8,510	1,780	6,730	3,967	2,763	4,500	6,100	17,000	10,100

NOTES:
Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM CREW CAB 4WD LONG BED ST — DJ 7L92

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,450	6,346	3,686	2,660	5,200	6,000	15,000	8,500
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,450	6,346	3,686	2,660	5,200	6,000	18,000	11,500
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,320	7,281	4,533	2,748	5,500	6,000	19,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,320	7,281	4,533	2,748	5,500	6,000	20,000	12,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,410	7,194	4,466	2,729	5,500	6,000	17,000	9,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,410	7,194	4,466	2,729	5,500	6,000	20,000	12,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,410	7,194	4,466	2,729	5,500	6,000	22,000	14,650

RAM CREW CAB 4WD LONG BED SLT — DJ 7H92

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,130	6,669	3,844	2,825	5,200	6,010	15,000	8,200
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,130	6,669	3,844	2,825	5,200	6,010	18,000	11,200
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,040	7,563	4,785	2,779	5,500	6,010	19,000	11,300
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,040	7,563	4,785	2,779	5,500	6,010	20,000	12,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,120	7,477	4,717	2,760	5,500	6,010	17,000	9,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,120	7,477	4,717	2,760	5,500	6,010	20,000	12,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,120	7,477	4,717	2,760	5,500	6,010	22,000	14,350

RAM CREW CAB 4WD LONG BED LARAMIE — DJ 7P92

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,130	6,669	3,844	2,825	5,200	6,010	15,000	8,200
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,130	6,669	3,844	2,825	5,200	6,010	18,000	11,200
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	1,960	7,637	4,823	2,814	5,500	6,010	19,000	11,200
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	1,960	7,637	4,823	2,814	5,500	6,010	20,000	12,200
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,050	7,551	4,755	2,795	5,500	6,010	17,000	9,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,050	7,551	4,755	2,795	5,500	6,010	20,000	12,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,050	7,551	4,755	2,795	5,500	6,010	22,000	14,300

RAM CREW CAB 4WD LONG BED LONGHORN — DJ 7R92

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,110	6,688	3,867	2,821	5,200	6,010	15,000	8,150
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,110	6,688	3,867	2,821	5,200	6,010	18,000	11,150
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,040	7,560	4,737	2,823	5,500	6,010	17,000	9,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,040	7,560	4,737	2,823	5,500	6,010	20,000	12,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,040	7,560	4,737	2,823	5,500	6,010	22,000	14,300

NOTES:
Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM REGULAR CAB 4WD LONG BED ST — DJ 7L62

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,650	2,650	5,997	3,479	2,518	5,200	6,000	15,000	8,850
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,650	2,650	5,997	3,479	2,518	5,200	6,000	18,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,140	6,862	4,323	2,539	5,500	6,000	19,000	12,000
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,140	6,862	4,323	2,539	5,500	6,000	20,000	13,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,220	6,779	4,264	2,515	5,500	6,000	17,000	10,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,220	6,779	4,264	2,515	5,500	6,000	20,000	13,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,220	6,779	4,264	2,515	5,500	6,000	22,000	15,050

RAM REGULAR CAB 4WD LONG BED SLT DJ 7H62

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,650	2,600	6,050	3,509	2,541	5,200	6,010	15,000	8,800
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,650	2,600	6,050	3,509	2,541	5,200	6,010	18,000	11,800
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	1,950	7,054	4,430	2,624	5,500	6,010	19,000	11,800
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	1,950	7,054	4,430	2,624	5,500	6,010	20,000	12,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,030	6,971	4,371	2,600	5,500	6,010	17,000	9,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,030	6,971	4,371	2,600	5,500	6,010	20,000	12,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,030	6,971	4,371	2,600	5,500	6,010	22,000	14,900

NOTES:
Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

2011 RAM 3500 PICKUP TOWING CHART

NOTE: BASE WEIGHTS CAN CHANGE

RAM CREW CAB 2WD SHORT BED - ST D2 3L91 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,240	6,861	4,158	2,704	5,000	6,500	19,000	12,000
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,240	6,861	4,158	2,704	5,000	6,500	21,000	14,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,340	6,757	4,080	2,677	5,000	6,500	17,000	10,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,340	6,757	4,080	2,677	5,000	6,500	21,000	14,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,340	6,757	4,080	2,677	5,000	6,500	24,000	17,100

RAM CREW CAB 2WD SHORT BED - SLT D2 3H91 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,310	6,785	4,171	2,615	5,000	6,500	19,000	12,050
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,310	6,785	4,171	2,615	5,000	6,500	21,000	14,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,420	6,681	4,092	2,589	5,000	6,500	17,000	10,150
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,420	6,681	4,092	2,589	5,000	6,500	21,000	14,150
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,420	6,681	4,092	2,589	5,000	6,500	24,000	17,150

RAM CREW CAB 2WD SHORT BED - LARAMIE D2 3P91 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,080	7,019	4,253	2,766	5,000	6,500	19,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,080	7,019	4,253	2,766	5,000	6,500	21,000	13,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,190	6,915	4,175	2,740	5,000	6,500	17,000	9,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,190	6,915	4,175	2,740	5,000	6,500	21,000	13,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,190	6,915	4,175	2,740	5,000	6,500	24,000	16,950

RAM CREW CAB 2WD SHORT BED - LONGHORN D2 3R91 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,100	6,999	4,195	2,804	5,000	6,500	17,000	9,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,100	6,999	4,195	2,804	5,000	6,500	21,000	13,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,100	6,999	4,195	2,804	5,000	6,500	24,000	16,850

NOTES:
Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM CREW CAB 2WD LONG BED - ST D2 3L92 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	11,500	4,270	7,235	4,218	3,017	5,000	9,350	19,000	11,600
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	11,500	4,270	7,235	4,218	3,017	5,000	9,350	21,000	13,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	11,500	4,360	7,144	4,147	2,997	5,000	9,350	17,000	9,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	11,500	4,360	7,144	4,147	2,997	5,000	9,350	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	11,500	4,360	7,144	4,147	2,997	5,000	9,350	26,900	19,200

RAM CREW CAB 2WD LONG BED - ST D2 3L92 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,110	6,990	4,241	2,749	5,000	6,500	19,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,110	6,990	4,241	2,749	5,000	6,500	21,000	13,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,200	6,899	4,170	2,730	5,000	6,500	17,000	9,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,200	6,899	4,170	2,730	5,000	6,500	21,000	13,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,200	6,899	4,170	2,730	5,000	6,500	24,000	16,950

NOTES:
Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM CREW CAB 2WD LONG BED - SLT D2 3H92 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	11,500	4,180	7,323	4,256	3,067	5,000	9,350	19,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	11,500	4,180	7,323	4,256	3,067	5,000	9,350	21,000	13,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	11,500	4,270	7,232	4,184	3,047	5,000	9,350	17,000	9,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	11,500	4,270	7,232	4,184	3,047	5,000	9,350	21,000	13,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	11,500	4,270	7,232	4,184	3,047	5,000	9,350	26,600	18,750

RAM CREW CAB 2WD LONG BED - SLT D2 3H92 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,080	7,017	4,258	2,759	5,000	6,500	19,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,080	7,017	4,258	2,759	5,000	6,500	21,000	13,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,170	6,925	4,186	2,739	5,000	6,500	17,000	9,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,170	6,925	4,186	2,739	5,000	6,500	21,000	13,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,170	6,925	4,186	2,739	5,000	6,500	24,000	16,900

NOTES:
Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM CREW CAB 2WD LONG BED - LARAMIE D2 3P92 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	11,500	4,030	7,471	4,351	3,120	5,000	9,350	19,000	11,400
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	11,500	4,030	7,471	4,351	3,120	5,000	9,350	21,000	13,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	11,500	4,120	7,380	4,280	3,100	5,000	9,350	17,000	9,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	11,500	4,120	7,380	4,280	3,100	5,000	9,350	21,000	13,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	11,500	4,120	7,380	4,280	3,100	5,000	9,350	26,000	18,000

RAM CREW CAB 2WD LONG BED - LARAMIE D2 3P92 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	9,350	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,940	7,161	4,372	2,789	5,000	6,500	19,000	11,700
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,940	7,161	4,372	2,789	5,000	6,500	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,030	7,070	4,300	2,769	5,000	6,500	17,000	9,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,030	7,070	4,300	2,769	5,000	6,500	21,000	13,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,030	7,070	4,300	2,769	5,000	6,500	24,000	16,800

NOTES:
Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM CREW CAB 2WD LONG BED - LONGHORN D2 3R92 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	11,500	4,050	7,451	4,293	3,158	5,000	9,350	17,000	9,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	11,500	4,050	7,451	4,293	3,158	5,000	9,350	21,000	13,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	11,500	4,050	7,451	4,293	3,158	5,000	9,350	25,700	17,650

RAM CREW CAB 2WD LONG BED - LONGHORN D2 3R92 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	9,350	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,960	7,140	4,314	2,827	5,000	6,500	17,000	9,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,960	7,140	4,314	2,827	5,000	6,500	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,960	7,140	4,314	2,827	5,000	6,500	24,000	16,700

NOTES:
Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM REGULAR CAB 2WD LONG BED - ST — D2 3L62 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,000	5,190	6,811	3,944	2,868	5,000	9,350	19,000	12,050
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,000	5,190	6,811	3,944	2,868	5,000	9,350	21,000	14,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,000	5,290	6,714	3,874	2,840	5,000	9,350	17,000	10,150
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,000	5,290	6,714	3,874	2,840	5,000	9,350	21,000	14,150
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,000	5,240	6,756	3,874	2,840	5,000	9,350	30,000	22,700

RAM REGULAR CAB 2WD LONG BED - SLT — D2 3H62 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,000	5,170	6,834	3,957	2,877	5,000	9,350	19,000	12,000
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,000	5,170	6,834	3,957	2,877	5,000	9,350	21,000	14,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,000	5,260	6,737	3,887	2,850	5,000	9,350	17,000	10,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,000	5,260	6,737	3,887	2,850	5,000	9,350	21,000	14,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,000	5,240	6,756	3,887	2,850	5,000	9,350	30,000	22,700

NOTES:
Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM CREW CAB 4WD SHORT BED - ST — D2 8L91 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,930	7,169	4,436	2,733	5,500	6,500	19,000	11,700
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,930	7,169	4,436	2,733	5,500	6,500	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,020	7,083	4,371	2,712	5,500	6,500	17,000	9,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,020	7,083	4,371	2,712	5,500	6,500	21,000	13,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,020	7,083	4,371	2,712	5,500	6,500	24,000	16,750

RAM CREW CAB 4WD SHORT BED - SLT — D2 8H91 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,860	7,241	4,493	2,749	5,500	6,500	19,000	11,600
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,860	7,241	4,493	2,749	5,500	6,500	21,000	13,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,950	7,155	4,428	2,727	5,500	6,500	17,000	9,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,950	7,155	4,428	2,727	5,500	6,500	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,950	7,155	4,428	2,727	5,500	6,500	24,000	16,700

