TURBO DIESEL REGISTER

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In This Issue

ON THE COVER: Ram 3500 Tradesman Regular Cab Dually

TAILGATING

A Letter from the Editor

IT'S THAT TIME AGAIN: 2025 TDR CALENDAR COMPETITION

(Editor's note: Don't tell anyone, but this introduction is kinda like the one used last year and the year before that.) Here is an addition: We've been doing this calendar for almost 20 years! It is the "real deal" in the world of Ram/Cummins printed items. It is a nice accolade to be one of the 13 calendar winners for a given year.

Our TDR calendars go back to 2007.
Entries for the 2025 TDR Calendar: Send 'em in, now!

How to Participate

Participation is easy. Just send us your photograph! Clean up your diesel truck, take it out and position it against a scenic backdrop, wait for cloud cover or for the daybreak/twilight hour so that there are not any dreaded shadows, and capture the scene with a digital camera with a minimum resolution of 300 dpi.

Some tips from the judges:

- Be careful to make sure your photograph is clear and does not have any junk in the background. We've seen trees appearing to come out of many a truck's bed and a few McDonald's Kids Meal boxes in the windows.
- Action shots are hard to pass up.
- Photographs with interesting backgrounds are preferred.
- Extreme weather adds to the photograph.
- Leave enough background in the photo for us to work with. We've lost count of how many good photos have been sent to us that we can't use because the truck goes from edge to edge.

There is a limit of two photographs per member. Submit only your best photo(s) to our designated thread on the TDR forums or by mail, e-mail or file transfer protocol (FTP) to the TDR offices by Labor Day, Monday, September 2. Be sure to include your name, city, and state.

TDR Forum thread: 2025 TDR Calendar Contest

E-mail photographs: Heather@genosgarage.com

FTP photographs: Contact Heather@genosgarage.com to arrange for an upload link.

The 2025 winners will be chosen, and the calendar will be distributed inside the cover wrap of the Issue 126 magazine, which is mailed in early November. Thanks in advance for your participation.

E-mail photographs:
Heather@genosgarage.com

IN THIS ISSUE

In this issue we've got some good stuff. (Duh. I'd be letting you down if it wasn't.) Here is the capsule.

- Editor talks about the magazine business – again (Tailgating)
- Editor talks about lube oil – again (Your Story)
- Editor talks about travel to Amelia Island – again (Ready to Travel)
- Editor talks about race cars – again (Technical Topics)
- Editor talks about ceramic coatings – again (TDReview)
- Editor talks about air filters – again (Rest of the Story)
- Editor talks about industry news – again (BITW)

Next, the Editor realizes you may be tired of these topics: Lube oil, tires, racing, Amelia Island, air filters, ceramic coatings, and the magazine business. He hears Phill Collins on the radio, "I Don't Care Anymore" (1982) and counts the words "no more" at the end of the song – 13 times.

Should I pledge "no more" in the coverage of the above topics? I'll try. In the meantime, my review of industry news (BITW) should, perhaps, hold your interest.

Dismissing the editor's contributions, you'll find that the writers have other interesting topics to discuss

- Andy Mikonis – New 2025 Ram trucks (TDResource)
- Greg Whale – Ford F250 Tremor review (Four Whaling)
- Flash Gordon (new writer) – Health topics (Turbo Diesel Doctor)
- Joe Donnelly – Unstuck Part IV and maintenance (Have Ram Will Travel)

Wait, wait, wait, turn back to page 3, this is just a repeat of the "Table of Contents!"

Just having a bit of fun with you. Thank you for your support of the TDR. I hope you enjoy this issue.

EDITOR'S RANT ABOUT MAGAZINES

Looking at the outside of my Car and Driver magazine, I noted it was the "May/June 2024" edition. Looking at my most recent Road & Track publication, it was an "April/May 2024" magazine.

Somewhere these publications went from 12/year to 6/year. Dare I even look for Motor Trend? Wait, what happened to Hot Rod magazine? Better yet, what happened to Sports Illustrated? Answer: Quoting from Wikipedia: "In 2024 this magazine, launched in 1954, missed a quarterly licensing payment to Authentic Brands Group and two weeks later the entire staff was laid off." Ouch.

In Issue 108, May 2020, I had noted that Sports Illustrated was moving to a monthly format and I asked automotive writer Jack Baruth to comment. A recap of Baruth's observations from 4.5 years ago:

- Bookstores are closing…even at the airport.
- It is harder to get exclusive content.
- The advertising model has collapsed.

Editor's note to the editor's rant: Yep, Economics Class 101. No longer do advertisers rush to pay for print ads and you can't begin to pay the postal rates for the delivery of 12 magazines for the low, low, low price of $10.99 per year. Printing, writer payments, office staff, rent…it should come as no wonder that the number of periodicals has diminished.

More from Baruth:

- We've become partisan about more than politics (readers don't bother with stuff that isn't directly targeted to their interests.)

- Let's add a final observation: Nobody reads print, it's too easy to scroll your phone for the "latest update" news.

Baruth also noted that specialty and club-type magazines have a greater possibility to continue with the obvious caveat that their publications cost more to the reader.

Obviously, what you are reading is proof of Baruth's observation, but it is getting more difficult with each issue we send out. Not to belabor this thought, but here is the text from the editorial from Classic Motorsports that tells the story.

"For years, at least in this country, the goal was to price subscriptions as low as possible to get as many as subscribers as possible. With higher print runs, your per-copy printing cost would drop. A growing subscription file would then increase advertising revenue, making up for losses on the subscription side of the business.

"In Europe, the model has been much different. There they charge a fair price for a subscription (in the car magazine world, roughly $100 per year) and then charge very reasonable prices for advertising.

"Magazines will become the premium product in a media company's stable. They will be low-circulation, targeted, halo-type products for those who want them. Those magazines that survive will follow the European model and will get more expensive. Readers who want them will have to pay a bit more."

As a final note, the US Postal Service, USPS, is expected to increase the postal rate on First Class mail 7.75% to 78¢. Periodicals increase would be 9.25%.

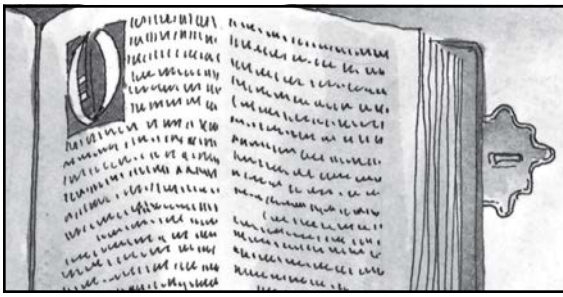
Ouch!

Where am I going with this half-page rant?

Were it not for your support and financial consideration from the folks at Geno's Garage (the catalog insert into the shrink wrap helps pay for the postage to you) the price of the subscription would be in the range of $45. But, for now, we're hanging in there...

The TDR and Geno's folks thank you for your support.

Robert Patton
TDR Staff



Your Story

A Feature Article about a TDR member.

LUBE OIL ANALYSIS – PART III

It has often been said that "ignorance is bliss."

As I drafted this introduction, I wanted to make sure I was using the idiom correctly. Sure enough, the Merriam-Webster dictionary tells us "A person who does not know about a problem does not worry about it."

The above statement directly relates to my 2020 Ram 2500 Turbo Diesel truck. Ignorance is bliss.

Recap

So, to the point: Below is the data from the lube oil analysis reports that I have done since my first sample at 10,000 miles of ownership.

Commentary/Observations

As a new truck owner, I was on the page of "the factory knows best." I was intent on following the recommended by-the-book (15K miles) and oil change monitor thingee. (The monitor thingee finally flashed "on" at 15,300 miles.) However, as noted, the oil was sampled in October 2022 (at 10K) and the alarming data resulted in an immediate oil change at 10K.

Looking at the 10K interval (with high fuel dilution, low viscosity, and high iron, copper, aluminum wear metals) I thought, "So much for the 'factory knows best'" and Owner's Manual recommendations. I don't want to imagine the oil analysis had I stuck with the book or the monitor thingee and changed the oil at the recommended 15K interval.

In this scenario ignorance *wasn't* bliss. So, you'll note the additional samples taken at 15K and 18.5K as I monitored the situation without changing the oil.

Fast Forward to 2024

Forward on to the 1/24 date (20K milestone) and the oil was sampled and changed for the second time. My observation: Again, I'm thinking that fuel dilution was the contributing factor in the lousy numbers seen in the first sample at 10K miles (fuel, dilution, viscosity breakdown, loss of total base number, iron wear, copper wear, aluminum wear).

As I look back at the truck's history, it was manufactured in December 2019. It sat on the dealership lot in Mount Airy, NC. It was transferred to a volume dealership in Charlotte in February 2020. One year, four months (March 2020) later, I purchased the truck with 110 miles on the odometer. Ninety miles of the 110 were the distance of the dealer-to-dealer transfer. One year, four months, sitting on a dealership's lot: In an effort to keep the batteries charged, I can only imagine the frequent start/stop events the engine was called to do in that one-year, four-month time period. Yes, fuel dilution.

In my 3.5 years (42 months, 24K miles) of ownership, I'm averaging about 600 miles a month. Should I continue to do oil samples in between my 10K "oil change comfort zone"? Or should I just go on to another 10K interval that will likely be next year in May (total miles, 30K)?

Conclusion

Thank you for following this lube oil story that has played out over my 3.5 years of ownership. As I mentioned in the opening paragraphs "I was on the page of 'the factory knows best'" and I wanted to feel comfortable with a 15K oil change. I wanted the TDR audience to have the same confidence. Unfortunately, the results did not reinforce the hypothesis. Perhaps after a few more miles and a few more oil changes, I will be in that mindset.

Perhaps this has been a good learning experience for all of us?

Robert Patton
TDR Staff

		Wear Metals							Contaminant					Fluid Properties		Notes
		Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Silicon	Sodium	Potassium	Fuel Dilution	Soot	Viscosity	TBN	Oil Changed
10/22	10K	314	1	1	32	200	0	2	46	12	143	6.1	.3	11.0	3.88	Y
5/23	15K	134	2	1	14	34	0	1	17	1	23	<2.0	.2	14.0	6.09	N
10/23	18.5K	154	3	1	19	35	0	1	12	4	75	<2.0	.3	13.6	4.48	N
1/24	20K	167	3	1	30	33	1	1	11	5	122	<2.0	.4	13.5	4.26	Y

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Ready to Travel

TDR Writer or Member Travel Adventures.
In this issue, the editor-dude travels to one of his favorite places, the 2024 Amelia Island Concours show.

MORE ABOUT AMELIA ISLAND

So, mister editor dude, when was the last time you talked about Amelia Island?

Let's see, I made mention of the show just last year in our Issue 120 magazine.

The reality: Like many of you, I have a spot on the calendar for those not-to-miss annual events. Since 2016, I've attended "The Amelia," a three-day concours and car show. No doubt you've noticed the articles and photographs from The Amelia that are scattered throughout this issue. This is an event that should be on your list of things to see!

Aerial photograph of Sunday's "Big Show," the Amelia Island Concours d'Elegance

Every now-and-then you have the chance to meet persons of legendary achievements. Right place, right time, Amelia Island founder, Bill Warner. Warner's remarkable story is in Issue 107, pages 62-63.

2024 Amelia Island Show

What was new at the 2024 show? Truthfully, after nine years in succession, you start to see cars that, yes, you have previously seen. Still, the show never gets old. Here are my observations:

- Participant vehicle count was not the same as previous years.
- Vendor support was less than previous years. Considering the OEMs have made a mass exodus from car shows, this is not a surprise.
- Stellantis (surprise, surprise) occupied the display area outside the Ritz Carlton hotel that is normally used by Porsche. On display was the stunning Chrysler "Halcyon" concept vehicle.

Halcyon – Stunning.

Halcyon: Interior View.

Chrysler photo of the interior and the extensive use of glass.

**Perhaps more stunning than the vehicle:
Halcyon is a concept vehicle from Chrysler!**

Now, obviously, I'm fascinated with the Halcyon and Chrysler's display at this upscale event. I had a chance to talk to the Chrysler personnel. The vehicle is designed to give passengers a luxurious "transportation" experience. Transportation – yes. The concept: Think of the Halcyon as a slot car. Energy to fuel the car and navigational capabilities from an electric ribbon in the road.

Interesting.

Not only did Halcyon catch my attention, it was a two-page feature in the Hagerty Drivers Cub magazine where they sang the praises of the styling, elegance and use of future technology convepts.

Tried-and-True Advice

Other observations? Really, you need to see the show! I'll offer the same tried-and-true advice as was mentioned in good 'ole TDR Issue 105. Here it is, a quick "How-To Guide."

Amelia Island Concours – How-To Guide

Ask my wife what situation makes my blood pressure rise faster than any other and she'll tell you it is wasted time sitting in traffic. Think about it, time is the only commodity you cannot make more of, nor can you purchase more of it. So, should you want to attend the AI show, let's talk about saving you time. Follow along, please.

This show is big and the traffic around the Ritz Carlton's 18th hole (in front of the Ritz hotel) is really, really bad. If you attend during the regular hours (the general public admission starts at 9:30 a.m.), your best bet is to park at the airport and take one of the many shuttles to the Ritz.

Here is your time-saving tip: Starting in October, closely monitor the AI Concours website. You will be looking for the announcement of the "Rise and Shine" early admission ticket. They offer a limited number of these and the ticket is more expensive than general admission. (Example, $175 versus $125.) However, the Rise and Shine option gives you admission at 8:30 a.m. Now, to avoid traffic snarls you'll want to arrive at 7:30. You'll be able to park "road side" at the entrance to the Ritz. Park. Walk the short walk to the Ritz. Buy a cup of coffee at the lobby café and bar. Walk out to the beach. Watch the sun rise. Come back to the lobby and watch the people: there's Bill Warner, there's Ray Evernham, there's Chip Foose, there's Ralph Gilles, there's Tommy Kendall. It is a surreal experience.

Be at the opening gate at 8:30 a.m. Enjoy the show. (It gets really crowded at the official 9:30 a.m. opening.) You'll be done at the show by 11:00 a.m. When you leave, there is no exit traffic as many folks are still in the process of arriving.

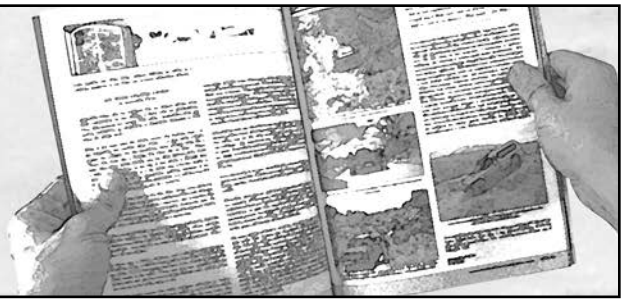
The TDR: saving you time.

Hey, I've got tips for Friday and Saturday, too. Drop me an email and I'll share them with you; tdrguy@gmail.com. Show dates for 2025: Friday, March 7 - Sunday, March 9. See ya there!

Robert Patton
TDR Staff

Wow, the editor-dude found a Ram Turbo Diesel to photograph at the Amelia Island Concours d'Elegance!

10 BACK



As the Editor, I have often lamented that as a society we don't properly honor the inventiveness and achievement of our elders. So let us give that bygone achievement some proper observance in the "10 Back" column.

In each installment of this column I review the accomplishments of TDR trailblazers as I summarize the old articles to reinforce that "the more things change, the more they stay the same." Here is my look back at what was happening in Issue 85, August 2014.

ISSUE 85

It's time to flip the calendar back to Issue 85, August 2014. What was happening in the world of Turbo Diesels?