RAM CREW CAB 4WD SHORT BED - LARAMIE — D2 8P91 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,780	7,323	4,522	2,801	5,500	6,500	19,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,780	7,323	4,522	2,801	5,500	6,500	21,000	13,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,860	7,236	4,457	2,779	5,500	6,500	17,000	9,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,860	7,236	4,457	2,779	5,500	6,500	21,000	13,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,860	7,236	4,457	2,779	5,500	6,500	24,000	16,600

RAM CREW CAB 4WD SHORT BED - LONGHORN D2 8R91 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,800	7,303	4,464	2,838	5,500	6,500	17,000	9,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,800	7,303	4,464	2,838	5,500	6,500	21,000	13,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,800	7,303	4,464	2,838	5,500	6,500	24,000	16,550

NOTES:
Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM CREW CAB 4WD LONG BED - ST D2 8L92 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,300	4,640	7,663	4,601	3,062	5,500	9,350	19,000	11,200
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,300	4,640	7,663	4,601	3,062	5,500	9,350	21,000	13,200
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,300	4,720	7,576	4,533	3,043	5,500	9,350	17,000	9,250
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,300	4,720	7,576	4,533	3,043	5,500	9,350	21,000	13,250
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,300	4,720	7,576	4,533	3,043	5,500	9,350	29,100	21,000

RAM CREW CAB 4WD LONG BED ST D2 8L92 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,810	7,292	4,563	2,729	5,500	6,500	19,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,810	7,292	4,563	2,729	5,500	6,500	21,000	13,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,890	7,206	4,495	2,710	5,500	6,500	17,000	9,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,890	7,206	4,495	2,710	5,500	6,500	21,000	13,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,890	7,206	4,495	2,710	5,500	6,500	24,000	16,650

RAM CREW CAB 4WD LONG BED - SLT D2 8H92 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,300	4,590	7,708	4,609	3,098	5,500	9,350	19,000	11,150
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,300	4,590	7,708	4,609	3,098	5,500	9,350	21,000	13,150
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,300	4,680	7,621	4,542	3,079	5,500	9,350	17,000	9,250
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,300	4,680	7,621	4,542	3,079	5,500	9,350	21,000	13,250
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,300	4,680	7,621	4,542	3,079	5,500	9,350	29,000	20,800

RAM CREW CAB 4WD LONG BED - SLT D2 8H92 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,650	7,454	4,634	2,820	5,500	6,500	19,000	11,400
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,650	7,454	4,634	2,820	5,500	6,500	21,000	13,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,730	7,367	4,567	2,801	5,500	6,500	17,000	9,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,730	7,367	4,567	2,801	5,500	6,500	21,000	13,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,730	7,367	4,567	2,801	5,500	6,500	24,000	16,500

NOTES:
Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM CREW CAB 4WD LONG BED - LARAMIE D2 8P92 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,300	4,310	7,986	4,856	3,130	5,500	9,350	19,000	10,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,300	4,310	7,986	4,856	3,130	5,500	9,350	21,000	12,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,300	4,400	7,899	4,788	3,112	5,500	9,350	17,000	8,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,300	4,400	7,899	4,788	3,112	5,500	9,350	21,000	12,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,300	4,400	7,899	4,788	3,112	5,500	9,350	27,900	19,400

RAM CREW CAB 4WD LONG BED - LARAMIE D2 8P92 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,650	7,446	4,655	2,791	5,500	6,500	19,000	11,400
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,650	7,446	4,655	2,791	5,500	6,500	21,000	13,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,740	7,359	4,587	2,772	5,500	6,500	17,000	9,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,740	7,359	4,587	2,772	5,500	6,500	21,000	13,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,740	7,359	4,587	2,772	5,500	6,500	24,000	16,500

NOTES:
Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM CREW CAB 4WD LONG BED - LONGHORN D2 8R92 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,300	4,330	7,965	4,797	3,168	5,500	9,350	17,000	8,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,300	4,330	7,965	4,797	3,168	5,500	9,350	21,000	12,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,300	4,330	7,965	4,797	3,168	5,500	9,350	27,600	19,050

RAM CREW CAB 4WD LONG BED - LONGHORN D2 8R92 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,670	7,425	4,597	2,828	5,500	6,500	17,000	9,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,670	7,425	4,597	2,828	5,500	6,500	21,000	13,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,670	7,425	4,597	2,828	5,500	6,500	24,000	16,400

NOTES:
Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM REGULAR CAB 4WD LONG BED - ST D2 8L62 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,200	4,970	7,234	4,342	2,892	5,500	9,350	19,000	11,600
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,200	4,970	7,234	4,342	2,892	5,500	9,350	21,000	13,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,200	5,050	7,151	4,283	2,868	5,500	9,350	17,000	9,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,200	5,050	7,151	4,283	2,868	5,500	9,350	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,200	5,020	7,181	4,283	2,868	5,500	9,350	30,000	22,300

RAM REGULAR CAB 4WD LONG BED - SLT D2 8H62 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,200	4,940	7,257	4,355	2,902	5,500	9,350	19,000	11,600
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,200	4,940	7,257	4,355	2,902	5,500	9,350	21,000	13,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,200	5,030	7,174	4,296	2,877	5,500	9,350	17,000	9,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,200	5,030	7,174	4,296	2,877	5,500	9,350	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,200	5,010	7,194	4,296	2,877	5,500	9,350	30,000	22,300

NOTES:
Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

2011 RAM MEGA CAB PICKUP TOWING CHART

NOTE: BASE WEIGHTS CAN CHANGE

2500 RAM MEGA CAB 2WD SHORT BED SLT — DJ 2H81

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,520	6,275	3,405	2,870	4,750	6,010	15,000	8,550
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,520	6,275	3,405	2,870	4,750	6,010	18,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	9,000	1,860	7,138	4,360	2,778	5,000	6,010	19,000	11,700
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	9,000	1,860	7,138	4,360	2,778	5,000	6,010	20,000	12,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,950	7,048	4,290	2,758	5,000	6,010	17,000	9,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,950	7,048	4,290	2,758	5,000	6,010	20,000	12,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,950	7,048	4,290	2,758	5,000	6,010	22,000	14,800

2500 RAM MEGA CAB 2WD SHORT BED LARAMIE — DJ 2P81

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,490	6,309	3,420	2,889	4,750	6,010	15,000	8,550
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,490	6,309	3,420	2,889	4,750	6,010	18,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	9,000	1,730	7,272	4,264	3,008	5,000	6,010	19,000	11,600
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	9,000	1,730	7,272	4,264	3,008	5,000	6,010	20,000	12,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,820	7,182	4,194	2,989	5,000	6,010	17,000	9,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,820	7,182	4,194	2,989	5,000	6,010	20,000	12,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,820	7,182	4,194	2,989	5,000	6,010	22,000	14,650

2500 RAM MEGA CAB 2WD SHORT BED LONGHORN — DJ 2R81

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,470	6,329	3,443	2,886	4,750	6,010	15,000	8,500
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,470	6,329	3,443	2,886	4,750	6,010	18,000	11,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,790	7,206	4,185	3,021	5,000	6,010	17,000	9,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,790	7,206	4,185	3,021	5,000	6,010	20,000	12,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,790	7,206	4,185	3,021	5,000	6,010	22,000	14,650

2500 RAM MEGA CAB 4WD SHORT BED SLT — DJ 7H81

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,080	6,717	3,791	2,926	5,200	6,010	15,000	8,150
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,080	6,717	3,791	2,926	5,200	6,010	18,000	11,150
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	9,600	1,950	7,647	4,799	2,848	5,500	6,010	19,000	11,200
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	9,600	1,950	7,647	4,799	2,848	5,500	6,010	20,000	12,200
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,040	7,561	4,732	2,829	5,500	6,010	17,000	9,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,040	7,561	4,732	2,829	5,500	6,010	20,000	12,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,040	7,561	4,732	2,829	5,500	6,010	22,000	14,300

2500 RAM MEGA CAB 4WD SHORT BED LARAMIE DJ 7P81

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,050	6,749	3,804	2,946	5,200	6,010	15,000	8,100
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,050	6,749	3,804	2,946	5,200	6,010	18,000	11,100
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	9,600	1,840	7,756	4,762	2,994	5,500	6,010	19,000	11,100
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	9,600	1,840	7,756	4,762	2,994	5,500	6,010	20,000	12,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	1,930	7,670	4,695	2,976	5,500	6,010	17,000	9,200
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	1,930	7,670	4,695	2,976	5,500	6,010	20,000	12,200
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	1,930	7,670	4,695	2,976	5,500	6,010	22,000	14,200

2500 RAM MEGA CAB 4WD SHORT BED LONGHORN DJ 7R81

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	3.73	8,800	2,030	6,769	3,827	2,942	5,200	6,010	15,000	8,100
5.7L V8 gas (EZC)	A5	545RFE 5 sp AUTO (DGQ)	4.10	8,800	2,030	6,769	3,827	2,942	5,200	6,010	18,000	11,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	1,920	7,682	4,677	3,006	5,500	6,010	17,000	9,150
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	1,920	7,682	4,677	3,006	5,500	6,010	20,000	12,150
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	1,920	7,682	4,677	3,006	5,500	6,010	22,000	14,150

Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

3500 RAM MEGA CAB 2WD SHORT BED SLT D2 3H81 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,100	2,940	7,162	4,331	2,831	5,000	6,500	19,000	11,700
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,100	2,940	7,162	4,331	2,831	5,000	6,500	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,030	7,072	4,261	2,811	5,000	6,500	17,000	9,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,030	7,072	4,261	2,811	5,000	6,500	21,000	13,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,030	7,072	4,261	2,811	5,000	6,500	24,000	16,800

3500 RAM MEGA CAB 2WD SHORT BED SLT D2 3H81 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,500	3,020	7,478	4,329	3,149	5,000	9,350	19,000	11,350
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,500	3,020	7,478	4,329	3,149	5,000	9,350	21,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,500	3,110	7,388	4,258	3,129	5,000	9,350	17,000	9,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,500	3,110	7,388	4,258	3,129	5,000	9,350	21,000	13,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,500	3,110	7,388	4,258	3,129	5,000	9,350	26,000	18,450

3500 RAM MEGA CAB 2WD SHORT BED LARAMIE D2 3P81 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,100	2,960	7,142	4,396	2,747	5,000	6,500	19,000	11,700
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,100	2,960	7,142	4,396	2,747	5,000	6,500	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,050	7,052	4,325	2,727	5,000	6,500	17,000	9,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,050	7,052	4,325	2,727	5,000	6,500	21,000	13,800

3500 RAM MEGA CAB 2WD SHORT BED LARAMIE D2 3P81 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,500	2,930	7,574	4,370	3,204	5,000	9,350	19,000	11,300
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,500	2,930	7,574	4,370	3,204	5,000	9,350	21,000	13,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,500	3,020	7,484	4,299	3,184	5,000	9,350	17,000	9,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,500	3,020	7,484	4,299	3,184	5,000	9,350	21,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,500	3,020	7,484	4,299	3,184	5,000	9,350	26,000	18,350

3500 RAM MEGA CAB 2WD SHORT BED LONGHORN D2 3R81 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,980	7,122	4,338	2,784	5,000	6,500	17,000	9,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,980	7,122	4,338	2,784	5,000	6,500	21,000	13,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,980	7,122	4,338	2,784	5,000	6,500	24,000	16,750

3500 RAM MEGA CAB 2WD SHORT BED LONGHORN D2 3R81 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,500	2,950	7,553	4,312	3,242	5,000	9,350	17,000	9,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,500	2,950	7,553	4,312	3,242	5,000	9,350	21,000	13,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,500	2,950	7,553	4,312	3,242	5,000	9,350	26,000	18,300

Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

3500 RAM MEGA CAB 4WD SHORT BED SLT D2 8H81 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,100	2,590	7,508	4,621	2,887	5,500	6,500	19,000	11,350
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,100	2,590	7,508	4,621	2,887	5,500	6,500	21,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,680	7,422	4,554	2,868	5,500	6,500	17,000	9,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,680	7,422	4,554	2,868	5,500	6,500	21,000	13,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,680	7,422	4,554	2,868	5,500	6,500	24,000	16,450

3500 RAM MEGA CAB 4WD SHORT BED SLT D2 8H81 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,500	2,590	7,907	4,671	3,236	5,500	9,350	19,000	10,950
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,500	2,590	7,907	4,671	3,236	5,500	9,350	21,000	12,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,500	2,680	7,821	4,604	3,217	5,500	9,350	17,000	9,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,500	2,680	7,821	4,604	3,217	5,500	9,350	21,000	13,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,500	2,680	7,821	4,604	3,217	5,500	9,350	26,000	18,050

3500 RAM MEGA CAB 4WD SHORT BED LARAMIE D2 8P81 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,100	2,510	7,591	4,672	2,919	5,500	5,500	19,000	11,250
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,100	2,510	7,591	4,672	2,919	5,500	5,500	21,000	13,250
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,590	7,506	4,605	2,900	5,500	5,500	17,000	9,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,590	7,506	4,605	2,900	5,500	5,500	21,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,590	7,506	4,605	2,900	5,500	5,500	24,000	16,350

3500 RAM MEGA CAB 4WD SHORT BED LARAMIE D2 8P81 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,500	2,510	7,990	4,722	3,268	5,500	9,350	19,000	10,850
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,500	2,510	7,990	4,722	3,268	5,500	9,350	21,000	12,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,500	2,600	7,904	4,655	3,249	5,500	9,350	17,000	8,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,500	2,600	7,904	4,655	3,249	5,500	9,350	21,000	12,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,500	2,600	7,904	4,655	3,249	5,500	9,350	26,000	17,950

3500 RAM MEGA CAB 4WD SHORT BED LONGHORN D2 8R81 (SRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,530	7,571	4,614	2,957	5,500	5,500	17,000	9,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,530	7,571	4,614	2,957	5,500	5,500	21,000	13,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,530	7,571	4,614	2,957	5,500	5,500	24,000	16,300

3500 RAM MEGA CAB 4WD SHORT BED LONGHORN D2 8R81 (DRW)

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,500	2,530	7,970	4,664	3,306	5,500	9,350	17,000	8,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,500	2,530	7,970	4,664	3,306	5,500	9,350	21,000	12,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,500	2,530	7,970	4,664	3,306	5,500	9,350	26,000	17,900

Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

• • •

2012 Ram 2500/3500 Heavy Duty
SPECIFICATIONS

All dimensions are in inches (millimeters) unless otherwise noted.
All dimensions measured at curb weight with standard tires and wheels.

GENERAL INFORMATION

Body Styles	Regular Cab, Crew Cab and Mega Cab
Assembly Plants	Saltillo Assembly Plant - Coahuila, Mexico
EPA Vehicle Class	Standard Pickup
Introduction Date	2010 Model Year

ENGINE: 5.7-LITER HEMI® V-8

Availability	Standard on 2500 Series Models[a]
Type and Description	Eight-cylinder, 90-degree V-8, liquid-cooled with variable-valve timing (VVT)
Displacement	343 cu. in. (5654 cu. cm)
Bore x Stroke	3.92 x 3.58 (99.5 x 90.9)
Valve System	Pushrod-operated overhead valves, 16 valves, hydraulic lifters with roller followers
Fuel Injection	Sequential, multi-port, electronic, returnless
Construction	Deep-skirt cast-iron block with cross-bolted main bearing caps, aluminum alloy heads with hemispherical combustion chambers
Compression Ratio	9.6:1
Power (SAE net)	383 bhp (286 kW) @ 5,600 rpm, 2500 series[b]
Torque (SAE net)	400 lb.-ft. (542 N•m) @ 4,000 rpm, 2500 series
Max. Engine Speed	5,800 rpm
Fuel Requirement	Unleaded mid-grade, 89 octane (R+M)/2—recommended Unleaded regular, 87 octane (R+M)/2—acceptable
Oil Capacity	7.0 qt. (6.6L)
Coolant Capacity	18.7 qt. (17.7L)
Emission Control	Dual three-way catalytic converters, internal engine features with knock sensors[b]

(a) Not available on 3500 Series Pickup models.

(b) All manual transmission equipped vehicles meet LEV I chassis-certified emission requirements in California, New York, Massachusetts, Maine and Vermont. Meets Tier 2 HDV 1, 2 chassis-certified emission requirements in 45 remaining states.
Ram 2500 and 3500 models equipped with automatic transmission and sold in 45 states meet Tier 2 HDV 1, 2 chassis-certified emission requirements. Ram 2500 models equipped with automatic transmission and sold in California, New York, Massachusetts, Maine and Vermont meet LEV II—MDV 1 category chassis-certified emission requirements. Ram 3500 models equipped with automatic transmission and sold in California, New York, Massachusetts, Maine and Vermont meet LEV II—MDV 2 category chassis-certified emission requirements.

2500/3500 Heavy Duty

SPECIFICATIONS

ENGINE: 6.7-LITER HIGH OUTPUT CUMMINS® TURBO DIESEL I-6	
Availability	Standard on 3500 Series
Type and Description	Six-cylinder, inline, liquid-cooled, turbocharged, intercooled
Displacement	408 cu. in. (6690 cu. cm)
Bore x Stroke	4.21 x 4.88 (107 x 124)
Valve System	OHV, 24 valves, solid lifters
Fuel Injection	Electronic high-pressure common rail
Construction	Cast-iron block and head
Compression Ratio	17.3:1
Power (SAE net)	350 bhp (261 kW) @ 3,000 rpm
Torque (Manual SAE net)	650 lb.-ft. (881 N•m) @ 1,500 rpm
Torque (Automatic SAE net)	800 lb.-ft. (881 N•m) @ 1,500 rpm
Maximum High-idle Engine Speed	3,500 rpm
Fuel Requirement	Ultra low sulfur diesel
Oil Capacity	12.0 qt. (11.3L) with filter
Coolant Capacity	29.5 qt. (28.0L)
Emission Controls	No diesel exhaust fluid required

ELECTRICAL SYSTEM	
Alternator	
Availability	Standard—All
Rating	160-amp
Availability	Optional
Rating	180-amp included with Snow Plow Prep Package
Battery	
Availability	Standard—2500 and 3500 with gasoline engines
Description	Group 65, maintenance-free, 600 CCA
Availability	Standard—All with diesel engines; included in Heavy Duty Snow Plow and Trailer-tow Groups
Description	Group 65, maintenance-free, 750 CCA

TRANSMISSION: G56—MANUAL SIX-SPEED OVERDRIVE

Availability	Standard with 6.7-liter High-output Diesel
Description	Synchronized in all gears
Gear Ratios (6.7L Diesel)	
1st	5.94
2nd	3.28
3rd	1.98
4th	1.31
5th	1.00
6th	0.74
Reverse	5.42

TRANSMISSION: 66RFE—AUTOMATIC SIX-SPEED

Availability	Standard with 5.7-liter engines on 2500 series models
Description	Three planetary gear sets, one overrunning clutch, full electronic control, electronically controlled converter clutch
Gear Ratios	
1st	3.231
2nd	1.837
3rd	1.41
4th	1
5th	0.816
6th	0.625
Reverse	4.444
Overall Top Gear	2.33 with 3.73 axle ratio; 2.56 with 4.10 axle ratio, 2.85 with 4.56 axle ratio

TRANSMISSION: 68RFE—AUTOMATIC SIX-SPEED

Availability	Optional with 6.7L Cummins Turbo Diesel engine
Description	Three planetary gear-sets, one overrunning clutch, full electronic control, electronically controlled converter clutch
Gear Ratios	
1st	3.231
2nd	1.837
3rd	1.41
4th	1
5th	0.816
6th	0.625
Reverse	4.444
Overall Top Gear	2.33 with 3.73 axle ratio; 2.56 with 4.10 axle ratio

TRANSFER CASES: NV271/NV273

Availability	NV271—Standard 4WD ST NV273—Standard Laramie; Optional SLT
Type	Part-time
Operating Modes	2WD; 4WD High; Neutral; 4WD Low
Shift Mechanism	NV271—manual; NV273—electric
Low-range Ratio	2.72
Center Differential	None

2012 Ram 2500 Heavy Duty
DIMENSIONS AND CAPACITIES

REGULAR CAB 140.5"WB 8' 0" BOX SRW	**4x2**	**4x4**
Wheelbase	140.5	140.0
Track Width – Front	68.6	68.3
Track Width – Rear	68.2	68.2
Overall Length	231.0	231.0
Overall Width @ SgRP Front	78.9	78.9
Overall Height	73.3	75.7
Suspension or Axle to Ground – Front	7.6	7.5
Suspension or Axle to Ground – Rear	7.4	7.4
Approach Angle	16.4	18.1
Ramp Breakover Angle	16.5	16.9
Departure Angle	22.8	27.6

CREW CAB 149.5"WB 6' 4" BOX SRW	**4x2**	**4x4**
Wheelbase	149.4	148.9
Track Width – Front	68.6	68.3
Track Width – Rear	68.2	68.2
Overall Length	237.4	237.4
Overall Width @ SgRP Front	79.1	79.1
Overall Height	73.7	77.7
Suspension or Axle to Ground – Front	7.1	7.4
Suspension or Axle to Ground – Rear	7.3	7.1
Approach Angle	12.5	21.8
Ramp Breakover Angle	15.1	18.2
Departure Angle	23.7	27.0