Sitting down to look at Issue 85, I opened the magazine and it fell to page 109. I noticed one of my favorite products was featured in a press release: The Geno's Garage cupholder. Here is a small write-up from Issue 85.

> Effective with 2013 trucks, the Ram folks have incorporated the exclusive Geno's Garage cupholder into the center section of the fold down section of the 40/20/40 front seat. Their execution of the idea is spot-on; it is a very nice, three position, cupholder.

Yes, the "Double Cup-Cupholder is still available for the 2024 Turbo Diesel truck with the Tradesman style seats. Yes, selling cup holders was one of the very first items offered at Geno's Garage back in 1996. Issue 85 was a reminder. Thanks for allowing me to reminisce.

Flipping back to the table of contents, in Issue 85 we've got a lot to cover.

2024 AMELIA ISLAND PICTURES

Automotive TV personalities Donald Osborne and Wayne Carini were judges at AI.

NASCAR personalities: Kyle Petty, Ray Evernham, Amelia Island CEO Bill Warner, and Jeff Hammond.

LETTER EXCHANGE

Remember letters to the editor-dude? (Ouch, there aren't any in this issue…) In TDR 85 there was an interesting article by member Andy Harman that talked about his trip to the East Coast Timing Association speed event. Back in the day, the ECTA was the precursor event used by the Cummins Turbo Diesel race team prior to their record run at the famous Bonneville Salt Flats (Issue 15, pages 44-49). Andy moved the speed record from 130.84mph to 136.1mph in the C/Diesel Truck category. Andy noted his truck made 436hp at the dyno.

Since that time the ECTA has moved their event from Maxon, North Carolina, to Wilmington Air Park in Wilmington, Ohio, to Eaker Air Force Base, Blytheville, Arizona. With today's technology (I've seen the headlines about 3000 horsepower from a Cummins 5.9 engine). I'm wondering how fast the trucks would be at Eaker.

10 BACK (A Look at 2004)

Yes, Issue 85's "10 Back" takes us back to August 2004, Issue 45. In the review I noted that 2004 was a great time in the history of our truck. In the year 2003 Dodge/Cummins celebrated the first million in vehicle production. Year 2003 sales were 135K units, and year 2004 was another record year at 149K units. The all-time high-water mark: Year 2006 at 160K units.

Issue 45 also had these interesting articles:

- **Member2Member**: Brake guru James Walker continues his discussion of vehicle brake systems that he started back in Issue 40 with "Brake Systems in Plain English." Our #45 magazine had his part-two story covering brake bias and the truck's brake proportioning valve. Hint: unless you are a brake system engineer or a race team with a highly skilled driver and a means to adjust the valve, leave the brake proportioning alone. Looking back, James covered the entire brake system for us in magazines 40-45. These articles have been consolidated and republished in the publication titled "The Perfect Collection" that you can find at our web site.

- **Technical Topics**: TDR writers Doug Leno and Joe Donnelly give us a summary of performance boxes that can be added to increase the power of the newly-released 2003-2004 5.9HPCR engines. So, with the swipe of a credit card, everyone was moving from 325/600 to 420/700. For easy recall, details of these horsepower pursuits have been captured in the Buyer's Guide books.

- **24-Valve Engines**: TDR member John Livingstone gives us the step-by-step process to change a cylinder head gasket on a 24-valve engine.

- **12-Valve Engines**: In this column the big discussion was about replacing the fuel tank sending unit and more throttle linkage problems.

Placebo Parts

Way back in Issue 45 the writers were asked to address the theme of "Placebo Parts." You know, those add-on items that make you feel good but, likely, don't live up to the hype. As always, it was interesting to read their stories. As a conclusion, we agreed that establishing a performance baseline was the starting block for any kind of modification.

At the end of the magazine, I posted a classified advertisement for my collection of fuel magnets.

The diesel fuel price in August 2004 was $1.83
The diesel fuel price in August 2014 was $3.83
The diesel fuel price in August 2024 is $3.87

(Yes, I know, California diesel prices are much higher.)

"GENERATIONS" CORRESPONDENCE

First Generation, pages 12-13

- An owner was asking about adding a front sway bar to his '91 Turbo Diesel W350 dually: Members opined that adding a front bar would be good, but (if not already installed) a rear bar would help with swaying

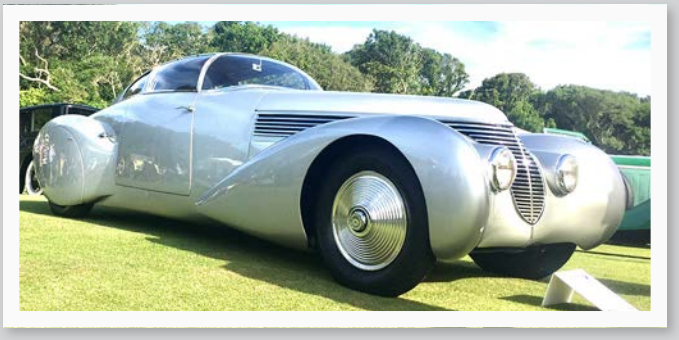
Second Generation (12-Valve), pages 14-16

- On a 1994 Turbo Diesel (manual transmission) the owner was having trouble with the speedometer, tachometer warning lights and alternator not working. A replacement powertrain control module was suggested. Searching around for rebuilt parts did not prove to be productive. A "junkyard" PCM for an automatic-equipped truck was located. Would the "auto" PCM work correctly? The answer was, "yes."

Second Generation (24-Valve), pages 18-19

- Tappet cover leak on a 2001 Turbo Diesel: Yes it is a difficult-to-reach and remove the part. Instructions were outlined in TDR Issue 77, page 30. (TDR back issues are viewable at the TDR's website.)

2024 AMELIA ISLAND PICTURES



Google "1938 Hispano-Suiza/Xenia" and you'll see that this is a rare classic. It has received numerous awards at various concours events. Current owner: Mullin Automotive Museum.

Third Generation (5.9 HPCR), pages 20-23

- Occasional misfire at idle: After several "things to try," the owner changed the fuel filter and carefully cleaned the filter canister.

- Number 4 fuel injector line developed a leak while travelling. Because of the towing bill, it was an expensive repair. It was suggested that owners purchase an injector line block off tool. Members noted that "you will barely know the engine is running on five cylinders." For more information on replacing #4 injector line, see TDR Issue 62, page 34, for a list of tools needed; TDR Issue 80, page 27 (includes a photo of the replacement line); and Issue 82, page 27. The Cummins injector line block off tool is available from Cummins or Geno's Garage.

Tool '03- '07, LT-TESTCA at $19.95
Tool '07.5- '18, LT-TESTCA2 at $19.95

Third Generation (6.7 HPCR), pages 24-28

- The 6.7 HPCR engine has been in the market for seven years. Looking at my production graph from '07-'12, it would be approximately 530K engines. Members were starting to wonder about diesel particulate filter maintenance and cleaning. They were wondering about their system and how it was different than the new-for-2013 model year aftertreatment that uses the diesel exhaust fluid (DEF) to minimize NOx emissions. Chapter and verse, please: Perfect Collection, Volume II, pages 108-111 and 131-135.

Fourth Generation, pages 30-33

- Fuel filter change needed, how to reset? Go to the fuel filter screen and hit the "right" reset arrow.

Editor's note: So, my fuel filter reset notice has been on (my truck is a 2020) for 2000 miles. I hit the "ignore" button, but it doesn't go away. Prompted by the simplicity of the response in Issue 85, I pushed buttons on the steering wheel control panel and the "right" arrow finally erased the notice. Geez… Thanks, TDR members!

- Oil filter removal how-to: There is no consensus. My experience over these many years, I cut some of the plastic from the wheel well and I can go in through the wheel area. I catch the used filter in a zip-loc bag.

  Most folks remove the intake piping to the turbocharger.

FEATURE ARTICLES

Your Story

Wow, the editor-dude purchases a Ram 1500 EcoDiesel, "Little Brother."

Yep, just like my most recent truck, the 2020 Ram 2500 and all trucks that preceded the EcoDiesel, I ordered the Tradesman trim ($35,600) versus the Laramie trim ($49,600). Savings, $14,000.

Now, how much would I spend to dress-up the Tradesman?

In the 11-page article I discussed the changes, some of which would have been with the Laramie package (I purchased front "Laramie" seats at an eBay auction for $1400), and some that were my standard "truck customization for Robert," (AMP side steps, AMP bumper step, tonneau cover, seat covers, Edge Insight, etc.). Tires and wheels were a cost-effective $1600.

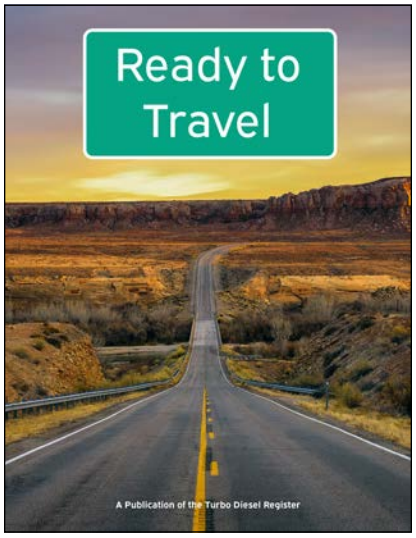
Bottom line: I spent $5700 additional. That's better than $14K right?

I'd love to reminisce about "Little Brother." However, I am a creature of habit and rather than bore you with a lengthy summary or reprint, I can give you the most recent "How-to, the Editor's Way" with a quick reference to the build out on my 2020 Ram 2500 that is in your close-by library of TDRs, Issue 122, pages 13-21. The title of the article "Accessory Update for 2023," where I talked about my favorite things that were added to my 2020 Ram 2500.

Ready to Travel

In this Part Two article, TDR writer Jeannette Vallier takes us to the Four Corners area of the US to explore Chaco Canyon and the Anasazi Ruins. We've captured this story (as well as travel to Alaska, Detroit and Columbus, Indiana) in our Ready to Travel book at the TDR's website. This $9.95 for download is yours at no charge since you are a TDR member.

Check it out and download the book today.



Motor Minded

Back in 2014 Mark Barnes talks about being a kid and "my persistent disassembly of everything in sight." Did he get the parts and pieces back together?

How would the DIY (do it yourself) mindset come into play in Mark's adult life? DIY: That describes the TDR audience. Perhaps Mark's column gives you some insight into your own psyche.

Like "Ready to Travel" we've captured all of Mark's articles in a collection titled "What Makes Us Tick" found at the TDR's website at no charge to TDR members.

Download the book for some great reading while on your summer vacation.

"Gee, Mr. Editor-Dude, that's a blank cover for Mark's work." Okay, we'll have to make a revision. For now, download the collection of Mark's TDR articles at our website.

2024 AMELIA ISLAND PICTURES

Away from the fancy Ritz Carlton/Golf Course, others were having fun at the Concours deLemons.

Exhaust Note

Writers that capture your interest and educate are few in numbers. We've been honored to have Kevin Cameron's insight into all-things-mechanical since our Issue 17, Summer 1997 magazine.

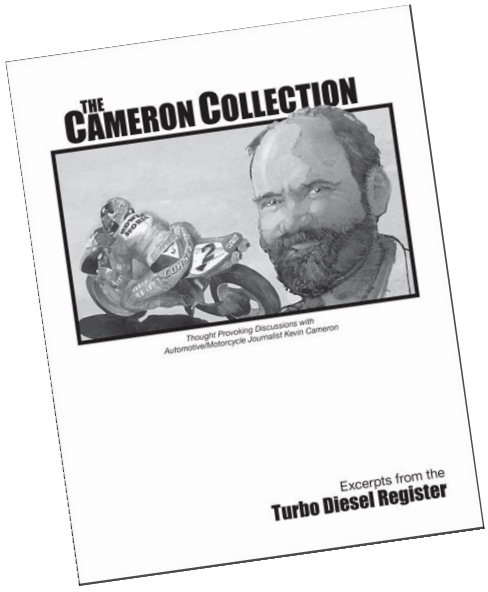
What was on Kevin's mind in 2014?

His article was "Who's Paying' and Kevin was wondering about new technology and, well, who's paying. His closing comments: "But is anyone estimating what such technology will actually cost the consumer? Of course not—it's much too soon for that. We must wait for the technology to mature to the point that production can even be considered.

"My fear is that no one is even considering the cost of such things. Platinum catalysts, self-regenerating soot filters, heavy recirculation of cooled exhaust gas, and urea-based NOx reduction are already adding serious expense to Diesel vehicles. Are vehicles and their technology moving towards a future in which fewer and fewer Americans will be able to afford them?"

Had I not done the IAP (inflation adjusted price) example on page 55, I would have pounded my fist on the table and yelled, "Obviously me!"

With the IAP examples, I get it. (Flip to page 55, plug in some numbers for your truck and draw your conclusion.) KC is an excellent writer that makes you think. We've captured KC's stuff at the TDRs website. No charge to TDR members, go forth and download the "Cameron Collection."



The Cameron Collection: Download it at the TDR's website for an engineer's look at all-things-diesel.

So, that's the way it was back in 2014. Thank you for taking the time to reminisce.

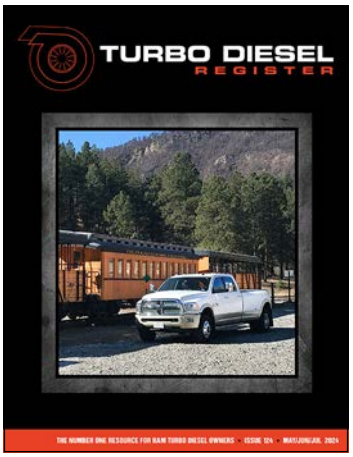
Robert Patton
TDR Staff

Nancy Newbies's Newfound Knowledge

TDR writer Connie Kiviniemi-Baylor gives us a recap of the previous magazine. This is an article you can have family members review for educational subjects beyond just the nuts-and-bolts of Turbo Diesel truck ownership.

"The more that you read, the more things you will know. The more that you learn, the more places you'll go." – Dr. Seuss

It looks like it is time to see what I can learn from Issue 124.



First, in "Member2Member," Andy Mikonis tells us that Ram and Stellantis were no shows at the Chicago Car Show. He reminisces about driving a battery-electric Kia GT6 last year and noted that infrastructure for EVs was lacking. It still is. The editor-dude calculated the energy costs to drive the GT6 was 6.6¢ per mile. Compare this to an ICE engine (use $3/gallon and 30mpg) and you would have 10¢ per mile energy cost. However, 6.6¢ doesn't mean much if you can't find a charger, especially fast chargers when you're traveling quite a distance. Andy also noted the exorbitant cost of servicing a GM 3.0 Duramax, perhaps because the transmission and flywheel have to come out.

In "Your Story," I discovered (for the most part) big-money vehicle builders are the ones building or at least backing the building of these high-priced show cars—sometimes at a cost of over $1 million. No wonder so many of them get built and then never driven. Where's the fun in that? I learned this interesting tidbit when reading about John Martin's '48 Olds: "Evidently Olds engineers left the back of the car's roof rather high to accommodate back seat passengers wearing hats." Different times…

It is good to know that the Goodguys folks established a "Hot Rod of the Year" competition where competitors actually have to drive about 100 miles, which effectively shuts out the high-priced show cars. Congrats to John on his 2021 Homebuilt Heaven Award that he received for his 1934 Ford Coupe.

<u>Goodguys</u> 2022 Yearbook. John's car was on page 12.

The editor-dude gives highlights from the Mecum Car Show/Auction. Wow! There are some terrific looking cars with some hefty prices. Robert views the Mecum events as a big car show and a must for auto enthusiasts.