CREW CAB 169.5"WB 8' 0" BOX SRW	**4x2**	**4x4**
Wheelbase	169.4	168.9
Track Width – Front	68.6	68.3
Track Width – Rear	68.2	68.2
Overall Length	259.4	259.4
Overall Width @ SgRP Front	79.1	79.1
Overall Height	73.5	77.6
Suspension or Axle to Ground – Front	7.1	7.3
Suspension or Axle to Ground – Rear	7.3	7.2
Approach Angle	12.5	21.8
Ramp Breakover Angle	14.1	16.5
Departure Angle	22.7	25.9

MEGA CAB 160.5"WB 6' 4" BOX SRW	4x2	4x4
Wheelbase	160.5	160.0
Track Width – Front	68.6	68.3
Track Width – Rear	68.2	68.2
Overall Length	248.4	248.4
Overall Width @ SgRP Front	79.1	79.1
Overall Height	74.1	78.3
Suspension or Axle to Ground – Front	7.8	8.1
Suspension or Axle to Ground – Rear	7.8	7.7
Approach Angle	14.0	23.4
Ramp Breakover Angle	15.8	18.3
Departure Angle	24.2	27.6
Cargo Box		
Nominal Box Size	6 ft. 4 in. (Crew or Mega)	8 ft. (Regular or Crew)
SAE Volume, cu. ft. (cu m)	57.5 (1.6)	74.7 (2.1)
Length at Floor, Tailgate Closed – in. (mm)	76.3 (1938.5)	98.3 (2496.5)
Cargo Width – in. (mm)	66.4 (1686.9)	66.4 (1686.9)
Distance Between Wheelhouses – in. (mm)	51 (1295.4)	51 (1295.4)
Depth – in. (mm)	20.1 (510.5)	20.2 (513.2)
Tailgate Opening Width in. – (mm)	60.4 (1535.3)	60.4 (1535.3)

ACCOMMODATIONS

Model

	Regular Cab	*Crew Cab*	*Mega Cab®*
Seating Capacity, F/R	3/0 or 2/0	3/3 or 2/3	3/3 or 2/3
Front			
Head Room – in. (mm)	40.3 (1022.6)	41.0 (1040.5)	41.0 (1040.5)
Legroom – in. (mm)	41 (1041.3)	41 (1041.3)	41 (1041.3)
Shoulder Room – in. (mm)	66 (1676.4)	66 (1676.5)	66 (1676.5)
Hip Room – in. (mm)	62.9 (1676.4)	63.2 (1604.6)	63.2 (1604.6)
Seat Travel – in. (mm)	7.1 (179.2)	7.1 (179.2)	7.1 (179.2)
Recliner Range (degrees)	14°	42°	42°
Rear			
Head Room – in. (mm)	N/A	39.9 (1013.5)	39.7 (1007.3)
Legroom – in. (mm)	N/A	40.3 (1023.6)	34.7 (881.4)
Shoulder Room – in. (mm)	N/A	65.7 (1670)	65.7 (1670)
Hip Room – in. (mm)	N/A	63.2 (1605.2)	62.9 (1598.3)
Interior Volume			
Front – cu. ft. (cu m)	63.0 (1.8)	64.2 (1.8)	64.2 (1.8)
Rear – cu. ft. (cu m)	N/A	61.1 (1.7)	52.4 (1.5)

BODY AND CHASSIS

Model	*2WD*	*4WD*
Layout	Longitudinal, front engine	Longitudinal, front engine, transfer case
Construction	Ladder-type frame, steel cab, double-wall steel pickup box	Ladder-type frame, steel cab, double-wall steel pickup box

SUSPENSION

Model	*2WD*	*4WD*
Front	Upper and lower “A” arms, coil springs, stabilizer bar	Five-link with track bar, coil springs, stabilizer bar, solid axle
Rear	Hotchkiss leaf spring suspension, solid axle	Hotchkiss leaf spring suspension, solid axle

STEERING

Regular Cab Pickup

Model	*2WD*	*4WD*
Box Length	Long	Long
Wheelbase (nominal) – in. (mm)	140.5	140.5
Turning Diameter – ft. (m)[a]	45.1	41.6

Crew Cab® Pickup

Model	*2WD*	*2WD*	*4WD*	*4WD*
Box Length	Short	Long	Short	Long
Wheelbase (nominal) – in. (mm)	149.5	169.5	149.5	169.5
Turning Diameter –ft. (m)[a]	47.5	53.2	43.9	49.2

Mega Cab Pickup

Model	*2WD*	*4WD*
Wheelbase (nominal) – in. (mm)	160.5	160.5
Turning Diameter – ft. (m)[a]	50.67	46.86

(a) Turning diameter is measured at the outside of the tires at curb height. Turning diameters and steering wheel turns, lock-to-lock may differ with optional tires and wheels.

BRAKES

Front	
Size and Type – in. (mm)	Rotors 14.17 x 1.54-in. disc with twin-piston pin-slider caliper and ABS
Rear	
Size and Type – in. (mm)	Rotors 14.09 x 1.34-inch disc with twin-piston pin-slider caliper and ABS
Power-assist Type	Dual-rate, tandem diaphragm vacuum (gas) Hydro-boost (diesel)

2012 Ram 3500 Heavy Duty
DIMENSIONS AND CAPACITIES

REGULAR CAB 140.5"WB 8' 0" BOX DRW	**4x2**	**4x4**
Wheelbase	140.5	140.0
Track Width – Front	68.6	69.5
Track Width – Rear	75.8	75.8
Overall Length	231.0	231.0
Overall Width @ SgRP Front	78.9	78.9
Overall Height	73.6	77.9
Suspension or Axle to Ground – Front	8.0	8.4
Suspension or Axle to Ground – Rear	7.6	7.7
Approach Angle	17.2	25.5
Ramp Breakover Angle	14.4	20.9
Departure Angle	23.1	26.5

CREW CAB 149.5"WB 6' 4" BOX SRW	**4x2**	**4x4**
Wheelbase	149.4	148.9
Track Width – Front	68.6	68.3
Track Width – Rear	68.2	68.2
Overall Length	237.4	237.4
Overall Width @ SgRP Front	79.1	79.1
Overall Height	74.2	78.4
Suspension or Axle to Ground – Front	7.8	8.1
Suspension or Axle to Ground – Rear	7.8	7.8
Approach Angle	13.9	23.4
Ramp Breakover Angle	16.3	19.4
Departure Angle	24.2	27.7

CREW CAB 169.5"WB 8' 0" BOX SRW	**4x2**	**4x4**
Wheelbase	169.4	168.9
Track Width – Front	68.6	68.3
Track Width – Rear	68.2	68.2
Overall Length	259.4	259.4
Overall Width @ SgRP Front	79.1	79.1
Overall Height	74.1	78.3
Suspension or Axle to Ground – Front	7.8	8.1
Suspension or Axle to Ground – Rear	7.8	7.7
Approach Angle	14.1	23.5
Ramp Breakover Angle	15.4	17.6
Departure Angle	23.1	26.4

CREW CAB 169.5"WB 8' 0" BOX DRW	4x2	4x4
Wheelbase	169.4	168.9
Track Width – Front	68.6	69.5
Track Width – Rear	75.8	75.8
Overall Length	249.4	259.4
Overall Width @ SgRP Front	79.1	79.1
Overall Height	74.1	78.3
Suspension or Axle to Ground – Front	7.9	8.3
Suspension or Axle to Ground – Rear	7.6	7.6
Approach Angle	14.4	23.8
Ramp Breakover Angle	12.0	17.8
Departure Angle	22.9	26.3

MEGA CAB 160.5"WB 6' 4" BOX SRW	4x2	4x4
Wheelbase	160.5	160.0
Track Width – Front	68.6	68.3
Track Width – Rear	68.2	68.2
Overall Length	248.4	248.4
Overall Width @ SgRP Front	79.1	79.1
Overall Height	74.1	78.3
Suspension or Axle to Ground – Front	7.8	8.1
Suspension or Axle to Ground – Rear	7.8	7.7
Approach Angle	14.0	23.4
Ramp Breakover Angle	15.8	18.3
Departure Angle	24.2	27.6

MEGA CAB 160.5"WB 6' 3" BOX DRW	4x2	4x4
Wheelbase	160.5	160.0
Track Width – Front	68.6	69.5
Track Width – Rear	75.8	75.8
Overall Length	248.4	248.4
Overall Width @ SgRP Front	79.1	79.1
Overall Height	74.1	78.3
Suspension or Axle to Ground – Front	7.9	8.3
Suspension or Axle to Ground – Rear	7.6	7.5
Approach Angle	14.3	23.8
Ramp Breakover Angle	12.5	18.5
Departure Angle	23.9	27.3

2500/3500 Heavy Duty SPECIFICATIONS

Cargo Box

Nominal Box Size	***6 ft 4 in (Crew or Mega)***	***8 ft (Regular or Crew)***
SAE Volume, cu. ft. (cu m)	57.5 (1.6)	74.7 (2.1)
Length at Floor, Tailgate Closed – in. (mm)	76.3 (1938.5)	98.3 (2496.5)
Cargo Width – in. (mm)	66.4 (1686.9)	66.4 (1686.9)
Distance Between Wheelhouses – in. (mm)	51 (1295.4)	51 (1295.4)
Depth – in. (mm)	20.1 (510.5)	20.2 (513.2)
Tailgate Opening Width in. – (mm)	60.4 (1535.3)	60.4 (1535.3)

ACCOMMODATIONS

Model	***Regular Cab***	***Crew Cab***	***Mega Cab®***
Seating Capacity, F/R	3/0 or 2/0	3/3 or 2/3	3/3 or 2/3
Front			
Head Room – in. (mm)	40.3 (1022.6)	41.0 (1040.5)	41.0 (1040.5)
Legroom – in. (mm)	41 (1041.3)	41 (1041.3)	41 (1041.3)
Shoulder Room – in. (mm)	66 (1676.4)	66 (1676.5)	66 (1676.5)
Hip Room – in. (mm)	62.9 (1676.4)	63.2 (1604.6)	63.2 (1604.6)
Seat Travel – in. (mm)	7.1 (179.2)	7.1 (179.2)	7.1 (179.2)
Recliner Range (degrees)	14°	42°	42°
Rear			
Head Room – in. (mm)	N/A	39.9 (1013.5)	39.7 (1007.3)
Legroom – in. (mm)	N/A	40.3 (1023.6)	34.7 (881.4)
Shoulder Room – in. (mm)	N/A	65.7 (1670)	65.7 (1670)
Hip Room – in. (mm)	N/A	63.2 (1605.2)	62.9 (1598.3)
Interior Volume			
Front – cu. ft. (cu m)	63.0 (1.8)	64.2 (1.8)	64.2 (1.8)
Rear – cu. ft. (cu m)	N/A	61.1 (1.7)	52.4 (1.5)

BODY AND CHASSIS

Model	***2WD***	***4WD***
Layout	Longitudinal, front engine	Longitudinal, front engine, transfer case
Construction	Ladder-type frame, steel cab, double-wall steel pickup box	Ladder-type frame, steel cab, double-wall steel pickup box

SUSPENSION

Model	*2WD*	*4WD*
Front	Upper and lower "A" arms, coil springs, stabilizer bar	Five-link with track bar, coil springs, stabilizer bar, solid axle
Rear	Hotchkiss leaf spring suspension, solid axle	Hotchkiss leaf spring suspension, solid axle

STEERING

Regular Cab Pickup

Model	*2WD*	*4WD*
Box Length	Long	Long
Wheelbase (nominal) – in. (mm)	140.5	140.5
Turning Diameter – ft. (m)[(a)]	45.1	41.6

Crew Cab® Pickup

Model	*2WD*	*2WD*	*4WD*	*4WD*
Box Length	Short	Long	Short	Long
Wheelbase (nominal) – in. (mm)	149.5	169.5	149.5	169.5
Turning Diameter –ft. (m)[(a)]	47.5	53.2	43.9	49.2

Mega Cab Pickup

Model	*2WD*	*4WD*
Wheelbase (nominal) – in. (mm)	160.5	160.5
Turning Diameter – ft. (m)[(a)]	50.67	46.86

(a) Turning diameter is measured at the outside of the tires at curb height. Turning diameters and steering wheel turns, lock-to-lock may differ with optional tires and wheels.