In the same review of the Mecum Car Show/Auction, the editor-dude goes off on a tangent and discusses stock market and retirement investments. Seriously. Do you spend money in the "collectable" vehicle, or do you use the cash to purchase a stock market index fund?

He noted "the $15K invested to start this magazine in 1993 would now be worth $4,140,419" if he had purchased Apple stock instead. (He's not that intelligent.) "More realistically, the S&P 500 number for that $15K investment would be $277,152, a return of 9.98% per year (7.33% per year inflation adjusted)."

A 1961 Mercedes Benz 300SL Roadster (Lot F160). Expected sale price $1.5-1.7 million. Cost new in 1961, approximately $7000. It sold at Mecum in 2024 for $1,402,500. If I had invested $7000 in 1961, the Dow Jones Industrial Index was at 691, it is now at 38,000. My calculation says the value would be 385K today. The MB was a better investment than the market.

Cummins Discussion

In “Blowin’ in the Wind” we read more about the Cummins $1.67 billion fine to settle claims the company bypassed emissions tests. Robert determined the whole debacle should be described with a great deal of “D” words, including distraction, deceit, and dumb. Take a look at the discussion of this difficult and disagreeable drama as we’re still waiting for disclosure of distinctive and detailed data to determine whether this defeat of emission testing was definitely deliberate. (Or, is there more than meets the eye on the part of Cummins and the EPA?) I’m interested to see if we’ll get the rest of the story, including why there was a 10+ year time span between the release of the truck to the documented December 2023 violation. As Moses Ludel notes in “The Long Haul,” “it is unclear what device(s) were ‘defeated’ on 2013-2019 models. NOx levels were high.” He concludes, “We’ll have the answer when the recall takes place.”

Problems Solved

I learned in “10 Back” that a Geno’s starter rebuild kit is one of the best rebuild kits that TDR writer John Holmes has seen. As we all know, Geno’s Garage carries a lot of quality products, including a convenience kit with popular sized micro and mini cartridge fuses. I also learned that there are hoses rated for submersion in fuel and, of course, that TDR’s Perfect Collection is full of valuable and useful information. Also, the Turbo Diesel Buyer’s Guide (TDBG) has info covering specifications for each generation truck, such as whether to use synthetic or mineral lube oil.

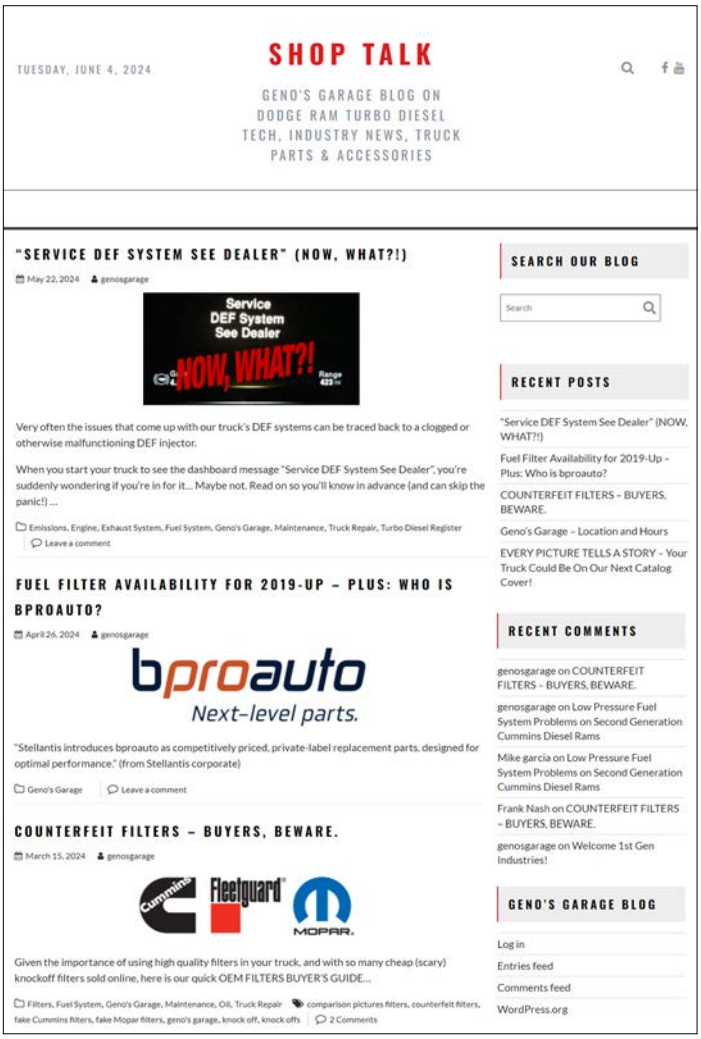
In “Technical Topics” I learned that ensuring your tires are not overloaded and are properly inflated to the correct PSI can help reduce heat buildup. In a previous issue of TDR I learned that improperly inflated tires can reduce your gas mileage. I now know the importance of proper tire maintenance. In “Technical Topics” you can also learn more about tire traction and temperature grades and treadwear ratings. There’s lots of other tire info, including how much testing is done on tires for racecars and how critical tire pressure is on the racetrack.

I now know the importance of proper tire maintenance.

I always enjoy reading the “Generation” sections of the TDR and seeing how knowledgeable TDR readers are about their trucks and the issues that arise with them. Members freely pass along that knowledge to someone seeking assistance for a problem. Great camaraderie! It looks like you can reduce engine noise in the cab on First Generation Trucks, but it can be expensive, whether you insulate the cabin or insulate the engine. It looks like “petersonj” employed an inexpensive and effective method to reduce engine noise in addition to the engine insulation. He added a resistor in the IAT sensor circuit. The result was less advanced timing at engine start up when the engine’s cold. A creative way to reduce engine noise!

Other problems solved: I learned that often the obvious answer is the correct solution to a problem. Proper cranking speed is important to build enough heat in the cylinder to fire an injector to get your truck to start. When it’s slow, the culprit is often the starter. And, if a transmission isn’t shifting properly, it just might be that a new clutch is needed, as was the case for “Schmidtski.” I also see that mechanical issues are often caused by loose screws, loose wires or connectors, blown fuses, or corroded connectors or terminals. Thankfully, these usually mean quick, inexpensive fixes. In the case of “J W Voita’s” dually bogging down, the fix was as simple as replacing the air filter that had been clogged with red blow-sand. So…I’ve learned not to overlook the most obvious cause of an issue and the simplest, least expensive fix because that’s just where the solution might be found.

It is interesting that folks are having problems with supposed “OEM” replacement parts purchased from Amazon because they turn out to be fake. I guess the lesson here is “buyer beware.” Search the Geno’s Garage Shop Talk blog, “Counterfeit Filters – Buyers Beware” for the complete story. Check it out!



Ramcharger: An Interesting Observation

It was informative to read everyone's take on the Ram 1500 Ramcharger hybrid vehicle, which has a gasoline engine driving a generator to charge a battery pack that provides power to electric drive motors. Most notable was the conclusion that "the multiple energy conversions were not going to be efficient." Greg Whale concurred, saying, "I'm struggling to find the efficiency when a Ram/Cummins with equal or higher payload and tow rating will do close to the same miles per gallon."

Ram's 2025 Ramcharger

"I'm struggling to find the efficiency when a Ram/Cummins with equal or higher payload and tow rating will do close to the same miles per gallon."

My heartfelt condolences to John on Polly's passing. Polly sounds like she was an amazing woman who led a life she designed for herself outside the typical female mold. I will miss Polly Holmes' writing and her insights found in Polly's Pickup, like "EVs are good for cities with short trips with a place to plug in when you get home. They aren't so good if you have a long distance to go or want to do truck jobs…" I liked "The public has begun to speak out with their pocketbooks and EVs aren't winning." It would be nice if consumers would come together more often and really make a massive statement with our pocketbooks and wallets so that businesses and the government would make more sensible and consumer-based decisions.

Joe Donnelly's "Have Ram, Will Travel" highlighted winches and cable/rope and all things related and provided information about the differences in synthetic versus steel rope. Very informative for anyone with winching in their future. Note the wise recommendation to use heavy blankets or a purpose-made safety dampener on the cable to prevent damage or injury if the cable breaks. Safety first. I was amazed at the working load of something that weighed so little in comparison and how many options there were in winches, shackles, rope, etc., to fit any job and perform it efficiently and safely.

Why Do People Like Trucks?

In "Motor Minded" I appreciated the discussion on "Why do people like trucks, anyway?" All I know is I feel American pride and somehow safer when I'm in an area where I see a lot of pickup trucks on the roads or in the parking lots. Perhaps that's my Midwestern mindset coming out, but I definitely do feel better. I don't think any justification is needed for liking or driving a truck, whether it's because of utility, image, social identity, mastery, or any other reason. I just say, "Drive a truck and be proud of it." I am.

In "Ranch Dressing," I found this information intriguing: "Today's diesel emissions are no worse than those of gasoline engines, mainly because diesels are, on average, 30% more fuel efficient. They're also more reliable and last longer than typical gasoline engines." And, as a bonus, they're now quieter than they've ever been. I think the following is purely logical: "While pure EV sales are down, gasoline-electric vehicles are flying off dealer lots in the U.S. Ford said it was going to quadruple hybrid sales in the next five years." I'm not an engineer or scientist, but hybrids make so much more sense to me than totally electric vehicles. I appreciated that 3,882 car dealers wrote the president telling him it is "time to tap the brakes on the unrealistic government electric vehicle mandate." Amen! I just wish it had been at least 10 times that many dealers. Let common sense and logic prevail, especially when you see statements like those made by William Levin in "The Electric Car Con Explained" that say, "there is no factual basis to claim that the government mandate to switch to electric cars will have any material impact on global CO2 emissions." So…why this massive push to all electric?

More EV Discussion

I'd appreciate knowing what our government is thinking pushing EVs so strongly when the infrastructure is not in place. And it appears the US does not have its own adequate supply of raw materials to manufacture the necessary batteries. In "BITW" I learned that China will most likely be controlling EV battery production and pricing due to their graphite reserves, that the amount of graphite needed is roughly a million tons a year, and North America's capacity of commercial scale graphite is zero. The bottom line: "US manufacturers import all of the graphite they require for battery anodes—a third of it from China." And, "…demand for graphite is expected to outweigh annual supply by 2025 as EV battery production ramps up." I also learned that even though the US is currently importing all the graphite used in EV batteries, our government has stated that EVs with any battery components made or assembled by a "foreign entity of concern" do not qualify for the federal tax credit of up to $7,500, which was an added incentive for some EV buyers. On a positive note, I was happy to learn that the USA is about 66% energy sufficient and that oil production by US companies is increasing.

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More Summaries

Scott Dalgleish's "Back in the Saddle" discussed the addition of bed lights. I'd like to know how Scott likes them now that they're installed successfully. For all you dog lovers, it looks like the dog hammock mentioned is a great asset to have when carting your canines around, as it protects your vehicle's interior and makes clean up easy. I was intrigued by Scott building his own power washer for a fraction of the cost of buying one ($800 vs. $6,500) and being able to build it to specifications and features most apropos for the job. Amazing that you can even have a spot-free rinse by using deionized water thanks to a mixed bed double standard deionizer.

In "Still Plays with Trucks," James Langan decided when his four-year-old batteries gave out that it might be a good idea to revisit cost versus benefit. This time he opted for the super-premium replacements and is counting on much longer battery life. I also learned a bit about the lead used in batteries and that it can range from 99.9% virgin lead (reminiscent of 99.9% pure Dove Beauty Bar) to lead alloys, with the purer lead offering much more battery power than lead alloys.

Congrats to member Gary Ames on rolling over 500K miles with his Cummins Ram ("TDR/R/R"). And here I thought my husband's Chevrolet Silverado had hit a high milestone when it rolled over 300K miles. Of course it was made more poignant in that our two children, who Keith taught to drive in that truck, were in it with me as we rolled it over 300K together in Keith's honor/memory.

In "The Rest of the Story," I thought Stan Gozzi was clever to fill his heater core with hot tap water after removing it from his vehicle to confirm that the core was plugged. He points out the bad news for Ram Turbo Diesel owners in that the 2019+ trucks have a similar design and some reports of plugged heater cores, causing lack of heat to one side of the truck, noting that it's a good idea to properly maintain your engine coolant. This interested me because my daughter's Ford Flex has the same issue: No heat on the passenger side. I guess it's time to see if half the heater core is plugged. The TDR, helping us to fix all kinds of problems!

I thought Stan Gozzi was clever to fill his heater core with hot tap water after removing it from his vehicle to confirm that the core was plugged.

In "The Way We Were" the editor-dude takes a look back in time to the days where he attempted to use sound deadening materials to turn down the noise. He noted his results (actual numbers are on pages 102, 103) and concluded "If you need a reason to do some spring cleaning or restoration to your interior… Go ahead, rip it out, lay down some sound deadening stuff and feel a great sense of pride in your newly refurbished cabin. Otherwise, YMMV [your mileage (results) may vary]."

In "TDRV," Doug Leno discusses the importance of not only using a torque wrench, but making sure it is correctly calibrated. Incorrect torquing can cause wheel studs to break, which can lead to a wheel separating from the vehicle during driving. No one wants that! Unfortunately, it appears that the wrong torque specifications were printed in the Service and Owner's Manuals. Yikes! Make sure your Owner's Manual has the correct specifications listed. Doug notes that even torquing the wheel stud to just 8% over specs dictated a safety recall for over 100,000 trucks because it puts the wheel stud at risk. Unfortunately, after using an accurately calibrated torque wrench, he discovered that his lug nuts had been torqued 8% above the specification. As he concludes, "Yep, this got my attention."

My conclusion after reviewing Issue 124 is that there's always good stuff to learn in the TDR, so keep reading it and keep inviting your fellow Ram/Cummins owners to subscribe to the TDR. My final thought: After reading Jack Baruth's "Exhaust Note," I think more of our government officials, including EPA bureaucrats, need to drive trucks, especially Cummins Rams. Don't you agree?

Connie Kiviniemi Baylor
TDR Writer

TECHNICAL TOPICS

Service/Parts Updates
In this issue, the editor takes a historic look at the Indy 500 and innovations from racing.

THE INDIANAPOLIS 500: CUMMINS, INNOVATION AND ENTERTAINMENT

The editor sits down to write another racing (and travel) story. This go-round, the subject is the Indianapolis 500: Innovation and entertainment. However, I know from having hosted the TDR audience at many national events, auto racing is not as big of a hobby/interest as it is for me. So, I'll refrain from the nuts-and-bolts of current auto racing and just touch on racing's historical significance as related to Cummins and diesel engines and diesel development.

INTRODUCTION: THE INDIANAPOLIS 500

The Memorial Day spectacle that is the "Indy 500" has captivated me since I first attended the event as a 10-year-old kid in 1968. That year, the Second Generation STP #60, turbine-powered car of Joe Leonard came up short of winning by 8 laps/20 miles as the fuel pump's drive shaft broke when the race returned to the green flag after a late race caution.

The 1968 Indianapolis 500 STP Turbine car was driven by Joe Leonard. (Amelia Island, 2019)

After Leonard dropped out, Bobby Unser took the lead and won the race.

The next year the innovative turbine-powered cars were effectively eliminated by the sanctioning body (United States Auto Club). The rules reduced the air inlet size, thus restricting the power output.

The 1968 Indianapolis 500 winning car was driven by Bobby Unser. (Indianapolis Speedway Museum, 2018)

And, while turbine-power was abandoned, the racing at Indianapolis was on the cusp of another revolution in racing: Aerodynamics.

Yep, from the Dodge Daytonas and Plymouth Superbirds in NASCAR; to the Porsche 917s at LeMans; the wings and suction fans in CanAm racing; and wings-n-things in Formula One, racing was about to drastically change. (See sidebar: Racing Innovations.)

A 1970 Plymouth Superbird at a Mecum auction.

Enough of the big picture in automotive racing. Ours is a diesel truck magazine. How has the Indy 500 influenced diesel engine development and, better yet, how has diesel engine development influenced Indy 500 racing? To take a historical look at those two questions, I'm going to steer you in the direction of the previous discussions we've had in the magazine.

CUMMINS/PREVIOUS DISCUSSIONS

It is at this point that it gets difficult being your editor. Here is the situation.

Again, I enjoy racing. I enjoy telling and reliving the stories of Mr. Clessie Cummins and his adventures at Indianapolis Motor Speedway. So, here are the reference articles:

Dodge/Cummins Turbo Diesel Historical Perspective

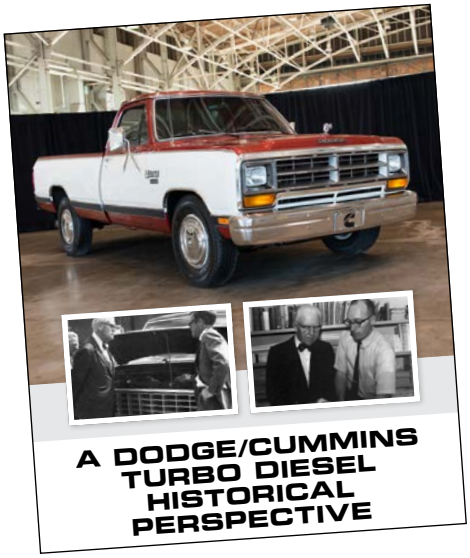
- Cummins' Barnum and Bailey Days: Excerpts from Mr. Cummins' book that talk about racing at Indianapolis and Daytona. (Pages 83-92)
- Cummins at Indianapolis: Cummins at the 1931 race. (Pages 93-96)
- Cummins' Race cars at the Indy 500: The 1952 Indianapolis 500 and Cummins becomes the first diesel in a race on any track in the world. (Pages 97-105)

TDR Website

- "Cummins Diesel Special" #28 at the 1952 Indy 500." This old school video (YouTube) is fascinating. Concurrent with the magazine, I have brought it back to the TDR's front page. Check it out!

Most recently in TDR #104 there was an extensive write-up (four pages) on the historic "#28 Cummins Diesel Special" that was on the pole at the 1952. The Cummins engine ushered-in the development of turbochargers for use with diesel engines.

Seriously. Stop, take a moment and download the "Dodge/Cummins Turbo Diesel Historical Perspective" and reread those pages from Issue 104 that cover those early days of innovation.



The New Stuff

What's new with the #28? I've had the chance to travel to racing and car show events. I continue to see the #28 car on display. In 2022, eight historic Indy cars made ceremonial laps prior to the start of the race. The legendary Mario Andretti drove the car around the track. His comments were captured in the September issue of Vintage Motorsport: "'It is a huge, huge piece of equipment' that Andretti called 'bulky' and 'clumsy.' 'Oh, my goodness, can you imagine him (driver Freddy Agabashian) qualifying the car at almost 140 miles-per-hour, which was fast enough for the pole position. I put a premium on the job he did to be driving it that fast.'"

'It is a huge, huge piece of equipment' that Andretti called 'bulky' and 'clumsy.'

Also in 2022, the #28 car was a part of the concours show at Amelia Island. It was displayed in the "Indy Roadster" category. How significant, unique, and show-worthy is the #28 car? It won its class at Amelia Island. (See Ready to Travel, "More About Amelia Island.")

The 1952 Indianapolis 500, #28 Cummins Diesel Special car driven by Freddy Agabashian. (Amelia Island, 2022)

The car is owned by Cummins Inc., and when it is not on display at Cummins' corporate office in Columbus, Indiana, it is stored at the Cummins Historic Restoration Center (HRC) in Columbus.

If you would like to read a story about the work that they do at HRC, check out TDR Issue 103, pages 18-20. The HRC is staffed entirely of volunteers. These craftsmen meet after hours and on weekends to lovingly maintain the mechanical artifacts from Cummins' 105-year history. If you would like an insider's look at this fascinating story of Cummins' 105 years of independence in the modern world of corporate buy-outs and consolidation, I can suggest a story written by the late Lyle Cummins (Mr. Cummins' son) for the TDR. You'll find his essays in the "Historical Perspective" book titled Cummins History and Cummins' Independence.

RACING INNOVATIONS

Each year as big racing events like the Indianapolis 500 come up on the radar screen, the press folks will crank-up the research and give us a "10 Best" or a "Did You Know" list. Several years ago, I noted some automotive "firsts" that can be attributed to innovations from racing. (Hey, it is also interesting to note the automotive first of Ferdinand Porsche with his hybrid car, page 43) Here is a list that I found from the online website Jalopnik, titled "Indy 500 Car Tech."

Innovation	Year	Vehicle
Rear view mirror	1911	Marmon
Four wheel hydraulic brakes	1921	Duesenberg
Seat belts*	1922	
Supercharged engine	1923	Mercedes
Front wheel drive	1924	
Supercharger intercooler	1927	
All wheel drive	1932	
Helmets/Caution lights	1935	
Turbocharged engine	1952	Cummins
Rear engine location	1961	Brabham
Turbine cars	1967	Lotus
Wings/Aerodynamics**	1972	
Ground effects	1980	Chaparral
Crash data	1993	
Safer barrier	2002	
Tires	All years	
Engine	All years	

*In the US, passenger car seat belts were officially mandated in 1968. Technically speaking, the belts didn't become a "requirement" until 1984. Amazing!

**Aerodynamics: Rear "wings" for downforce were first allowed in 1972. The difference in speed at Indianapolis was substantial. The top qualifier in 1971 was at a speed of 178mph. In 1972, with the aerodynamic aids (inverted wings that create downforce/traction), the speed jumped to 195mph.

Here is a picture of the 1911 Marmon with its rearview mirror. The car is on display at the Indianapolis Motor Speedway Museum.

1911 Marmon (Indianapolis Speedway Museum 2019)

Aerodynamics: The top photograph is the winning car from 1971 (Al Unser, Vels/Parnelli Jones Special). Directly below is a photograph of the winning car from 1972 (Mark Donohue, McLaren). Note the big aerodynamic wing(s) on the front and back of the McLaren car.

1971 Winner, Al Unser, minimal aerodynamic aids. (Indianapolis Speedway Museum 2018)

1972 Winner, Mark Donohue. Big wing in back equals downforce, equals a speed differential of 18mph faster (195mph versus the previous 178mph). (Indianapolis Speedway Museum 2019)

This car was designed to race at Indianapolis in 1972 with "dihedral" wings. There was not enough time for development and they were removed. (Amelia Island 2018)

ENTERTAINMENT

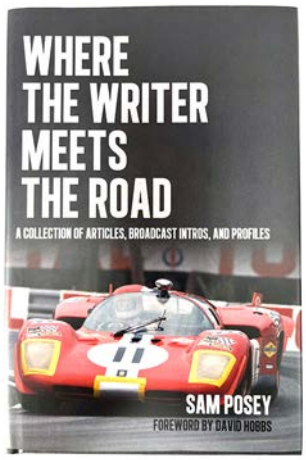
At the introduction of this article on technical innovations, I made the observation: "I know from having hosted the TDR audience at many national events, auto racing is not as big of a hobby/interest as it is for me." So, let's talk about today's racing environment and entertainment.

No doubt there is mechanical innovation on display at every Formula 1, IndyCar, IMSA or NASCAR race. Really, engines with internal tolerances so tight that the engine's coolant has to be warmed prior to starting the engine (TDR 110, page 18). However, one look at the IndyCar or NASCAR vehicles and you'll realize the cars are "cut from the same mold." This equates to close racing and great entertainment. Seriously, when was the last time a driver won a race where he lapped the field with his innovative Hemi engine in a 1967 Plymouth Belvedere like Richard Petty did?.

Engines with internal tolerances so tight that the engine's coolant has to be warmed prior to starting the engine

I digress. At the same time that racing has evolved from mechanical innovation, it has also evolved with so, so many advancements in safety. In his book "Where the Writer Meets the Road" author, TV personality and racecar driver Sam Posey talks about the dangers of racing back in the day.

Quoting from Posey's book: "Throughout the 1950s and well into the '60s, the people in racing were of a generation who had either been in, or remembered, World War II. No one would have admitted it, but the danger was condoned—even welcomed—because it allowed men to achieve in peacetime the sort of heroic stature usually reserved for combat heroes. But then came the spring of 1968. Four F1 drivers—Jim Clark, Mike Sence, Ludovico Scarfiotti, and Jo Schlesser—were killed, and while only Schlesser died in an F1 car, the deaths stunned the F1 fraternity. Worse yet, speeds were about to jump again."



Author Posey notes that aerodynamic "wings" showed up in the spring of 1968 on Formula 1 cars. After two major accidents the upright wings were promptly banned.

Likewise, the high, suspension-mounted wings were banned from use in CanAm cars, too. New rules simply changed the wing to be a part of the car's bodywork (see McLaren CanAm car on page 53) or to innovate in other ways. Looking back, the Chaparral 2J, with its snowmobile engine-powered vacuum might have been the pinnacle of innovation.

Chaparral 2J, front.

2J, rear view. Yep, vacuum power for downforce.

Continuing from Posey's book: "Just a few years before, driving the winged cars (Formula 1 or CanAm) would have been in the line of duty. But now a new generation had arrived on the scene, along with a practical Scotsman named Jackie Stewart. Jackie had a life-threatening crash at Spa in 1966, where he was trapped, soaked with gas in his BRM, and he was ready to speak out against unnecessary risks."

In a later chapter, Posey comments on racing, safety and entertainment: "Racing was very different then; there was still glory in taking risks, and drivers who were killed were considered to have died a heroic death. Today, getting killed is just stupid."

The obvious: Today's racing is much, much safer; less about innovation; very competitive and very much about entertainment.

Robert Patton
TDR Staff

TDREVIEW

A Product, Event, or Article Review

CERAMIC FOLLOW-UP

They say nothing lasts forever. (Wait, isn't that part of the chorus line from a Luke Combs' song?)

Okay, I'm not talking about musical lyrics in this article, I'm going to discuss one of TDR's favorite topics, paint and the slick shiny stuff we use to protect the paint's finish.

Before you say, "Enough already. Haven't we talked about this subject too many times?" I'll give you a straight answer. Yep! Therefore, this dialogue will be brief.

The most recent discussion on the topic was Scott Dalgleish's use of "Ceramic Pro 9H" on his new 2023 Ram EcoDiesel (Issue 122, pages 72-74). My observation at the end of Scott's story: "All of the discussion about ceramic coatings and the wide range of products with 'ceramic' in the name can be very confusing. I'll try my best to explain the difference between the $1200 ceramic coating and the $12 'ceramic' coating spray-on in the next issue of the magazine."

Introduction, Please

To help me unravel all of the ceramic coating mystery: Introducing, John Hewitt. Nope, John's not one of those guys that paints your concours or SEMA vehicle in a one-hour television episode. He is just a second generation, working guy trying to make a living at his craft: paintless dent repair, paint and body work, and concourse type restorations. Working from a small three-bay rental shop in Alpharetta, Georgia, his actions speak louder than words.

I'll use the following story as an example.

The short version of this mishap to the wife's car: It was a low speed, fender bender that was the fault of a teenager. Rather than involve the insurance companies, I thought the damage could be corrected by my paintless dent repair (PDR) guy Andy Schladetsch (Issues 111 and 117). I removed the headlight and plastic front bumper. The car was driven to Andy. After an hour of tinkering on the dent, he threw-in the towel. Being the stubborn type (also known as impatient), I did not want the hassles of insurance, body shop red tape, and the inevitable clean-up after the car sits outside (for…how long?). I drove the headlight/bumper-less "illegal" car 16 miles to John's shop.

The before picture.

Was John up to the challenge?

The after picture.

Yes, his work exceeded my expectations. Wow!

Okay, Here's the Explanation

Okay, in the short story example, I have established that John's got the PDR skills to do what others said couldn't be done. When it comes to paint and body, and concours restoration repair: yes, I'll trust what John has to tell me.

Sorry, I rambled a bit off of the topic. Here is John to talk about Ceramic Coatings and the difference between $12 or $1200 investment.

Wow… Spend $12 or $1200: The Explanation

I've used 400+ words to introduce John Hewitt. Now, John's going to answer the $12 or $1200 question: "You get what you pay for."

Come on John, give me a little more to tell the audience. "Okay, the biggest driver of cost is the amount of paint correction that is needed prior to the application of the ceramic coating. (For the long story on paint correction see Issue 105, pages 18-27) The last thing you want to do is to seal over scratches and swirl marks in the paint. Some cars have so many blemishes and deep scratches that you have to scuff the paint with a 3000-grit, water-based pad. Then it is buff, buff, and polish, polish, polish. All of the above are time/labor intensive (read, extra expense).

"Now you are ready for the ceramic coat. Think of the coating as a super thin coat of paint. Add the cost of the 'professional' ceramic products that offer 3-5 years of longevity and you can begin to understand the big price variation."

John IS the DENT SPECIALIST! Exemplary knowledge, dedication and talent (and a nice guy) all in one.

Don't you appreciate a direct response. John didn't have time for frivolous conversation. He did direct me to the website www.glassparency.com that has a blog article titled "The Ultimate Guide to Ceramic Coatings for Vehicles: Benefits, Costs, Maintenance and more" that does an excellent job of answering questions about ceramics in further detail. The GlassParency table of contents:

- Introduction
- Benefits of Ceramic Coatings for Cars
- Downside of Ceramic Coatings for Cars
- Ceramic Coating versus Waxing
- How to Apply Ceramic Coating to Your Car
- How Much Does it Cost to Have a Ceramic Coating Professionally Applied?
- How Long Does Ceramic Coating Last on a Car?
- How to Clean a Ceramic coated Car
- GlassParency's Ceramic coating and Graphene coating for Cars
- Why Car Manufacturers Don't Apply Ceramic Coatings
- Conclusion

Indeed, the Glassparency web information reinforces the text and stories about ceramic coatings that we started back in Issue 105 where three vehicles were coated with three different coatings. Gee, Issue 105 is now five years old. Looking more recently, Issue 114, page 118, gave an update and a story where I reused the Sonax Profiline ceramic product ($60) on my 2020 Ram 2500 truck.

Observations Over the Years

I concluded in Issue 114, "Yes, I'm sold on ceramic coatings, especially when the paint preparation is minimal."

I've used three consumer-type products. Over these many years they have all lost the fantastic (and obvious) water shedding/water beading properties of the just-coated vehicle. Ditto the smooth feel of the paint. Even the ceramic coated vehicle will need a clay bar clean-up two or three times a year. (Even more when parked continually outside.)

Got it, the clay bar restores the smoothness of the coated vehicle. But, what about those great water shedding/water beading properties? (And the feels-like-butter texture of a fresh coat.)

The www.glassparency.com website reinforced an observation that I've noted: The need for an additional "top coat" to bring back the water sheading/water beading properties. (And, the feels-like-butter texture!)

In my five years living with ceramic coatings, I've used quite a few top coat products. From the manufacturers' recommended "rejuvenators," to products off the shelf at the auto parts store: Meguiar's, Griot's Garage and Chemical Guys. My long story, short version: As a "top coat" my vote goes to the Chemical Guy's V07 for ease of application, removal, water beading and that smooth butter-like texture. (Turn the page for comments from other TDR writers!)

So, What is the "Final Answer"

Yes, our membership group/magazine publication is one that strives to evaluate and come to a winner-takes-all conclusion. So, for this $12 to $1200 dilemma I corresponded with Scott Dalgleish, Doug Leno and Stan Gozzi – they have all been a part of the ceramic story. Here are their recommendations.