BRAKES

Front	
Size and Type – in. (mm)	Rotors 14.17 x 1.54-in. disc with twin-piston pin-slider caliper and ABS
Rear	
Size and Type – in. (mm)	Rotors 14.09 x 1.34-in. disc with twin-piston pin-slider caliper and ABS
Power-assist type	Dual-rate, tandem diaphragm vacuum (gas) Hydro-boost (diesel)

• • •

RAM CREW CAB 2WD SHORT BED ST — **DJ 2L91**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,930	5,873	3,257	2,616	4,750	6,000	17,000	11,000
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,930	5,873	3,257	2,616	4,750	6,000	20,000	14,000
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,170	6,825	4,128	2,697	5,000	6,000	19,000	12,000
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,170	6,825	4,128	2,697	5,000	6,000	20,000	13,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,240	6,762	4,069	2,693	5,000	6,000	17,000	10,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,240	6,762	4,069	2,693	5,000	6,000	20,000	13,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,240	6,762	4,069	2,693	5,000	6,000	22,000	15,100

RAM CREW CAB 2WD SHORT BED SLT — **DJ 2H91**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,900	5,897	3,207	2,690	4,750	6,010	17,000	10,950
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,900	5,897	3,207	2,690	4,750	6,010	20,000	13,950
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,100	6,904	4,193	2,711	5,000	6,010	19,000	11,950
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,100	6,904	4,193	2,711	5,000	6,010	20,000	12,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,160	6,841	4,134	2,707	5,000	6,010	17,000	10,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,160	6,841	4,134	2,707	5,000	6,010	20,000	13,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,160	6,841	4,134	2,707	5,000	6,010	22,000	15,000

RAM CREW CAB 2WD SHORT BED LARAMIE — **DJ 2P91**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,880	5,922	3,230	2,692	4,750	6,010	17,000	10,950
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,880	5,922	3,230	2,692	4,750	6,010	20,000	13,950
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,020	6,985	4,216	2,768	5,000	6,010	19,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,020	6,985	4,216	2,768	5,000	6,010	20,000	12,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,080	6,922	4,158	2,764	5,000	6,010	17,000	9,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,080	6,922	4,158	2,764	5,000	6,010	20,000	12,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,080	6,922	4,158	2,764	5,000	6,010	22,000	14,950

RAM CREW CAB 2WD SHORT BED LONGHORN — **DJ 2R91**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,760	6,044	3,303	2,742	4,750	6,010	17,000	10,800
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,760	6,044	3,303	2,742	4,750	6,010	20,000	13,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,970	7,026	4,195	2,830	5,000	6,010	17,000	9,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,970	7,026	4,195	2,830	5,000	6,010	20,000	12,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,970	7,026	4,195	2,830	5,000	6,010	22,000	14,800

NOTES:

Note that all the payload and Max Trail weights are ESTIMATED values.

1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.

2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)

3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.

4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

2500/3500 HEAVY DUTY

2500 TOWING CHARTS

RAM CREW CAB 2WD LONG BED ST					DJ 2L92							
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,830	5,966	3,281	2,685	4,750	6,000	17,000	10,900
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,830	5,966	3,281	2,685	4,750	6,000	20,000	13,900
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,050	6,953	4,242	2,711	5,000	6,000	19,000	11,900
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,050	6,953	4,242	2,711	5,000	6,000	20,000	12,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,110	6,886	4,182	2,704	5,000	6,000	17,000	9,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,110	6,886	4,182	2,704	5,000	6,000	20,000	12,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,110	6,886	4,182	2,704	5,000	6,000	22,000	14,950

RAM CREW CAB 2WD LONG BED SLT					DJ 2H92							
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,660	6,137	3,405	2,732	4,750	6,010	17,000	10,700
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,660	6,137	3,405	2,732	4,750	6,010	20,000	13,700
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	1,990	7,011	4,237	2,774	5,000	6,010	19,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	1,990	7,011	4,237	2,774	5,000	6,010	20,000	12,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,060	6,944	4,177	2,767	5,000	6,010	17,000	9,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,060	6,944	4,177	2,767	5,000	6,010	20,000	12,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,060	6,944	4,177	2,767	5,000	6,010	22,000	14,900

RAM CREW CAB 2WD LONG BED LARAMIE					DJ 2P92							
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,620	6,175	3,401	2,774	4,750	6,010	17,000	10,650
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,620	6,175	3,401	2,774	4,750	6,010	20,000	13,650
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	1,870	7,126	4,302	2,824	5,000	6,010	19,000	11,700
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	1,870	7,126	4,302	2,824	5,000	6,010	20,000	12,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,940	7,059	4,242	2,817	5,000	6,010	17,000	9,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,940	7,059	4,242	2,817	5,000	6,010	20,000	12,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,940	7,059	4,242	2,817	5,000	6,010	22,000	14,800

RAM CREW CAB 2WD LONG BED LONGHORN					DJ 2R92							
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,500	6,299	3,475	2,824	4,750	6,010	17,000	10,550
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,500	6,299	3,475	2,824	4,750	6,010	20,000	13,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,820	7,178	4,281	2,897	5,000	6,010	17,000	9,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,820	7,178	4,281	2,897	5,000	6,010	20,000	12,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,820	7,178	4,281	2,897	5,000	6,010	22,000	14,650

NOTES:

Note that all the payload and Max Trail weights are ESTIMATED values.

1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.

2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)

3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.

4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM REGULAR CAB 2WD LONG BED ST				DJ 2L62								
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,650	3,190	5,464	3,053	2,411	4,750	6,000	17,000	11,400
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,650	3,190	5,464	3,053	2,411	4,750	6,000	20,000	14,400
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,550	6,445	3,981	2,465	5,000	6,000	19,000	12,400
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,550	6,445	3,981	2,465	5,000	6,000	20,000	13,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,650	6,346	3,904	2,442	5,000	6,000	17,000	10,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,650	6,346	3,904	2,442	5,000	6,000	20,000	13,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,650	6,346	3,904	2,442	5,000	6,000	22,000	15,500

RAM REGULAR CAB 2WD LONG BED SLT				DJ 2H62								
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,650	3,030	5,616	3,114	2,502	4,750	6,010	17,000	11,250
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,650	3,030	5,616	3,114	2,502	4,750	6,010	20,000	14,250
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,420	6,585	4,056	2,529	5,000	6,010	19,000	12,250
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,420	6,585	4,056	2,529	5,000	6,010	20,000	13,250
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,510	6,486	3,980	2,506	5,000	6,010	17,000	10,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,510	6,486	3,980	2,506	5,000	6,010	20,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,510	6,486	3,980	2,506	5,000	6,010	22,000	15,350

NOTES:

Note that all the payload and Max Trail weights are ESTIMATED values.

1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.

2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)

3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.

4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM CREW CAB 4WD SHORT BED ST — **DJ 7L91**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,520	6,282	3,576	2,706	5,200	6,000	17,000	10,550
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,520	6,282	3,576	2,706	5,200	6,000	20,000	13,550
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,340	7,257	4,501	2,756	5,500	6,000	19,000	11,600
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,340	7,257	4,501	2,756	5,500	6,000	20,000	12,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,410	7,190	4,440	2,750	5,500	6,000	17,000	9,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,410	7,190	4,440	2,750	5,500	6,000	20,000	12,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,410	7,190	4,440	2,750	5,500	6,000	22,000	14,650

RAM CREW CAB 4WD SHORT BED SLT — **DJ 7H91**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,490	6,309	3,592	2,717	5,200	6,010	17,000	10,550
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,490	6,309	3,592	2,717	5,200	6,010	20,000	13,550
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,320	7,278	4,496	2,782	5,500	6,010	19,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,320	7,278	4,496	2,782	5,500	6,010	20,000	12,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,390	7,211	4,435	2,776	5,500	6,010	17,000	9,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,390	7,211	4,435	2,776	5,500	6,010	20,000	12,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,390	7,211	4,435	2,776	5,500	6,010	22,000	14,650

RAM CREW CAB 4WD SHORT BED LARAMIE — **DJ 7P91**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,430	6,366	3,626	2,741	5,200	6,010	17,000	10,500
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,430	6,366	3,626	2,741	5,200	6,010	20,000	13,500
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,210	7,386	4,574	2,812	5,500	6,010	19,000	11,450
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,210	7,386	4,574	2,812	5,500	6,010	20,000	12,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,280	7,319	4,513	2,806	5,500	6,010	17,000	9,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,280	7,319	4,513	2,806	5,500	6,010	20,000	12,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,280	7,319	4,513	2,806	5,500	6,010	22,000	14,550

RAM CREW CAB 4WD SHORT BED LONGHORN — **DJ 7R91**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,340	6,458	3,670	2,787	5,200	6,010	17,000	10,400
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,340	6,458	3,670	2,787	5,200	6,010	20,000	13,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,170	7,429	4,554	2,875	5,500	6,010	17,000	9,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,170	7,429	4,554	2,875	5,500	6,010	20,000	12,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,170	7,429	4,554	2,875	5,500	6,010	22,000	14,400

NOTES:

Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM CREW CAB 4WD SHORT BED 2TP — **DJ 7X91 POWERWAGON**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.56	8,510	1,880	6,626	3,874	2,752	4,500	6,010	17,000	10,200

NOTES:

Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

2500/3500 HEAVY DUTY
2500 TOWING CHARTS

RAM CREW CAB 4WD LONG BED ST — **DJ 7L92**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,360	6,440	3,686	2,754	5,200	6,000	17,000	10,400
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,360	6,440	3,686	2,754	5,200	6,000	20,000	13,400
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,210	7,386	4,613	2,773	5,500	6,000	19,000	11,450
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,210	7,386	4,613	2,773	5,500	6,000	20,000	12,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,290	7,315	4,549	2,766	5,500	6,000	17,000	9,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,290	7,315	4,549	2,766	5,500	6,000	20,000	12,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,290	7,315	4,549	2,766	5,500	6,000	22,000	14,550