From the Editor-Dude

Use the paint correction techniques described in Issue 105, pages 18-27 to make the paint as swirl-free as possible. I used an economical ceramic coating (the Sonnax Profiline was so easy to use) to coat my vehicle. You get what you pay for (in terms of longevity) when you choose your ceramic coating. Use the Chemical Guys V07 to topcoat after every other wash job. As you see the inevitable swirl marks, you'll have to start over with your paint correction process and a new, thick ceramic coating.

Or, do you just skip the ceramic and do the wipe-on/wipe-off Chemical Guys V07 at every other washing? After five years of foolin' around with this stuff, that's kind of what I'm thinking. As a conclusion to my story, the technique that I have used with the latest vehicle that was purchased for my wife, a used 2021 SUV, no paint correction was needed. I wipe the SUV with the Chemical Guy's V07 after each wash. Washings are easy, and rain/dirt doesn't adhere to the surface of the V07 stuff. I like the simplicity of this techique.

From Scott Dalgleish:

My experience with ceramic coatings has been limited to the recent application of Ceramic Pro 9h that was professionally applied to my 2023 Ram (see Issue 122, page 73). My decision to use a certified installer centered more on the ability to have a manufacturer's warranty that is tied to my VIN. I was surprised to find that this data showed up on a Car Fax search. No doubt, it should add value to the vehicle.

I believe the prep (read paint correction) prior to installing the coating is essential to obtaining a lasting show quality finish. During the paint correction, I specifically requested to NOT remove all of the orange peel from the clearcoat so that the paint would would retain the thickness and protection of the factory finish.

My Ram is driven daily, parked outside during the day and garaged at night. I have been using an automated "touchless" car wash with a deionized rinse weekly, weather permitting, to clean my Ram. The coating has been in place almost one year and it still delivers a show shine, feels buttery smooth, repels water and dirt as it did on day one.

Ceramic Pro sells a detailing spray to enhance their finish, but I prefer to use one of two Meguiar's products: M799 Pro Hybrid Ceramic Bead Booster ($33 for 32 ounces, also available for $66 per gallon) or Hybrid Ceramic Detailer ($16.99 for 26 ounces). Both are SiO2 infused. I am very happy with the protection and appearance provided by the Ceramic Pro coating.

From Doug Leno:

Using the script from the Editor's writeup on ceramics, I'll invoke the John Hewitt doctrine: "The biggest driver of cost is the amount of paint correction that is needed prior to the application of the ceramic coating." So, the prize still goes to the guy who does all the prep work.

So, the prize still goes to the guy who does all the prep work.

And there it is: As great as these ceramic coatings are – and we've established with certainty that they are good products – the preparation is more important than the product.

My formula for preserving those wonderful ceramic properties (touch/feel and water-beading) is Griot's Garage Ceramic 3-in-1 Wax. This ceramic product is not a one-time treatment. Rather, it's a topcoat that behaves like a one-time treatment when you apply several coats of it, which is what I did.

My initial treatment (of several coats) lasted approximately one year with no additional attention. However, that's not how the product is intended to be used. Their product is to be used whenever you wash and whenever you want, just like you would a detail spray, essentially applying mini topcoats every time, each one building on top the other.

Yep, the wife's car was ceramic coated with Sonax Profiline and it was written-up in Issue 105. The paint is not yet showing those dreaded swirl marks. For a top coat, I recently polished four squares with four different spray-on, easy-to-use products that are mentioned by the TDR writers. Tested by touch and a cloud-burst rain shower: no real difference in performance.

From Stan Gozzi:

I tried the first ceramic coating after the Issue 105 comparison. I chose the Carpro ($69) product for my wife's car and my 2018 Turbo Diesel. The results were better than I expected. Water would bead up and the surface was slick. My truck gets washed in a commercial wash a couple times a month and the product held up for about a year. My wife's car only gets hand washed, and the coating lasted slightly longer. I used the Carpro restorer from time to time for the best results.

At SEMA 2023 I visited almost all the vendors selling ceramic coatings. Some are installer-only, so I ruled them out. From the remaining products I chose "Proje 9H" ($129) professional ceramic coating.

For the second round of ceramics on my wife's car and my truck, I only had to do some light paint correction. The car is always garaged and the truck is always under a Coverking protective cover.

The Proje 9H was a bit touchier to apply. On the trunk of my wife's car, you could see a line where I coated each half. Also, it was not really that slick, although water does bead up nicely.

After the ceramic application (and for those times where you want a nice-to-touch feel) I switched from Chemical Guys 202 Speed Wipe back to Meguiar Last Touch Spray Detailer simply because of price. The Chemical Guys 202 did seem to keep dust from sticking better than the Meguire's as a weekly touch up.

The editor-dude called and asked me to try Chemical Guys V07 as a topcoat. I have to agree it makes the finish as smooth as butter. I wish they sold it in gallons as it is quite a bit more expensive than the other detail sprays. But, I agree that it is, by far, superior in performance to the others I have used.

I'm also sold on the ceramic products, but I think I will stay with the under $75 price point products.

SIDEBAR

BUYER'S GUIDE: CERAMIC COATINGS BY THE NUMBER (A Reprint)

So, as a recap, the TDR's writers have dabbled around with ceramic coating products for five years. You've read the recommendation from John Hewitt. You are convinced to purchase a coating. And, you would like a guide for shopping. Let's look at ceramic coatings like you would when shopping at the liquor store, shopping by the number (i.e. what is the "proof" number). The following is the story.

Last fall, as I listened to all the sales/information/ pitches from vendors at SEMA, the recommendation was to seek-out the "number." A consumer should look for the highest percentage of SiO_2 (silicon dioxide). However, the ceramic number isn't as easy to discern as the "90 Proof" on the side of a liquor bottle. So, if you can find a "consumer" product at 80-90%, you've found a good one. The website: cnet.com/roadshow/news/best-ceramic-coating is a good place for research.

At this point, let's add ceramic coatings to the TDR's short list (tires and lube oil) of highly subjective products that you purchase.

Robert Patton
TDR Staff

However, the ceramic number isn't as easy to discern as the "90 Proof" on the side of a liquor bottle.

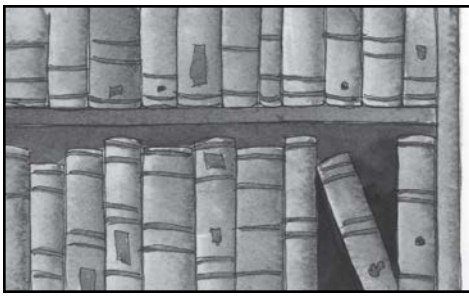
TDR WRITERS' CHOICE FOR CERAMIC TOP COAT

Robert Patton
Chemical Guys V07

Scott Dalgleish
Meguiar's M799

Doug Leno
Griot's Garage Ceramic 3-in-1

Stan Gozzi
Meguiar's Last Touch



TDResource

A Listing of Resource Material.
In this Issue our "Resource Material" is TDR writer Andy Mikonis and his review of the 2025 Ram 1500 Tungsten and Rebel trucks at a comparison event for the local media.

FIRST DRIVE: 2025 RAM 1500s

In May, I had the chance to drive two versions of the "new" 2025 Ram 1500. The word new is a bit misleading, the 1500 is actually a refresh. The occasion was the Midwest Automotive Media Association Spring Rally, an annual event taking place over the last fifteen years or so wherein we gather in Elkhart Lake, Wisconsin at the legendary Road America for track laps, an off-road course, and street drives on the lovely roads of the surrounding area. This year we had over 100 journalists driving 80 new vehicles, including a 2025 Ram 1500 Tungsten and a 1500 Rebel.

2025 Ram 1500 Tungsten

2025 Ram 1500 Rebel

Hurricane Engine

As you probably heard, the big news is no more Hemi V-8 engine. It is replaced by the new "Hurricane" 3.0-liter twin-turbo inline six-cylinder. Lower models retain the 3.6-liter V-6. Traditionalists may find the lack of a V-8 naturally aspirated engine a bit disturbing. But, all the automakers are doing more with less, and we are witnessing the twilight of the V-8 in the half-ton truck. Indeed, since buying my first Turbo Diesel, more inline-sixes followed, namely Jeep and Jaguar, and now they are the majority of my personal fleet.

There is a 3.0-liter, twin turbocharged engine somewhere underneath that cover.

Tungsten Drive

Upon arriving at the event, I headed for the Ram Tungsten. This is the new top trim level and is reminiscent of recent high-end Laramie and Limited with some extras. My priority today was driving impressions. Numbers don't lie and with those numbers being 540horsepower and 521torque, I was expecting to feel the power. With some empty rural roads to kick it on, the Tungsten delivered on impressive acceleration, with the help of a 3.92 axle ratio, whether it was low end or passing punch. But what really stood out was the buttery smoothness of power delivery. Price as tested: $90,585.

Let's do some towing with the Tungsten

Rebel Drive

Next, it was off to the off-road course to drive the Rebel. As much as I appreciated the finery of the Tungsten, the Rebel's styling was more my speed. I had commented previously on how the Rebel vibe was growing on me (Issue 110) and it continues to do so. As we know, Ram produces some excellent interiors regardless of the trim level. Both trucks had the large center touchscreen, which doesn't stand out as much as it used to; a Tacoma and Ranger in the event had comparable sized screens, though interestingly a F150 Platinum did not.

Rebel: Ready to rumble.

The off-road course was originally cut out of an area at the edge of the Road America property for a one-off event. Then a few years ago the Jeep Jamboree team came out to groom and build up on it for us, and now Road America uses it on a more regular basis. You start in on a winding trail through a forest, then out to a field with various manufactured obstacles, including moguls to test out suspension articulation, some steep hill climbs and descents, a section of rocks to climb over, and a pond for water fording. Heavy storms the night before made the conditions extra muddy.

It's going to get dirty.

It was very slippery in the forest section, with a lot of standing water in deep ruts in the open area. In low range, the Rebel equipped with Goodyear Wranglers handled everything with virtually no wheelspin, though plenty of sliding side to side. The blind spot alert sounded once when the tail was heading for a tree. Other electronic nanny aids such as lane departure and front collision alert are off in low range. The front parking sensor was actually helpful in deciding if I was going to make a turn in the forest. This truck had all the towing gear including the wide mirrors that did require backing up and taking another bite a couple of times, otherwise the Rebel is a competent off-roader. Fun stuff. I would have taken some additional photos but I find it hard to photograph off-road driving and make it look like anything.

This is my attempt at making off-road driving look interesting.

Back-to-Back Driving

On day two the Rebel was available for street drives, so I drove the Tungsten and Rebel back-to-back for comparison. The Rebel had the base version of the Hurricane engine with 420horsepower and 469torque. It also had the 3.92 axle ratio. The two trucks have a distinctly different highway character. The Rebel's Goodyears are rather noisy. The engine is louder than the Tungsten's and not in a good way. Perhaps it's just less sound deadener. The difference in power was obvious. The Rebel felt adequate, but not inspiring. I was already spoiled by the Tungsten. For now, it looks like the high output engine is only available in the higher trims, so I think I'm out of the market, though the Rebel wasn't exactly bargain priced at $80,240. Still, Ram manages to continue to improve the 1500, and I'm all for the move to the I-6. With inherently perfect balance, and presumably better fuel economy (estimates on the test trucks were still TBA), I don't see a downside. Complexity perhaps, but I'll give that closer look when I get the Tungsten for a week loan in July. Look for a more thorough review next time.

The Rebel felt adequate, but not inspiring. I was already spoiled by the Tungsten.

Andy Mikonis
TDR Writer

THOUGHTS ON EXTENDED WARRANTIES AND THE MARKETING THEREOF

Case 1 – New Purchase, 2019 Toyota: I set up a deal and helped walk a friend/part time employer through the purchase of a new Camry. On to the F&I office, they pitch the extended warranty. I advised her to pass. She lives in the city, doesn't drive a lot of miles, and buys a new Camry every ten years. The F&I lady says "But I've seen $4000 repairs out of warranty, I've seen $5000." I thought that was an odd way to sell a car (though technically it was basically sold already.) So, I said "Then why is she buying a Toyota?" ***Editor's note: Fear is a great motivator. With Andy's logic, the F&I tactic did not work.***

Case 2 – New purchase, 2021 Jeep: I set up a deal and helped walk my mother-in-law through the purchase of a new Renegade. On to the F&I office, they pitch the extended warranty. I advised her to pass. She also lives in the city and doesn't drive a lot of miles. She was 84 at the time so we don't know how long she'll be driving. We passed on the extended warranty package.

The F&I guy wasn't too pushy. However, since she doesn't do computers, I registered my email as the contact. By the time this magazine hits your mailbox, she'll have had the car three years and I'm still getting two to three emails a week pitching extended warranties (not to mention frequent snail mail to her house). Some of them come from Mopar, but most come from a CDJR dealership in another state. One statement they keep using is "On average, new vehicles will cost a driver $1,476.00 per year to maintain and repair, not to mention the headaches associated with a breakdown." Reading that carefully, shouldn't a "new" vehicle be under the regular warranty? And wouldn't a breakdown be a headache either way? Geez…

Case 3 – Used purchase, 2015 Jeep: My mother went car shopping at a reputable CDJR dealer. She bought a four-year Mopar warranty. Enjoying some newfound freedom, she burned through the warranty on mileage before time. That's fine, that's the way it goes, but ultimately she was very dissatisfied with how much the warranty wouldn't cover. The kicker? They sold her on prepaid oil changes, which "expired" at the conclusion of the four-year warranty term leaving several unused. What sense does that make?

Counterpoint: I'm acquainted with a CDJR tech. He built a transmission for me on the side and did work on my mother's previous vehicle. I called him for advice on a repair on her Jeep that the warranty wouldn't cover. He said he always recommends people get the extended warranty, because he sees some big bills. Also, he said, "it's not that much rolled into the monthly payment."

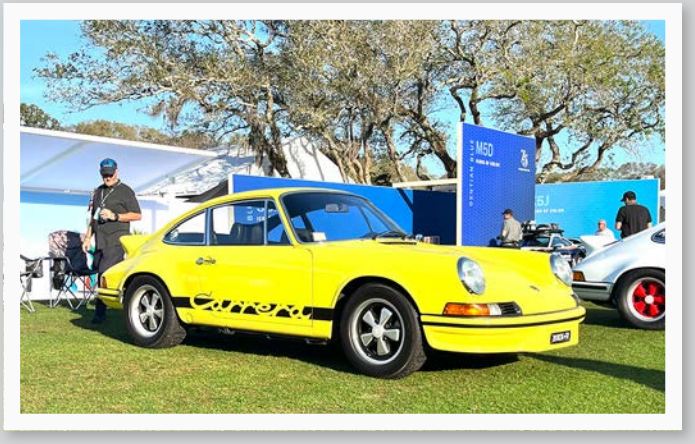
To that point, in all three of my above cases the vehicles were bought outright and not financed. Part of the decision for passing on the warranty in the first two cases is they have the means to absorb a larger potential repair bill. My mom, not so much. So, I can see it as one argument to get the warranty if you want to spread the payments out. (Although it didn't work out too well for my mom.) Another consideration is today's content-heavy cars and trucks are probably only going to get more expensive to fix. Turbo Diesels and EcoDiesels are certainly no exception.

One thing is for sure, the automakers and dealers wouldn't be pushing this stuff if they weren't making money on it. Reading through research firm CDK Global's "2024 Insights," they say, "Finance and Insurance (F&I) continues to be one of the most profitable parts of a dealership." Interestingly, they say the vast majority of car buyers (84%) have a favorable view of their experience in the F&I office. As far as how many of the extended warranty packages were purchased, they found 32% went for a powertrain warranty, and 39% for extended repairs. Wonder how that compares to Turbo Diesel buyers?

Andy Mikonis
TDR Writer

Editor's note: My experience, only consider/purchase the extended warranty that is offered by the manufacturer of the vehicle.

2024 AMELIA ISLAND PICTURES



Which would you rather have, a yellow or white Porsche Carrera?

FIRST GENERATION
'89-'91, NON-INTERCOOLED

FIRST GENERATION.5
'91.5-'93, INTERCOOLED

Coverage of the '89 to '93 Model Trucks.
Website Correspondence Edited by G.R. Whale.

LEAKING WATER SEPARATOR VALVE

Is this valve just supposed to leak in these trucks? Seriously, I'm on the third one I've put on, and they all leak in exactly the same place, right at the tip of the plastic tube. Not from where it screws into the filter itself, but from the very tip. It's a steady drip, just over one per second, which I calculate adds up to just about 1/4 gallon per hour of fuel on the highway. The first valve was a Cummins, the others were from NAPA. Any suggestions? Is there something odd about these?
RedD250

I went through three leaking drain valves on my '95 before I finally gave up and used a filter that didn't use the sensor. Two of them failed catastrophically, pouring fuel. If you want to go the non-valve route, the Baldwin BF1221 or Fleetguard FS1221 is listed for your truck, and it has a drain valve but doesn't take the sensor. It won't leak. However, it is two inches longer than your stock filter is without the sensor. Your sensor is probably two-inches long, so it may not make a difference.
BigPapa

I hate to lose my stock WIF light, but I may have to go that route. Does anyone know what the message center will do if the WIF sensor is not detected? Or would I just leave it plugged in and zip tie it up out of the way somewhere? What are the consequences of running the truck if there is water in the fuel? I don't want to blow up my engine, as I'll have no way of knowing without the sensor. Thanks!
RedD250

Leave it unplugged. If you have a problem with the light coming on, fill the connector with dielectric grease and tape it up. In my 600K plus miles of driving a diesel, the only time my WIF light came on was when I steam washed the engine and got the connector wet. If you get enough water in your fuel to cause a problem, you'll know it.
BigPapa

Well, it was the fuel heater seal that was leaking, not the water separator valve. I feel like an idiot, replacing three valves for nothing. I just couldn't see the top part of the filter, and I just assumed that it was fine because it was on tight and I had just replaced it, ensuring the old O-ring was removed, mating surface was clean, etc. I didn't know that the fuel heater was even a thing, never heard of it before. I did the Geno's delete kit and everything is fine now. It was just leaking down the side of the filter and making it look like it was the water separator valve.
RedD250

PUSHROD COVER GASKETS (ALL 5.9 ENGINE OWNERS)

In a similar vein I am looking at gaskets and seals for the pushrod cover. What do you think? Is the extra cost of the Cummins part warranted for this application?

I've found three parts are used to seal the cover—the gasket itself, the rubber seal that goes behind the bolts and the metal washer. I noticed some kits come with all three, but the Cummins gasket is separate from the other parts. The Felpro kit is about $30, all the parts from Cummins are about $90. I have the 3M adhesive previously recommended here.
garylmoore

I've used Felpro without any issues on several trucks. Make sure it's oriented properly. I apply the weather strip adhesive to the gasket and cover and let it set up overnight before installation. I don't put adhesive between the block and the gasket. I have never had to replace one, only did one at 225K because I had the intake removed.
BigPapa

I guess I would do the economic analysis too. What is your time worth if you have to redo the gasket in X-number of years, versus the Cummins gasket giving you X+number years. I probably waste a lot of money buying top quality parts and tools though.
endoscott

2024 AMELIA ISLAND PICTURES

Period correct dress attire at Amelia Island (see page 46, too.)

WHO SUPPLIES YOUR SUPPLIER?

At Geno's Garage we are direct distributors for the OE manufacturers including Cummins, Fleetguard and Mopar. This means that you can be 100% confident we are shipping authentic OEM filters to you every time.

Over the past 28 years we have developed strong relationships with the OEMs, and we work closely with them to help ensure they understand the specific needs of our Ram Turbo Diesel trucks.

CHASSIS MOUNT FUEL & WATER SEPARATOR FILTER 68197867AB
FOR THE '13-'18 RAM CUMMINS TURBO DIESEL TRUCK.

Looks the same. But one of the many differences is that the valve depressor on the counterfeit filter is too shallow inside the base, which will cause a No Start condition.

BUY FROM A TRUSTED SOURCE.

"I just got off the phone with a friend of mine. He had his filters changed and the truck wouldn't start. It turns out the "OEM" filter he got off Amazon is a fake and the plastic piece that opens the check valve, when fully seated doesn't open. This is the cause of the no start condition. Buyer beware–I'm sticking with Geno's." -AH64ID

Visit our blog at **blog.genosgarage.com** to read an indepth article on counterfeit filters.

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SECOND GENERATION
'94-'98, 12-VALVE

SECOND GENERATION.5
'98.5-'02, 24-VALVE

Coverage of the '94 to '02 Model Trucks.
Website Correspondence Edited by G.R. Whale.

REAR WHEEL BRAKE CYLINDERS

Does anyone know what Ford type rear-wheel brake cylinders are bigger that you can use to replace stock ones in my 2001? I used them before in my '95 truck, but I forgot the details.
SMalafy

If nobody has the answer I did find this alternative 1-3/16" upgrade (https://puredieselpower.com/dodge-products/brake-upgrades-2/dodge-ram-upgraded-wheel-cylinders-wc79768.html).
Iron Duke II

I used Chevrolet/GMC 1-ton brake cylinders. If I recall correctly, the brakes are made by Delco, so there is a lot of interchangeability. If I was doing it again, I would use the cylinders that Iron Duke II linked.
Matt42

On my '98 I did the 1-3/16" wheel cylinders.
Cummins12V98

VP44 REMOVAL

How important is it for the engine to be at TDC? I removed the VP44 and when I looked, the engine was not on TDC.
SAndreasen

The recommendation for TDC is not for timing purposes, it is only to ensure the pump key is up, so you can't lose it as easily. The only timing involved is the right key for the pump; the ID tag on the pump will list the number, just confirm the key is the same (they are a three-digit number beginning with zero, such as "031"). This is assuming the pump gear has not been messed with and is in time with the cam gear.
NIsaacs

I won't worry about TDC then. Is there any harm in putting a dot of Loctite on the bottom of the key?
SAndreasen

When I replaced my VP44 I don't recall positioning the crank at #1 TDC, nor did I put any Loctite on the key. As NIsaacs pointed out, be sure the key is correct for the pump you are installing. The old key may not be the correct part—the key that came with my new pump was different than the old key.
Gearclash

BROKEN VACUUM LINE

I'm having a hard time finding where a vacuum line goes on my 24-valve. It's the black one off a "double-T" that is above the intake manifold just beneath the cowl. The white one obviously goes to the transfer case, but I can't see where the black one runs to. Any ideas?
hazefire

One end goes to the vacuum pump, one to the transfer case, and one runs across the firewall under that rubber trim to the HVAC. That tubing gets so brittle it will break if you look at it hard. You can get some air brake tubing and vacuum hose at the parts house to replace it.
BigPapa

You can buy the entire under-hood vacuum harness off Amazon and probably other places for cheap. I replaced mine last fall. This is an OEM part and I'm guessing it must sell a lot since they are still in good supply. It's easier than building and splicing, it all just plugs in.
Shelby Griggs

GASKET KITS

A good friend with an '01 is needing a headgasket set for his truck. He's asked me about using a Felpro set, #HS9522PT. Anyone have experience with it? His other options are Cummins 4090035 (my recommendation), Victor Reinz 02-10586-01, and Mahle HS54174-2.
BigPapa

I changed the headgasket on my '01 in 2015 at 258K miles with a NAPA/Felpro. It now has 370K. I always figured Felpro was OEM, but I'm not sure. I also reused my head bolts, torqued to 120 ft-lbs.
NIsaacs

There is evidence that Felpro makes the Cummins seals and gaskets. I've put both headgaskets and both rear main seals side-by-side and I can't see one difference, including numbers, letters and other molding marks.
GAmes

I use Felpro all the time and I've never had a problem. That's what the overhaul kit came with when I rebuilt the engine in my '98.
SAndreasen

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THIRD GENERATION
'03-'07, 5.9L HPCR

THIRD GENERATION.5
'07.5-'09, 6.7L HPCR

Coverage of '03 to '09 Model Trucks
Website Correspondence Edited by G.R. Whale.

BROKEN TURBOCHARGER SHAFT

I have a 2003 with 275K miles. Passing other vehicles in the Utah mountains (about 85mph, 27psi boost, 2,300rpm) I heard the sound of what I thought was the boost hose coming loose. The boost went to zero with lots of whitish smoke from the tailpipe. I examined the engine area, and all the hoses were good. So, I started up and heard rattling at the turbo and saw lots of smoke from the exhaust. I was in the middle of nowhere with no cell phone signal, so I drove another five miles. During that time, the rattling went away in the first mile, but there was more smoke and no boost.

I got a cell phone signal, so I pulled over. The oil pressure dropped to zero as I was stopping. I had the truck towed to Flagstaff. My hypothesis is that the shaft broke. The bearing was bad, and it allowed oil to enter the exhaust and cause smoke. Then the shaft and impeller blew out the exhaust.

Questions: Would it be possible to cap off the turbo oil feed line, add oil, and drive 180 miles home, keeping EGT in check and then doing the replacement at home? If so, what size, pitch, thread, etc., would I use for the cap? What else should I check for damage due to shaft breakage? Finally, I need a recommendation for a replacement.
Diesel_lv

I first went with an aftermarket turbocharger and wasn't happy. I had to replace it again and choose a new Mahle-Clevite, not reman, for a great price and a renowned manufacturer. It runs smooth as silk.

Check Rockauto for it, I got mine there, part number 286TC21010000. The part number is correct for your high-output/305 engine, but the picture at Rockauto is wrong and shows a newer model turbocharger.
Ozymandias

In my experience, turbo shafts rarely catastrophically break without something else going on—perhaps excessive fueling and over-speeding of the turbo. Also, look for a problem with oil flow to the turbo which can be caused by either blockage of the supply line to the turbo or oil drain line from the turbo. That said, you do have a higher mileage truck, and obviously parts can fail.

Be careful, driving the truck with a failed turbo most often leads to metal and/or oil contamination of the intercooler and hoses. I would strongly advise removal and cleaning of the IC and hoses, perhaps also inspecting the intake elbow and a complete oil change.
seafish

Thanks for the things to look into seafish. I'm a stickler for oil maintenance and I use Rotella T6 every 5K and filter/top off every 2,500 between full changes since new. I'm leaning towards age and 21 years of periodic "turbo bark." I run an Edge EZ on level 3, four-inch exhaust since the truck was one week old. I replaced injectors at 250K, and one throw-out bearing and clutch at about 200K.

She was running as smooth as could be, 700 miles on that trip that day, and then "pop."

She was running as smooth as could be... and then "pop."

In reference to my question. Do you folks think that if I cap off my feed line with a 12mm x 1.5 O-ring plug and top off the oil, I can limp it home 180 miles as long as I keep EGT in check?
Diesel_lv

Also, plug the hole in the center housing between the exhaust and intake where the shaft once was. That's the "bush" fix for a situation like this. A long bolt, two washers in the appropriate size and a locknut – mechanical, not poly, because of the heat.

Also, be sure to clean all of the air intake system. Remove, flush and clean with soap/water and replace.
Ozymandias

Plug the oil line, pull the boost hose at the intake horn and drive it the few miles with no air cleaner. It's winter and probably very little dirt in the air; not enough in a couple hundred miles to worry about. Then clean up the intercooler when you get home.
sag2

I ended up towing it. Flagstaff's 7,000-foot air density caused lots of smoke and the engine heated up. The feed line plug I used is a Gates 11/16"x16 flat face O-ring male plug P/N G60702-0006. It worked perfectly.

Once I got it home, the work wasn't too bad. I lifted from front eye on engine, front end on stands and tires off so front axle could droop, loosened (but did not remove) the transmission to crossmember hardware, then jacked the transmission up until the hardware stopped it, and the oil pan slid out and back in easy. It had a miss for a few seconds until all the oil and unburned fuel cleared out. Now, 2,000 miles later, it's running great, with no drips.
Diesel_lv

SEAT INTERCHANGE

The back seat in our 2003 Ram does not have headrests. My oldest child will soon be too tall for the car seat, and without the car seat and headrest, her head could hit the back window in an accident. I want the back seats with headrests.

Does anyone know which years the seats are interchangeable with a 2003, and if both front and rear are interchangeable? If I find a complete set of decent leather seats, I might replace all of them.
PLohr

All of the Third Generation seats use the same seat mounts. So, for the rear seats you can use any bench you get your hands on. The higher trim levels came with the fold out cargo floor.

When I searched 2003, there are many without headrests, but using 2004 there's not a single picture without a headrest.

The front seats probably have some differences for the wiring throughout the years. Changing some pins shouldn't be an issue as the controls are in the seat, but it needs to be addressed before plugging it in!
Ozymandias

I replaced the front seats of my 2006 Laramie with seats from a Fourth Generation truck. It was a great upgrade (the electric worked for movement of the seats but not heating). The back seats of the Fourth Generation need some minor tweaks to fit, as I recall.
lionrampant

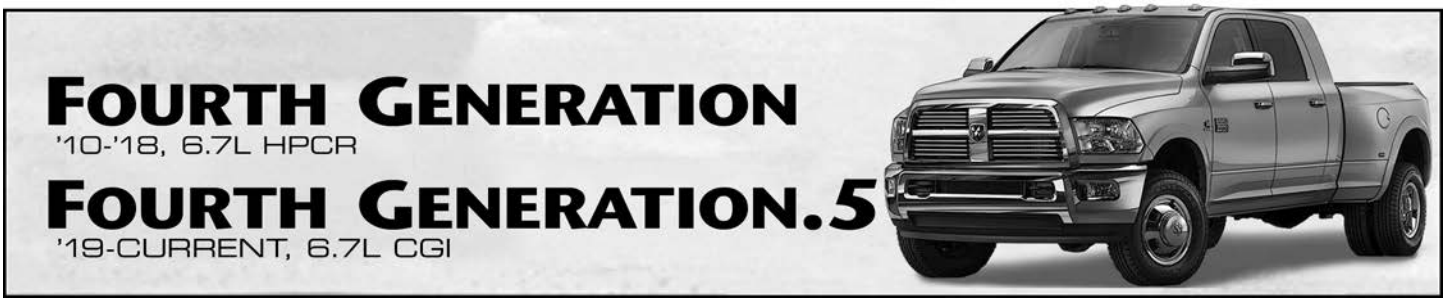
2006 SIDE TOWING MIRROR REPLACEMENT

I'm replacing the left side mirror glass on my '06. I've got the old, cracked mirror glass off. There is a circular object that seems to be necessary to attach the new glass assembly. I don't want to pry it off and break it. I had to use the springs from the old assembly, as the new ones are bent in the wrong direction. Has anybody else had to deal with this? Can you pass on your hard-earned wisdom?
lionrampant

There is nothing to disassemble, just press it on and slide it sideways into the tabs. The motor must be in the most outward position for this. I needed a prying tool against the mirror case to slide it onto the tabs. Some WD40 on the tabs may help to put it on.
Ozymandias

It went pretty smoothly after your hints.

Thanks, Ozy, it went pretty smoothly after your hints. It took the correct positioning and then it slid right in. A push from the inside out with a plastic pry tool and it snapped tight.
lionrampant



Coverage of 2010-2024 Model Trucks.
Website Correspondence Edited by G.R. Whale.