RAM CREW CAB 4WD LONG BED SLT — **DJ 7H92**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,200	6,597	3,767	2,830	5,200	6,010	17,000	10,250
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,200	6,597	3,767	2,830	5,200	6,010	20,000	13,250
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,120	7,482	4,699	2,782	5,500	6,010	19,000	11,350
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,120	7,482	4,699	2,782	5,500	6,010	20,000	12,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,190	7,411	4,636	2,775	5,500	6,010	17,000	9,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,190	7,411	4,636	2,775	5,500	6,010	20,000	12,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,190	7,411	4,636	2,775	5,500	6,010	22,000	14,450

RAM CREW CAB 4WD LONG BED LARAMIE — **DJ 7P92**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,130	6,671	3,806	2,865	5,200	6,010	17,000	10,200
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,130	6,671	3,806	2,865	5,200	6,010	20,000	13,200
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,080	7,518	4,698	2,820	5,500	6,010	19,000	11,350
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,080	7,518	4,698	2,820	5,500	6,010	20,000	12,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,150	7,448	4,635	2,813	5,500	6,010	17,000	9,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,150	7,448	4,635	2,813	5,500	6,010	20,000	12,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,150	7,448	4,635	2,813	5,500	6,010	22,000	14,400

RAM CREW CAB 4WD LONG BED LONGHORN — **DJ 7R92**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,030	6,773	3,852	2,921	5,200	6,010	17,000	10,100
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,030	6,773	3,852	2,921	5,200	6,010	20,000	13,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,030	7,569	4,677	2,892	5,500	6,010	17,000	9,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,030	7,569	4,677	2,892	5,500	6,010	20,000	12,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,030	7,569	4,677	2,892	5,500	6,010	22,000	14,300

NOTES:

Note that all the payload and Max Trail weights are ESTIMATED values.

1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.

2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)

3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.

4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

2500/3500 HEAVY DUTY

2500 TOWING CHARTS

RAM REGULAR CAB 4WD LONG BED ST				DJ 7L62								
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,650	2,700	5,954	3,448	2,506	5,200	6,000	17,000	10,900
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,650	2,700	5,954	3,448	2,506	5,200	6,000	20,000	13,900
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,090	6,910	4,347	2,563	5,500	6,000	19,000	11,950
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,090	6,910	4,347	2,563	5,500	6,000	20,000	12,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,180	6,823	4,277	2,547	5,500	6,000	17,000	10,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,180	6,823	4,277	2,547	5,500	6,000	20,000	13,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,180	6,823	4,277	2,547	5,500	6,000	22,000	15,050

RAM REGULAR CAB 4WD LONG BED SLT				DJ 7H62								
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,650	2,600	6,048	3,512	2,537	5,200	6,010	17,000	10,800
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,650	2,600	6,048	3,512	2,537	5,200	6,010	20,000	13,800
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	2,010	6,991	4,388	2,603	5,500	6,010	19,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	2,010	6,991	4,388	2,603	5,500	6,010	20,000	12,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,100	6,904	4,318	2,587	5,500	6,010	17,000	9,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,100	6,904	4,318	2,587	5,500	6,010	20,000	12,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,100	6,904	4,318	2,587	5,500	6,010	22,000	14,950

NOTES:

Note that all the payload and Max Trail weights are ESTIMATED values.

1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.

2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)

3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.

4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

2500/3500 HEAVY DUTY

2500 TOWING CHARTS

RAM CREW CAB 2WD SHORT BED ST — W/ RAMBOX

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,730	6,067	3,253	2,814	4,750	6,000	17,000	10,800
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,730	6,067	3,253	2,814	4,750	6,000	20,000	13,800
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	1,980	7,019	4,124	2,895	5,000	6,000	19,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	1,980	7,019	4,124	2,895	5,000	6,000	20,000	12,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	2,040	6,957	4,066	2,890	5,000	6,000	17,000	9,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	2,040	6,957	4,066	2,890	5,000	6,000	20,000	12,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	2,040	6,957	4,066	2,890	5,000	6,000	22,000	14,900

RAM CREW CAB 2WD SHORT BED SLT — W/ RAMBOX

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,710	6,092	3,204	2,888	4,750	6,010	17,000	10,750
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,710	6,092	3,204	2,888	4,750	6,010	20,000	13,750
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	1,900	7,098	4,189	2,909	5,000	6,010	19,000	11,750
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	1,900	7,098	4,189	2,909	5,000	6,010	20,000	12,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,960	7,035	4,131	2,905	5,000	6,010	17,000	9,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,960	7,035	4,131	2,905	5,000	6,010	20,000	12,800
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,960	7,035	4,131	2,905	5,000	6,010	22,000	14,800

RAM CREW CAB 2WD SHORT BED LARAMIE — W/ RAMBOX

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,680	6,117	3,227	2,890	4,750	6,010	17,000	10,750
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,680	6,117	3,227	2,890	4,750	6,010	20,000	13,750
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,000	1,820	7,179	4,213	2,966	5,000	6,010	19,000	11,650
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,000	1,820	7,179	4,213	2,966	5,000	6,010	20,000	12,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,880	7,116	4,155	2,961	5,000	6,010	17,000	9,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,880	7,116	4,155	2,961	5,000	6,010	20,000	12,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,880	7,116	4,155	2,961	5,000	6,010	22,000	14,750

RAM CREW CAB 2WD SHORT BED LONGHORN — W/ RAMBOX

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,560	6,239	3,299	2,940	4,750	6,010	17,000	10,600
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,560	6,239	3,299	2,940	4,750	6,010	20,000	13,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,780	7,220	4,192	3,028	5,000	6,010	17,000	9,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,780	7,220	4,192	3,028	5,000	6,010	20,000	12,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,780	7,220	4,192	3,028	5,000	6,010	22,000	14,650

NOTES:

Note that all the payload and Max Trail weights are ESTIMATED values.

1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.

2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)

3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.

4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM CREW CAB 4WD SHORT BED ST			W/ RAMBOX									
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,320	6,476	3,573	2,903	5,200	6,000	17,000	10,350
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,320	6,476	3,573	2,903	5,200	6,000	20,000	13,350
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,150	7,452	4,498	2,954	5,500	6,000	19,000	11,400
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,150	7,452	4,498	2,954	5,500	6,000	20,000	12,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,220	7,385	4,437	2,948	5,500	6,000	17,000	9,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,220	7,385	4,437	2,948	5,500	6,000	20,000	12,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,220	7,385	4,437	2,948	5,500	6,000	22,000	14,450

RAM CREW CAB 4WD SHORT BED SLT			W/ RAMBOX									
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,300	6,503	3,588	2,915	5,200	6,010	17,000	10,350
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,300	6,503	3,588	2,915	5,200	6,010	20,000	13,350
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,130	7,472	4,493	2,980	5,500	6,010	19,000	11,400
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,130	7,472	4,493	2,980	5,500	6,010	20,000	12,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,190	7,406	4,432	2,974	5,500	6,010	17,000	9,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,190	7,406	4,432	2,974	5,500	6,010	20,000	12,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,190	7,406	4,432	2,974	5,500	6,010	22,000	14,450

RAM CREW CAB 4WD SHORT BED LARAMIE			W/ RAMBOX									
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,240	6,561	3,622	2,938	5,200	6,010	17,000	10,300
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,240	6,561	3,622	2,938	5,200	6,010	20,000	13,300
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	9,600	2,020	7,581	4,571	3,010	5,500	6,010	19,000	11,250
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	9,600	2,020	7,581	4,571	3,010	5,500	6,010	20,000	12,250
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	2,090	7,514	4,510	3,004	5,500	6,010	17,000	9,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	2,090	7,514	4,510	3,004	5,500	6,010	20,000	12,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	2,090	7,514	4,510	3,004	5,500	6,010	22,000	14,350

RAM CREW CAB 4WD SHORT BED LONGHORN			W/RAMBOX									
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,150	6,652	3,667	2,985	5,200	6,010	17,000	10,200
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,150	6,652	3,667	2,985	5,200	6,010	20,000	13,200
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	1,980	7,623	4,550	3,073	5,500	6,010	17,000	9,250
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	1,980	7,623	4,550	3,073	5,500	6,010	20,000	12,250
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	1,980	7,623	4,550	3,073	5,500	6,010	22,000	14,250

NOTES:

Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

RAM CREW CAB 4WD SHORT BED 2TP			POWERWAGON W/ RAMBOX									
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.56	8,510	1,690	6,820	3,871	2,949	4,500	6,010	17,000	10,050

NOTES:

Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

2500 RAM MEGA CAB 2WD SHORT BED SLT — DJ 2H81 W/ RAMBOX

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,340	6,460	3,399	3,061	4,750	6,010	17,000	10,400
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,340	6,460	3,399	3,061	4,750	6,010	20,000	13,400
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	9,000	1,690	7,313	4,346	2,967	5,000	6,010	19,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	9,000	1,690	7,313	4,346	2,967	5,000	6,010	20,000	12,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,750	7,245	4,285	2,960	5,000	6,010	17,000	9,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,750	7,245	4,285	2,960	5,000	6,010	20,000	12,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,750	7,245	4,285	2,960	5,000	6,010	22,000	14,600

2500 RAM MEGA CAB 2WD SHORT BED LARAMIE — DJ 2P81 W/ RAMBOX

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,300	6,495	3,366	3,130	4,750	6,010	17,000	10,350
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,300	6,495	3,366	3,130	4,750	6,010	20,000	13,350
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	9,000	1,630	7,372	4,253	3,119	5,000	6,010	19,000	11,500
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	9,000	1,630	7,372	4,253	3,119	5,000	6,010	20,000	12,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,700	7,304	4,192	3,112	5,000	6,010	17,000	9,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,700	7,304	4,192	3,112	5,000	6,010	20,000	12,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,700	7,304	4,192	3,112	5,000	6,010	22,000	14,550

2500 RAM MEGA CAB 2WD SHORT BED LONGHORN — DJ 2R81 W/ RAMBOX

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	2,200	6,600	3,471	3,128	4,750	6,010	17,000	10,250
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	2,200	6,600	3,471	3,128	4,750	6,010	20,000	13,250
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,000	1,590	7,413	4,231	3,182	5,000	6,010	17,000	9,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,000	1,590	7,413	4,231	3,182	5,000	6,010	20,000	12,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,000	1,590	7,413	4,231	3,182	5,000	6,010	22,000	14,450

Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

2500 RAM MEGA CAB 4WD SHORT BED SLT — DJ 7H81 W/ RAMBOX

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	1,900	6,900	3,783	3,117	5,200	6,010	17,000	9,950
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	1,900	6,900	3,783	3,117	5,200	6,010	20,000	12,950
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	9,600	1,760	7,838	4,684	3,154	5,500	6,010	19,000	11,000
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	9,600	1,760	7,838	4,684	3,154	5,500	6,010	20,000	12,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	1,830	7,770	4,622	3,148	5,500	6,010	17,000	9,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	1,830	7,770	4,622	3,148	5,500	6,010	20,000	12,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	1,830	7,770	4,622	3,148	5,500	6,010	22,000	14,100

2500 RAM MEGA CAB 4WD SHORT BED LARAMIE — DJ 7P81 W/ RAMBOX

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	1,860	6,935	3,749	3,186	5,200	6,010	17,000	9,900
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	1,860	6,935	3,749	3,186	5,200	6,010	20,000	12,900
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	9,600	1,710	7,886	4,732	3,154	5,500	6,010	19,000	10,950
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	9,600	1,710	7,886	4,732	3,154	5,500	6,010	20,000	11,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	1,780	7,818	4,670	3,148	5,500	6,010	17,000	9,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	1,780	7,818	4,670	3,148	5,500	6,010	20,000	12,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	1,780	7,818	4,670	3,148	5,500	6,010	22,000	14,050

2500 RAM MEGA CAB 4WD SHORT BED LONGHORN — DJ 7R81 W/ RAMBOX

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	3.73	8,800	1,780	7,019	3,794	3,225	5,200	6,010	17,000	9,850
5.7L V8 gas (EZC)	A6	66RFE 6 sp AUTO (DFP)	4.10	8,800	1,780	7,019	3,794	3,225	5,200	6,010	20,000	12,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	9,600	1,670	7,934	4,714	3,220	5,500	6,010	17,000	8,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	9,600	1,670	7,934	4,714	3,220	5,500	6,010	20,000	11,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	9,600	1,670	7,934	4,714	3,220	5,500	6,010	22,000	13,900

Note that all the payload and Max Trail weights are ESTIMATED values.
1. Payload is rounded to the nearest 10 lbs. Payload = GVWR - Curb Wt.
2. Maximum trailer weights are rounded to the nearest 50 lbs.
Maximum Trailer Weight = GCWR - Curb wt. -150 lbs. (allowance for driver)
3. The recommended tongue weight is between 10 percent and 15 percent of the gross trailer weight. However, the maximum tongue weight on Class III (the bumper ball) is limited to 500 pounds, and Class IV (the receiver hitch) to 1,200 pounds. Additionally, the GAWRs and GVWRs should never be exceeded.
4. The maximum trailer weight is 5,000 pounds for a weight-carrying hitch. A weight distributing system is recommended for trailers over 5,000 pounds. A fifth-wheel or gooseneck hitch is required for trailers over 12,000 pounds.

2012 Ram
3500 PICKUP TOWING CHARTS

RAM CREW CAB 2WD SHORT BED - ST — **D2 3L91 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,250	6,851	4,158	2,694	5,000	6,500	19,000	12,000
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,250	6,851	4,158	2,694	5,000	6,500	21,000	14,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,310	6,790	4,106	2,685	5,000	6,500	17,000	10,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,310	6,790	4,106	2,685	5,000	6,500	21,000	14,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,310	6,790	4,106	2,685	5,000	6,500	24,000	17,050

RAM CREW CAB 2WD SHORT BED - SLT — **D2 3H91 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,310	6,785	4,171	2,615	5,000	6,500	19,000	12,050
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,310	6,785	4,171	2,615	5,000	6,500	21,000	14,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,380	6,724	4,110	2,614	5,000	6,500	17,000	10,150
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,380	6,724	4,110	2,614	5,000	6,500	21,000	14,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,380	6,724	4,110	2,614	5,000	6,500	24,000	17,150

RAM CREW CAB 2WD SHORT BED - LARAMIE — **D2 3P91 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,080	7,019	4,253	2,766	5,000	6,500	19,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,080	7,019	4,253	2,766	5,000	6,500	21,000	13,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,140	6,958	4,201	2,757	5,000	6,500	17,000	9,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,140	6,958	4,201	2,757	5,000	6,500	21,000	13,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,140	6,958	4,201	2,757	5,000	6,500	24,000	16,900

RAM CREW CAB 2WD SHORT BED - LARAMIE LONGHORN — **D2 3R91 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,100	6,999	4,195	2,804	5,000	6,500	17,000	9,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,100	6,999	4,195	2,804	5,000	6,500	21,000	13,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,100	6,999	4,195	2,804	5,000	6,500	24,000	16,850

RAM MEGA CAB 2WD SHORT BED - SLT — **D2 3H81 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,100	2,940	7,162	4,331	2,831	5,000	6,500	19,000	11,700
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,100	2,940	7,162	4,331	2,831	5,000	6,500	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,000	7,101	4,271	2,830	5,000	6,500	17,000	9,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,000	7,101	4,271	2,830	5,000	6,500	21,000	13,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,000	7,101	4,271	2,830	5,000	6,500	24,000	16,750

RAM MEGA CAB 2WD SHORT BED SLT — **D2 3H81 (DRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,500	3,020	7,478	4,329	3,149	5,000	9,350	19,000	11,350
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,500	3,020	7,478	4,329	3,149	5,000	9,350	21,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,500	3,080	7,416	4,268	3,148	5,000	9,350	17,000	9,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,500	3,080	7,416	4,268	3,148	5,000	9,350	21,000	13,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,500	3,080	7,416	4,268	3,148	5,000	9,350	26,000	18,450

RAM MEGA CAB 2WD SHORT BED LARAMIE — **D2 3P81 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,100	2,960	7,142	4,396	2,747	5,000	6,500	19,000	11,700
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,100	2,960	7,142	4,396	2,747	5,000	6,500	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,020	7,076	4,342	2,734	5,000	6,500	17,000	9,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,020	7,076	4,342	2,734	5,000	6,500	21,000	13,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,020	7,076	4,342	2,734	5,000	6,500	24,000	16,750

RAM MEGA CAB 2WD SHORT BED LARAMIE — **D2 3P81 (DRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,500	2,930	7,574	4,370	3,204	5,000	9,350	19,000	11,300
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,500	2,930	7,574	4,370	3,204	5,000	9,350	21,000	13,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,500	2,990	7,507	4,316	3,191	5,000	9,350	17,000	9,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,500	2,990	7,507	4,316	3,191	5,000	9,350	21,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,500	2,990	7,507	4,316	3,191	5,000	9,350	26,000	18,350

RAM MEGA CAB 2WD SHORT BED LARAMIE LONGHORN — **D2 3R81 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,980	7,122	4,338	2,784	5,000	6,500	17,000	9,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,980	7,116	4,366	2,750	5,000	6,500	21,000	13,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,980	7,116	4,366	2,750	5,000	6,500	24,000	16,750

RAM MEGA CAB 2WD SHORT BED LARAMIE LONGHORN — **D2 3R81 (DRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,500	2,950	7,553	4,312	3,242	5,000	9,350	17,000	9,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,500	3,000	7,496	4,396	3,100	5,000	9,350	21,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,500	3,000	7,496	4,396	3,100	5,000	9,350	26,000	18,350

RAM CREW CAB 4WD SHORT BED - ST — **D2 8L91 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,930	7,169	4,436	2,733	5,500	6,500	19,000	11,700
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,930	7,169	4,436	2,733	5,500	6,500	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,000	7,096	4,368	2,727	5,500	6,500	17,000	9,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,000	7,096	4,368	2,727	5,500	6,500	21,000	13,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,000	7,096	4,368	2,727	5,500	6,500	24,000	16,750

RAM CREW CAB 4WD SHORT BED - SLT — **D2 8H91 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,860	7,241	4,493	2,749	5,500	6,500	19,000	11,600
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,860	7,241	4,493	2,749	5,500	6,500	21,000	13,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,920	7,180	4,432	2,748	5,500	6,500	17,000	9,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,920	7,180	4,432	2,748	5,500	6,500	21,000	13,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,920	7,180	4,432	2,748	5,500	6,500	24,000	16,650

RAM CREW CAB 4WD SHORT BED - LARAMIE						D2 8P91 (SRW)						
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,780	7,323	4,522	2,801	5,500	6,500	19,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,780	7,323	4,522	2,801	5,500	6,500	21,000	13,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,850	7,249	4,454	2,795	5,500	6,500	17,000	9,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,850	7,249	4,454	2,795	5,500	6,500	21,000	13,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,850	7,249	4,454	2,795	5,500	6,500	24,000	16,600

RAM CREW CAB 4WD SHORT BED - LARAMIE LONGHORN						D2 8R91 (SRW)						
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,800	7,302	4,464	2,838	5,500	6,500	17,000	9,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,790	7,310	4,546	2,764	5,500	6,500	21,000	13,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,790	7,310	4,546	2,764	5,500	6,500	24,000	16,550

RAM MEGA CAB 4WD SHORT BED - SLT						D2 8H81 (SRW)						
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,100	2,590	7,508	4,621	2,887	5,500	6,500	19,000	11,350
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,100	2,590	7,508	4,621	2,887	5,500	6,500	21,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,650	7,447	4,561	2,886	5,500	6,500	17,000	9,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,650	7,447	4,561	2,886	5,500	6,500	21,000	13,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,650	7,447	4,561	2,886	5,500	6,500	24,000	16,400

RAM MEGA CAB 4WD SHORT BED - SLT						D2 8H81 (DRW)						
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,500	2,590	7,907	4,671	3,236	5,500	9,350	19,000	10,950
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,500	2,590	7,907	4,671	3,236	5,500	9,350	21,000	12,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,500	2,650	7,846	4,610	3,235	5,500	9,350	17,000	9,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,500	2,650	7,846	4,610	3,235	5,500	9,350	21,000	13,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,500	2,650	7,846	4,610	3,235	5,500	9,350	26,000	18,000

RAM MEGA CAB 4WD SHORT BED - LARAMIE						D2 8P81 (SRW)						
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,100	1,510	8,591	5,672	2,919	5,500	5,500	19,000	10,250
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,100	1,510	8,591	5,672	2,919	5,500	5,500	21,000	12,250
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	1,580	8,516	5,604	2,912	5,500	5,500	17,000	8,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	1,580	8,516	5,604	2,912	5,500	5,500	21,000	12,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	1,580	8,516	5,604	2,912	5,500	5,500	24,000	15,350

RAM MEGA CAB 4WD SHORT BED - LARAMIE						D2 8P81 (DRW)						
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.42	10,500	2,510	7,990	4,722	3,268	5,500	9,350	19,000	10,850
6.7L 24V Turbo Diesel (ETJ)	M6	POS G56-6 6sp MANU (DEG)	3.73	10,500	2,510	7,990	4,722	3,268	5,500	9,350	21,000	12,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,500	2,590	7,915	4,654	3,261	5,500	9,350	17,000	8,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,500	2,590	7,915	4,654	3,261	5,500	9,350	21,000	12,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,500	2,590	7,915	4,654	3,261	5,500	9,350	26,000	17,950