OOPS – A FUEL FILTER DISCUSSION FOR 2019-2024 TRUCKS (AVAILABILITY PROBLEMS) AND WHAT IS BPROAUTO?

by Robert Patton

Hello, 2019-2024 Turbo Diesel truck owners.

Over many years, the late Bill Stockard and, since November 2016, Greg Whale have had the task of reviewing the TDR's website for the "best of the best" technical post of problems and solutions.

The assignment of editing for "clarity and brevity" is not an easy task. As an example, the typical opening to describe a problem might go something like this: "On a warm summers evening, I started up my diesel, and I met up with a gambler, on a trip to the Dairy Queen."

Wait, that sentence sounds like Kenny Rogers' "The Gambler" meets the TDRs audience on an after-dinner drive, I digress.

Enough humor.

Often TDR members have "oops" experiences where they will start a project only to find that their workmanship (or, in my case, lack thereof) can cause the problem. Likewise, an oversight, or a failure to check the obvious, or a problem with an owner-supplied accessory (we call it accessorizing the accessories) was the cause of the problem. (Oops is my acronym for "owner operator problem and solution.")

Enough rambling. What is the reason behind this "Oops" correspondence?

2019-2024 Chassis-Mounted Mopar Fuel Filter 68436631AA Availability Problem

Supply problems come and go. The latest: The chassis-mounted fuel filter from Mopar, made by Baldwin, cannot be found in stock. Anywhere.

What is an owner to do? How 'bout keep it simple, stupid.

Seriously, because of the parts shortage, the staff at Geno's Garage has to make work-around recommendations.

Here were/are the recommendations:

- Purchase the Baldwin filter: Good luck.
- Purchase an unknown brand (counterfeit) from Amazon or eBay: See the Geno's Garage "Blog" pages on these products and you'll realize these filters are not a good idea.
- Purchase a chassis mount and engine mount fuel filter relocation kit. Yes, these kits are an alternative and the replacement filter elements are more common and less expensive than the Mopar chassis and engine filters that you use, if you can get 'em.
- However, for the price of the kit plus your labor, it will take a long time to pay back the cost savings you would realize with the kit's alternative, less expensive, filters. Is the truck still under warranty? That question is also a consideration if you use the kit. And, remember the "oops" situation that started this discussion? If you install a relocation kit, you are your own warranty station. The same scenario applies if you use the counterfeit or aftermarket fuel filter.

Stellantis (bproauto) to the Rescue – The Final Answer

If you are steadfast that the replacement has to be the "Mopar" fuel filter, you have two options:

- Do nothing with the chassis mounted filter and continue to service the engine's filter. Seriously? Yep. Seriously. If the chassis mounted filter catches water…well the water-in-fuel light comes on and you have to address a problem. However, how often has this happened to you?

  Yes, leave the chassis mounted filter alone. Let it do its job. You can and should still change the engine filter at its 15K service interval.

  Now, to give you some "comfort" with this concept, remember that the '07.5-'12 trucks only had one fuel filter (engine mounted) and, way back when, the '07.5-'09 was only a 5-micron rated unit. You could use the 5 micron or the better 3-micron unit from '10-'12. It wasn't until 2013 that Ram added a chassis mount filter and went to the better 3 micron, engine-mounted fuel filter. Yep, that look back in time should give you a bit of comfort.
- Purchase a bproauto fuel filter, part number 1BP00846AA. What's a "bproauto"? Good question. Read on!

Purchase a bproauto fuel filter, part number 1BP00846AA. What's a "bproauto"? Good question, read on!

Announcing bproauto

Last fall, the aftermarket parts group at Stellantis (yep, that Stellantis, the folks responsible for the 14 different automotive brands/entities and their associated OEM parts market names) announced the expansion of their "bproauto" line of aftermarket parts. Quoting from Aftermarket News "The launch of bproauto in North America in summer 2023 helps address a key pillar outlined in the 'Stellantis Dare Forward 2030' strategic plan – to grow sales in the independent aftermarket. bproauto offers a proven second-line brand of high-quality aftermarket parts that costs less than original-equipment (OE) offerings and are backed by a standard two-year/unlimited-mile warranty."

Got it? It reads to me like the customer will have an option: The Mopar name brand or the "store branded" item. Another way to look at it, several years ago you may remember Mopar's "Value Line" products. Okay, now they offer more stuff and it is called bproauto.

We've corresponded with our Mopar account folks, and they tell us that "bproauto parts are sourced to Mopar standards and are backed by the same Mopar warranty that OE parts enjoy."

Got it! Stellantis "factory specification parts," warranty is good and the filter is less expensive: The bproauto line of parts is worthy of your consideration. (Hey, I like to save money!)

Conclusion

From the Geno's staff: Again, don't worry, be happy. Change the engine mounted filter at its regular 15K interval. (Again, the truck didn't have a chassis mounted unit until 2013!) When the chassis-mounted Mopar filter is finally available, go back to your normal maintenance schedule.

Or, better yet, become familiar with the bproauto line of parts, save money and service both filters at your standard 15K interval.

Robert Patton
TDR Staff

Better yet, become familiar with the bproauto line of parts, save money and service both filters at your standard 15K interval.

FLATBED LIGHT ISSUES

I'm swapping to a flatbed on my 2015 Ram 2500 that I use as a snow plow truck. I'm wondering if anyone who has done this has had any problems with the lights. If so, how do you make it work?
SnowpusherVT

I put a Protech aluminum bed on my 2013. It came with resistors for the LED lights.
Dave Zuber

When I was installing different truck beds, we used Maxxima M50905 3-pin load equalizers, one per side.
JVackiner

You should be able to use AlfaOBD or JScan to modify the light settings to work with the different lights of the flatbed.
AH64ID

INFOTAINMENT UPGRADE

Has anyone purchased a radio from "Infotainment"? I want to upgrade from the Tradesman radio with the five-inch screen to the UBD Uconnect 5 8.4" display with wireless CarPlay. I know it's not cheap, but it's plug and play from what I read.
mwilson

I have one in mine for exactly the same reason (though I have the 12-inch version). The instructions were a little lacking, but I managed to work through it. It works great and I can use my phone as a hotspot for internet access.
Byershome

I upgraded my 2020 Tradesman to the 8.4 with the kit from Infotainment. It works great and I found the instructions were good. There are a couple of negative things: The bezel that I got has the seat heat buttons. Often they get stuck in the "on" position. This is not a big deal because I don't have seat heaters, but it is a little annoying.

The other thing is that the backup camera lines do not show up even when I turn it on in the settings. I have not contacted them about either of these issues, they don't bother me enough to invest the time to try and fix it.
BrentM

AXLE NUT TORQUE

I searched the TDR's forums, but I didn't find any information. I'm changing the front axle U-joints on my 2020 Ram 2500 and need the torque spec for the axle nut. I found the SKF spec book and it shows 107 ft-lb plus 45 degrees. Is this correct?
Pizzamaker991

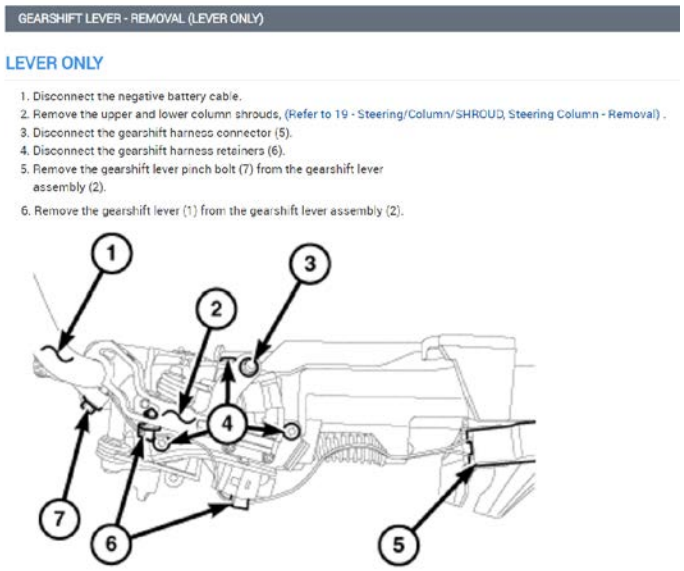
Yes, Alldata lists it at 107 ft/lb plus 45°.
BigPapa

Yes, the factory SM also says 107 + 45°.
sag2

SHIFTER BOOT REPLACEMENT

The shifter lever boot on my 2014 Ram with the Aisin transmission has torn. I have a new one on hand. It looks like it may be quite the procedure to remove and replace the parts that surround the boot. Is there an easy way I can remove this shifter lever? I've looked online for a procedure but couldn't find anything.
Lordsman

I found this for a 2014 truck.



BigPapa

AC NOT COOLING

A few weeks ago, I took my 2013 truck for a drive and the AC wouldn't cool. After driving a few miles (and turning it on and off one or more times) it started working fine. Then yesterday it repeated the problem, except it never recovered in 30-45 minutes of driving.

When I turn the AC on and off, I do not hear the compressor clutch turn on and there is no change in engine RPM. My code reader does not have the capability to test or report anything about the AC system.

I am assuming the problem is either a refrigerant leak resulting in a low-pressure cutoff, a clutch failure, or something in the control system. Other than a fuse, is there anything I can easily check before finding an AC repair shop?
2013megacab

Generally speaking, low or high refrigerant would cause the compressor not to kick on. Where are you located? Maybe someone has a shop suggestion.
Diesel85

Inspection of the compressor clutch is the first thing you can do. Make sure it isn't burnt from slipping as this will trip a one-shot thermal fuse in the clutch coil.

On a cold engine, start it and turn on the A/C. Is the clutch spinning? Yes: Check the two silver pipes for the evaporator at the firewall—they should be about the same temperature of "cold." If one pipe is not as cold or warm after about two minutes of running the A/C, then you have a low charge. If the A/C pipes are cold, warm the engine up to see if the hot/cold door is stuck or broken.
Tuesdak

I can't hear the compressor engage/disengage when turning the AC on and off. I will check to see if the clutch is spinning.

UPDATE: The problem was a failed expansion valve.
2013megacab

SMART ALTERNATOR?

I am wondering how my slide-in camper, when plugged in, is getting a charge. Do I need to consider a DC-DC charging device?
brillmtb1

The bigger concern is the size of the charging wire to the camper, especially if it is at the rear of the bed. Usually, at best, it is going to be 12ga and at that length the voltage drop can be significant. So, although it may charge, the amperage available is probably going to be less than 10A. Therefore, if you have a house battery that is really discharged, it will take quite a while for the battery to charge. That is where the DC-DC chargers shine, even more so if you have switched to a lithium battery.
sag2

I use 2AWG as "charge wires" to the camper as anything smaller turns hot with today's lithium batteries. Mine is direct charge (no B2B in between) as the B2B gave me headaches. If I did it again, I'd go with 0/AWG.
Ozymandias

No, they are not smart alternators like many smaller rigs these days. A DC-DC converter will absolutely improve charge performance.

I plan to install a 12/12-18 (12V, 18A) DC-DC charger from Victron in my fifth-wheel. It will work on the OEM seven-pin wiring, just be sure to install it as close to the RV batteries as possible.
AH64ID

I installed a Victron 12/12-30 several years ago in our truck camper. I ran 4AWG wire from the Ram batteries to a female connector in the bed of the truck, then a male connector on a short 4-ga wire through the side of the camper to the 12-12-30 inside the camper. From there you will route a couple wires to the camper converter/charger. It just plain works great! On my phone I can see the 12-12-30 start charging the battery after I start my truck, and it's showing a full 30 amps charging. As we're travelers not "campers," we never run out of juice in our two 100aH lithium batteries. We rarely stay more than a couple days at any one spot.
SSchang

NEW STEERING LINKAGE

I picked up a new steering linkage setup for my 2012 Ram 3500 4WD—part number 52122362AL from Geno's. I figured it would be a good idea to pre-grease the threaded sleeves.

The set that attaches to the Pitman arm was no problem. The set that attaches to the driver side is a different story. I only get about ¾ of a rotation out of the threaded sleeve then it locks up solid. Before I put a pipe wrench on this, I thought it best to check with the pros. One would think you could change just the tie rod ends if necessary but that doesn't seem to be the case unless I just need to use more force. It appears as though the tie rod end is sleeved into the tie rod.

Maybe it's set that close from the factory and that's all the adjustment one needs? Are these meant to come apart?
CMB

You can't turn the end because it has a pin in it to keep it from turning.

You need to turn the adjuster sleeve until the end falls out of it. Release the two clamps until they can freely rotate around the sleeve. Keep the clamps at the tie rod in line or you'll pinch a hole in your engine oil pan. That's why that aligner is there.
Ozymandias

START BUTTON BEZEL

The bezel on my push-to-start button came off. Is it replaceable or is it the whole unit?
firefighter_2000

Just put a little clear adhesive on the back of the ring and push it into place.
Cummins12V98

HEATER ONLY

I don't have an immediate need, but is there a way to replace the grid heater "only," versus the entire intake cover on my 2012 truck? All I can find is the intake cover with grid heater and that's mighty pricey.
OggyOggy

Here's a thread that adds a "ring" to the intake with a threaded heater.
https://www.turbodieselregister.com/threads/grid-heater.273813/

There's a link to Rockauto in there for the heater bolt thread. It's a 22mm x 1.5.
Topzide

Blowin' In The Wind

BITW is a forum to report on industry trends and vehicle development. Compiled and written by Robert Patton.

RAM 1500 FOR 2025

Back in February, the folks at Motor Trend brought us the news that Ram's 1500 pickup trucks would no longer be offered with 5.7 Hemi as an engine option. The Hemi's power rating was 395hp/410 torque.

The Hemi has been replaced with the Stellantis "Hurricane" engine, a 3.0-liter, twin turbocharged, in-line 6-cylinder. Two options are available, the standard at 420hp/469 torque and High Output at 540/521. The 305/269 Pentastar 3.6-liter V6 is the standard engine offering. Model year 2025 will be a pivotal for Ram as they introduce the "Ramcharger" hybrid vehicle and the Ram battery electric vehicle.

Also, in the announcement the Ram folks let us know that the 2025 Ram 1500 would receive some minor exterior updates with LED headlights as a standard product offering. In the auto business, small changes are called a "refresh."

In the auto business, small changes are called a "refresh."

The other big news at the 2025 product introduction was the release of a new, luxury trim package, the "Tungsten Package."

Other News: High Tech –Hands-Free Drive Assist

Preceded by the competition at Ford (Blue Cruise) and GM (Super Cruise) you knew that hands-free driving technology would be forthcoming at Ram. The folks at Motor Trend "found using Ram's Hands-Free Drive Assist to be simple and effective, much like GM's Super Cruise and Ford's Blue Cruise." Me, I've yet to have the opportunity to try this feature. Sour grapes: I was not invited to the press introduction of the 2025 Ram.

Other new technology: Ram is offering a "push button trailer steering knob to aid reversing with a trailer attached." The folks at MT found the "learning curve for use of the system was steep, but not insurmountable." For the technology-challenged, that sentence tells me I should stick with my mirrors and rear view camera.

Pricing Information, Please

Realizing that what happens with Ram 1500 series pricing often is transferred to the HD trucks that we drive, let's take a moment to review the price of the vehicle. Here are two paragraphs from MT to explain.

"Given the added features and improvements and the ever-increasing cost of new trucks, we expected a significant price jump for the 2025 Ram 1500. However, pricing for the Tradesman and Big Horn remains similar. The base price of an entry-level Tradesman has increased from $40,565 to $42,270, but the volume-selling Big Horn's sticker actually went down by $105 to $46,825.