RAM MEGA CAB 4WD SHORT BED LARAMIE - LONGHORN						D2 8R81 (SRW)						
Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,530	7,571	4,614	2,957	5,500	5,500	17,000	9,300
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,590	7,508	4,699	2,808	5,500	5,500	21,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,590	7,508	4,699	2,808	5,500	5,500	24,000	16,350

RAM MEGA CAB 4WD SHORT BED - LARAMIE LONGHORN **D2 8R81 (DRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,500	2,530	7,970	4,664	3,306	5,500	9,350	17,000	8,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,500	2,980	7,525	4,465	3,060	5,500	9,350	21,000	13,350
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,500	2,980	7,525	4,465	3,060	5,500	9,350	26,000	18,350

RAM REGULAR CAB 2WD LONG BED - ST **D2 3L62 (DRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,000	5,190	6,811	3,944	2,868	5,000	9,350	19,000	12,050
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,000	5,190	6,811	3,944	2,868	5,000	9,350	21,000	14,050
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,000	5,280	6,717	3,883	2,835	5,000	9,350	17,000	10,150
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,000	5,280	6,717	3,883	2,835	5,000	9,350	21,000	14,150
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,000	5,280	6,717	3,883	2,835	5,000	9,350	30,000	22,750

RAM REGULAR CAB 2WD LONG BED - SLT **D2 3H62 (DRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,000	5,170	6,834	3,957	2,877	5,000	9,350	19,000	12,000
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,000	5,170	6,834	3,957	2,877	5,000	9,350	21,000	14,000
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,000	5,230	6,773	3,897	2,876	5,000	9,350	17,000	10,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,000	5,230	6,773	3,897	2,876	5,000	9,350	21,000	14,100
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,000	5,230	6,773	3,897	2,876	5,000	9,350	30,000	22,700

RAM CREW CAB 2WD LONG BED - ST **D2 3L92 (DRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	11,500	4,270	7,235	4,218	3,017	5,000	9,350	19,000	11,600
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	11,500	4,270	7,235	4,218	3,017	5,000	9,350	21,000	13,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	11,500	4,330	7,171	4,166	3,005	5,000	9,350	17,000	9,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	11,500	4,330	7,171	4,166	3,005	5,000	9,350	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	11,500	4,330	7,171	4,166	3,005	5,000	9,350	26,800	19,050

RAM CREW CAB 2WD LONG BED - ST **D2 3L92 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,110	6,990	4,241	2,749	5,000	6,500	19,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,110	6,990	4,241	2,749	5,000	6,500	21,000	13,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,170	6,926	4,189	2,737	5,000	6,500	17,000	9,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,170	6,926	4,189	2,737	5,000	6,500	21,000	13,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,170	6,926	4,189	2,737	5,000	6,500	24,000	16,900

RAM CREW CAB 2WD LONG BED - SLT **D2 3H92 (DRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	11,500	4,180	7,323	4,256	3,067	5,000	9,350	19,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	11,500	4,180	7,323	4,256	3,067	5,000	9,350	21,000	13,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	11,500	4,300	7,200	4,135	3,065	5,000	9,350	17,000	9,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	11,500	4,300	7,200	4,135	3,065	5,000	9,350	21,000	13,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	11,500	4,300	7,200	4,135	3,065	5,000	9,350	26,700	18,900

RAM CREW CAB 2WD LONG BED - SLT **D2 3H92 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	3,080	7,017	4,258	2,759	5,000	6,500	19,000	11,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	3,080	7,017	4,258	2,759	5,000	6,500	21,000	13,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,140	6,955	4,197	2,758	5,000	6,500	17,000	9,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,140	6,955	4,197	2,758	5,000	6,500	21,000	13,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,140	6,955	4,197	2,758	5,000	6,500	24,000	16,900

RAM CREW CAB 2WD LONG BED - LARAMIE — **D2 3P92 (DRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	11,500	4,030	7,471	4,351	3,120	5,000	9,350	19,000	11,400
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	11,500	4,030	7,471	4,351	3,120	5,000	9,350	21,000	13,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	11,500	4,090	7,407	4,299	3,108	5,000	9,350	17,000	9,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	11,500	4,090	7,407	4,299	3,108	5,000	9,350	21,000	13,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	11,500	4,090	7,407	4,299	3,108	5,000	9,350	25,800	17,850

RAM CREW CAB 2WD LONG BED - LARAMIE — **D2 3P92 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,940	7,161	4,372	2,789	5,000	6,500	19,000	11,700
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,940	7,161	4,372	2,789	5,000	6,500	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	3,000	7,097	4,320	2,777	5,000	6,500	17,000	9,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,000	7,097	4,320	2,777	5,000	6,500	21,000	13,750
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,000	7,097	4,320	2,777	5,000	6,500	24,000	16,750

RAM CREW CAB 2WD LONG BED - LONGHORN — **D2 3R92 (DRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	11,500	4,050	7,451	4,293	3,158	5,000	9,350	17,000	9,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	11,500	4,180	7,323	4,301	3,022	5,000	9,350	21,000	13,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	11,500	4,180	7,323	4,301	3,022	5,000	9,350	26,200	18,300

RAM CREW CAB 2WD LONG BED - LONGHORN — **D2 3R92 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,960	7,140	4,314	2,827	5,000	6,500	17,000	9,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	3,110	6,991	4,307	2,685	5,000	6,500	21,000	13,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	3,110	6,991	4,307	2,685	5,000	6,500	24,000	16,850

RAM REGULAR CAB 4WD LONG BED - ST — **D2 8L62 (DRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,200	4,970	7,234	4,342	2,892	5,500	9,350	19,000	11,600
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,200	4,970	7,234	4,342	2,892	5,500	9,350	21,000	13,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,200	5,030	7,170	4,277	2,893	5,500	9,350	17,000	9,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,200	5,030	7,170	4,277	2,893	5,500	9,350	21,000	13,700
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,200	5,030	7,170	4,277	2,893	5,500	9,350	30,000	22,300

RAM REGULAR CAB 4WD LONG BED - SLT — **D2 8H62 (DRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,200	4,940	7,257	4,355	2,902	5,500	9,350	19,000	11,600
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,200	4,940	7,257	4,355	2,902	5,500	9,350	21,000	13,600
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,200	5,000	7,196	4,295	2,900	5,500	9,350	17,000	9,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,200	5,000	7,196	4,295	2,900	5,500	9,350	21,000	13,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,200	5,000	7,196	4,295	2,900	5,500	9,350	30,000	22,300

RAM CREW CAB 4WD LONG BED - ST — **D2 8L92 (DRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,300	4,640	7,663	4,601	3,062	5,500	9,350	19,000	11,200
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,300	4,640	7,663	4,601	3,062	5,500	9,350	21,000	13,200
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,300	4,710	7,589	4,533	3,056	5,500	9,350	17,000	9,250
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,300	4,710	7,589	4,533	3,056	5,500	9,350	21,000	13,250
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,300	4,710	7,589	4,533	3,056	5,500	9,350	29,100	20,950

RAM CREW CAB 4WD LONG BED - ST — **D2 8L92 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,810	7,292	4,563	2,729	5,500	6,500	19,000	11,550
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,810	7,292	4,563	2,729	5,500	6,500	21,000	13,550
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,880	7,218	4,495	2,724	5,500	6,500	17,000	9,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,880	7,218	4,495	2,724	5,500	6,500	21,000	13,650
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,880	7,218	4,495	2,724	5,500	6,500	24,000	16,650

RAM CREW CAB 4WD LONG BED - SLT — **D2 8H92 (DRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,300	4,590	7,708	4,609	3,098	5,500	9,350	19,000	11,150
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,300	4,590	7,708	4,609	3,098	5,500	9,350	21,000	13,150
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,300	4,650	7,646	4,549	3,097	5,500	9,350	17,000	9,200
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,300	4,650	7,646	4,549	3,097	5,500	9,350	21,000	13,200
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,300	4,650	7,646	4,549	3,097	5,500	9,350	28,900	20,650

RAM CREW CAB 4WD LONG BED - SLT — **D2 8H92 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,650	7,454	4,634	2,820	5,500	6,500	19,000	11,400
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,650	7,454	4,634	2,820	5,500	6,500	21,000	13,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,710	7,392	4,574	2,819	5,500	6,500	17,000	9,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,710	7,392	4,574	2,819	5,500	6,500	21,000	13,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,710	7,392	4,574	2,819	5,500	6,500	24,000	16,450

RAM CREW CAB 4WD LONG BED - LARAMIE — **D2 8P92 (DRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	12,300	4,310	7,986	4,856	3,130	5,500	9,350	19,000	10,850
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	12,300	4,310	7,986	4,856	3,130	5,500	9,350	21,000	12,850
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,300	4,390	7,912	4,788	3,125	5,500	9,350	17,000	8,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,300	4,390	7,912	4,788	3,125	5,500	9,350	21,000	12,950
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,300	4,390	7,912	4,788	3,125	5,500	9,350	27,800	19,350

RAM CREW CAB 4WD LONG BED - LARAMIE — **D2 8P92 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.42	10,100	2,650	7,446	4,655	2,791	5,500	6,500	19,000	11,400
6.7L 24V Turbo Diesel (ETJ)	M6	POSG56 6 sp MANU (DEG)	3.73	10,100	2,650	7,446	4,655	2,791	5,500	6,500	21,000	13,400
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,730	7,372	4,587	2,785	5,500	6,500	17,000	9,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,730	7,372	4,587	2,785	5,500	6,500	21,000	13,500
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,730	7,372	4,587	2,785	5,500	6,500	24,000	16,500

RAM CREW CAB 4WD LONG BED - LARAMIE LONGHORN — **D2 8R92 (DRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	12,300	4,330	7,965	4,797	3,168	5,500	9,350	17,000	8,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	12,300	4,330	7,965	4,797	3,168	5,500	9,350	21,000	12,900
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	12,300	4,330	7,965	4,797	3,168	5,500	9,350	27,600	19,050

RAM CREW CAB 4WD LONG BED - LARAMIE LONGHORN — **D2 8R92 (SRW)**

Engine	Trans Type	Transmission	Axle Ratio	GVWR	Payload	Base Weight	Base Wt. Front	Base Wt. Rear	GAWR Front	GAWR Rear	GCWR	Max Trail
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.42	10,100	2,720	7,375	4,547	2,828	5,500	6,500	17,000	9,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	3.73	10,100	2,720	7,375	4,547	2,828	5,500	6,500	21,000	13,450
6.7L 24V Turbo Diesel (ETJ)	A6	68RFE 6 sp AUTO (DG7)	4.10	10,100	2,720	7,375	4,547	2,828	5,500	6,500	24,000	16,450

• • •