"The outlook is a bit less rosy as you climb the trim ladder, notably into the models with the new 'Hurricane' engines as standard. The Rebel costs $4,600 more, now starting at $66,190; the Laramie is $5,510 pricier at $62,025; and the Limited trim climbs $9,100 to $77,150. The Limited Longhorn sees the biggest increase, jumping by $13,460 over 2024 prices to $77,150. The new range-topping check-every-box Tungsten model opens at $89,150." ***Editor's note: Is $89,150 too much? Maybe. For perspective, take a look at page 55 and the "Inflation Adjusted Price" article.***

Got it. Good news for Bighorn-trim trucks, expensive news for the "Limited" and "Tungsten" guy or gal.

But the volume-selling Big Horn's sticker actually went down by $105 to $46,825.

The Tungsten Package – Luxury at a Price

Tungsten (element 74): I often wonder where the marketing departments come up with the names for their luxury products. My guess, the folks at Ford, Porsche and Toyota already used Platinum (element 78) and Ford also has Titanium (element 22) packages, so the Ram folks simply picked another rare earth metal that sounded cool.

I digress, but you obviously wouldn't choose element 110, Darmstadtium, to describe your luxury products.

Okay, what makes the Tungsten package ($89,150) that much more of a pickup truck than the base Tradesman package at $42,270? [Wow, you could have two Tradesman trucks (and 5K for a picnic) for the price of one Tungsten.]

Seriously speaking, I can't answer that question. I do know the obvious, the Tungsten is $11,000 over the previous high-water trim package, the "Limited Longhorn." Ram believes there are buyers for the premium package.

Here are two quotes about the Tungsten Package from Ram's interior designer Jan Gaureau that appeared in Automotive News' coverage of the press event.

"**Who's buying?** Ram has been in the $90,000 pricing neighborhood before with the speedy TRX, which drew buyer excitement with its wild 702hp while carrying a $98,533 price tag including shipping. The brand is hoping the Tungsten can command similar levels of excitement with its combination of lavishness and capability.

"**When you were working on this Tungsten interior, what was the customer profile you were thinking of? Who's going to buy this truck?** We already have had, with the Limited model, a high-end luxury model. The idea of Tungsten was really that same type of customer, someone who maybe has a little bit of disposable income, but still needs all the truck functionality and just wants to get the most luxurious thing they can find. It's aimed at a customer who's got high standards and high expectations."

The Tungsten Package for Ram 2500 and 3500 Trucks?

The folks at Ram "aren't at liberty to talk about future product plans." Got it. Opinion: I'll give it a 99% chance that the Tungsten package will be offered for our trucks.

CHANGES AT RAM

Obscure rock-n-roll lyrics, Atlanta Rhythm Section, May 1978:

The world is in an uproar, and I see no end in sight.
But, I'm not gonna let it bother me tonight.

Yep, Ram sales are off and there are changes withing the rank-and-file. Quoting from Automotive News, 5/27/24: "Stellantis also got a new US retail sales chief last week as the automaker's market share continues to erode. Matt Thompson replaced Jason Stoicevich, who resigned after only about two months in the newly created role."

For news at Ram, the same AN article tells us that Christine Feuell "takes over June 1 for Tim Kuniskis, who is retiring after 32 years with Stellantis and its predecessors. Matt McAlear, who has been leading Dodge sales operations, will succeed Kuniskis as CEO of that brand amid its own foray into EVs."

And the AN article gives us the numbers: "Christine Feuell will have a full plate with the upcoming debut of the 1500 REV. That will be closely followed by the 1500 Ramcharger, which has a gasoline-powered generator to offer a longer driving range than the REV.

"She'll have to vie with the reality that Ram's US sales have declined in the past two years after outselling the Chevrolet Silverado in 2019 and 2021. Ram was the only brand with lower full-size pickup sales in 2023, posting a 5 percent drop as the segment rose 9.1 percent.

"The trend has continued into this year, with Ram sales falling 26 percent in the first quarter while overall new-vehicle sales climbed 5.6 percent. In April, Ram vehicles took 94 days to turn, 25 days more than a year earlier, and Cox Automotive said Ram's days' supply was up 14 percent at the beginning of May."

Yep, the world is in an uproar and I see no end in sight…

Internet rumor has it that the Ram Heavy Duty product has some changes for year 2025 (see page 69, "ZF Really?").

Interesting times, indeed.

2024 AMELIA ISLAND PICTURES

A Ford GT40 racecar that was also a part of the Broad Arrow auction at Amelia Island.

RAM SALES IN A SLUMP

Slump.

In previous years the numbers from Ram (Stellantis) were reported monthly. Somewhere along the line, their reporting, as well as several other OEMs, went to a quarterly timeframe. Regardless, slump is the word I would use to describe Ram's first quarter results.

With rising interest rates, higher vehicle prices and fewer inventory problems, a sales drop-off is to be expected, right? However, a 15% drop by Ram gets your attention.

Here is the data from 4/8/24 and Automotive News' Lindsay VanHulle: "The U.S. auto industry posted back-to-back first-quarter sales gains for the first time since the Obama administration, but one of the biggest and most profitable segments is headed in the opposite direction so far this year.

"Sales of large pickups fell 4% from January through March as the over all light-vehicle market grew 5.6%.

"The Ram 1500 pickup fell 15%, and Ford Motor Co.'s F-Series line dropped 10%. General Motors' light-duty full-size pickups declined 1.2%, though higher sales of heavy-duty models resulted in overall gains for both the Chevrolet Silverado and GMC Sierra.

"GM and Nissan Motor Co. were the only automakers to sell more pickups than in the first quarter of 2023. Total pickup sales fell 6.4%, including a 31% plunge for midsize nameplates."

WHAT IS A STELLANTIS?

Just the other day, a TDR member commented, "I thought I had a Dodge, but they tell me it is a Ram?" Yes, on 4/15/2013, Ram became "officially" a vehicle manufacturer as recognized with a vehicle identification number that is linked to the Ram brand. However, thinking back to the late 90s, for 73 years Dodge was simply a part of Chrysler Corporation that was founded in 1925. In 1998, Chrysler merged with Daimler and the entity was DaimlerChrysler. Next it was sold, and the entity became Cerberus Capital Management (2007-2009). Government assistance and near bankruptcy, the entity returned to the Chrysler name. In 2014 it merged with Fiat creating Fiat Chrysler Automobile (FCA). In 2021 FCA merged with Peugeot and the entity is called Stellantis. In 2023 there were the final government approval(s).

Did you follow that brief history lesson?

The headquarters for Stellantis is Amsterdam. US operations: Stellantis North America is located at the old Chrysler World Headquarters in Auburn Hills. I'm just now seeing correspondence come across my desk with "Stellantis" displayed and not the "FCA" logo.

Now, full circle to the TDR member that was confused by the Dodge and Ram nomenclature; Changes like these take time to become commonplace.

Stellantis' 14 Different Brands

With that thought in mind, here are some of the automotive brands under the Stellantis umbrella:

Abarth	Jeep
Alfa Romeo	Lancia
Chrysler	Maserati
Citroën	Opel
Dodge	Peugeot
DS	Ram
Fiat	Vauxhall.

At the time of the merger, Stellantis had approximately 300,000 employees, a sales presence in more than 130 countries, and manufacturing facilities in 30 countries. And research at Wikipedia tells us that Stellantis is the world's fourth largest automaker by sales, behind Toyota, Volkswagen group, and Hyundai motor group. So, pay attention to this 14 brand powerhouse.

WHEN EF HUTTON TALKS... HOW ABOUT CARLOS TAVARES

On pages 44 and 45 we take an extended look at corporate marketing. As a footnote to the article I remember the commercial from the late 70's for the investment firm EF Hutton, "When EF Hutton talks, people listen." Great marketing, but my research tells me the 83-year-old establishment fell on some hard times and it was merged with Shearson/American Express in 1987.

FCA is now Stellantis and the CEO is Carlos Tavares. From the working guys and gals at Ram and Cummins, I've been told, "When Carlos Tavares talks, people listen." This dude isn't one to suffer fools.

In a rare interview with Automotive News' Vince Bond, Bond gives us a bit of insight. Here are a few of the quotes from the 4/8/24 article, "EVs Are Not the Mobility Fix for Everyone."

"'We should move away from a dogmatic thinking where one size fits all,' Tavares said last week at the automaker's Freedom of Mobility Forum. 'I don't think this is going to work. What I would like to add is that the current EVs can be a solution for some of our societies.'

"Taveres said that EV batteries will need a 'very significant breakthrough in terms of chemistry' to cut their weight in half over the next decade. He said that the 1,000 pounds of raw materials currently needed to create a battery pack 'doesn't look like a very reasonable outcome' from an environmental perspective.

"'The industry, based on new chemistries, needs to achieve in the next decade a breakthrough in terms of power density of the cells, so that we reduce by a least 50 percent the weight and the raw material usage of EVs,' Tavares said. 'I think that that's on the way.'

"'That is going to be broken over the next decade by a new chemistry,' he said, 'which, by the way, hopefully, will solve the problem of the scarcity of lithium.'"

RAMCHARGER – A PAGE FROM FERDINAND PORSCHE

Political Observations

In the previous two TDR magazines we've discussed the press introduction of the "Ramcharger," Ram's 1500 series hybrid truck.

Over the same two-issue time span we've watched the government and US media types do an about-face on the battery electric vehicle's (BEV) popularity with the public. Oops, it seems that the BEV "revolution" may take a little longer than those government and media estimates.

Okay, the BEV market has cooled off. Hybrid vehicles: They are the latest media rage. Again, we've been there, done that and cited media personalities (Larry Webster at Hagerty) and automotive icons (Akio Toyoda at Toyota) that cautioned us about the forced move to BEVs at a pace that wasn't/isn't sustainable or practical (Issue 123, page 52).

And, now, our government officials have finally come to this realization. Amazing. It will be interesting to watch as the EPA pushes out emissions legislation rules. It will be interesting to watch the November election cycle.

Enough with the political reference and introductory paragraphs.

Ramcharger Powertrain

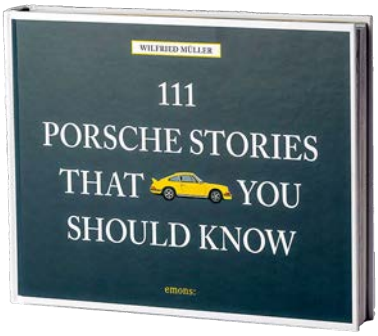
I took some time to reevaluate the Ramcharger's powertrain and the energy conversions required to move the truck down the road (gasoline to power the engine, to spin a generator, to charge a battery package, to, finally, supply power to the electric motors). The reality of all of the conversions can't be efficient (Issue 123, page 23). However, without any real-word numbers, the miles-per-gallon of fuel is all speculation.

Regardless of MPGs, political outcome, emissions rules, and the shift to BEVs as transportation, what is the tie-in between the Ramcharger and Ferdinand Porsche?

The First Hybrid – The 1901 Porsche

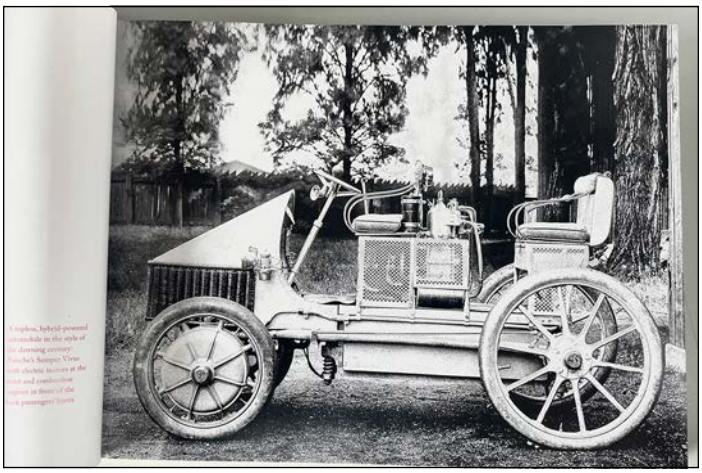
Out of curiosity I did a search to learn more about the first hybrid vehicle. The Toyota Prius comes to mind, and it is/was the first mass produced hybrid. However, back 123 years ago, Ferdinand Porsche was the first to build a roadworthy hybrid.

Realizing that ours is an entertainment magazine, here is a bit of data on the "first" hybrid vehicle: The Lohner-Porsche Semper Vivus. The source: "111 Porsche Stories That You Should Know."



"At the Paris world fair of 1900, the 24-year-old designer Ferdinand Porsche impressed the public with his Lohner-Porsche electromobile." The all-electric "electomobile" was actually built in 1898 and it had a range of 50km/30 miles.

To address the limited range of the electromobile, in 1901 Porsche designed the Semper Vivus, the world's first hybrid. More from "111 Stories," "To keep the Semper Vivus 'always alive,' as its name says, Ferdinand combined two small, water-cooled single-cylinder engines of 750cc capacity and 3.5hp with one generator each. The generators supplied 20 amps at 90 volts to a wheel-hub motor on each front wheel, mobilizing 2.5hp. Surplus power from the generators charged the lead battery."



The Porsche-designed Semper Vivus

Okay, do you agree with the statement I used at the title, "Ramcharger – a page from Ferdinand Porsche"?

"VALUE NEVER GOES OUT OF STYLE"

That's a great quote. Where did it originate?

I did an internet search. I found something similar, "Quality never goes out of style." However, that company slogan belongs to Levi's. Then, the internet search turned into wasted time looking at the "Top 10 Best Company Slogans and Taglines." Fascinating and fun reading, I'll share the "Top 10" list with you (www.planky.com/blog):

- Levi's: "Quality never goes out of style."
- McDonalds: "I'm lovin' it."
- Netflix: "See what's next."
- MasterCard: "There are some things money can't buy, For everything else, there's MasterCard."
- Red Bull: "Red Bull gives you wings."
- Lay's: "Betcha can't eat just one."
- Airbnb: "Belong anywhere."
- Ferrari: "We are the competition."
- Samsung: "Do what you can't."
- Kodak: "Share moments. Share life."

Oops, I'm off on a tangent. This is also known as the entertainment part of the TDR. For more on catchy slogans and taglines see the sidebar article, "110 Best Company Slogans" (next page).

Focus. Focus.

Now, how does the quote "Value never goes out of style" relate to Ram pickup trucks? The statement was found at the end of an article in Automotive News titled "Old Reliable" that was in their 3/11/24 magazine. The subject of the article was Ram's 1500 "Classic" truck. AN's writer Vince Bond reminds us that the Fourth Generation "DS" truck started life in 2009 with a Dodge vehicle identification number (VIN). Technically, I believe, it was in 2013 that we transitioned to "Ram" as the manufacturer.

From model year 2009-2024, an enduring production run for the Ram DS/Classic chassis.

Sales Numbers for the Classic

Is year 2024 the last year for the DS truck? Launched in 2008 has it had a successful 15-year run. In last fall's union negotiation contract with the UAW, there was a provision to keep building the DS through the end of the year at the Ram "Warren Truck Assembly Plant." So, yes, it appears that 2024 is the final year.

Now, here was the eye-opener for me. Sales figures for several different vehicles from 2023.

Ford Mustang	48,605
Ram Classic	48,175
Dodge Challenger	44,960
Chevrolet Camaro	31,028
Chrysler 300	13,169

Interesting.

Finally, here are several quotes from the AN article by Vince Bond about the good 'ole Ram 1500 Classic.

"Though lacking some of the bells and whistles offered in the current 1500, it has found a niche as a capable truck with a respected pedigree."

"The Classic doesn't sacrifice capability and is available 'in a very competitive price point with a really nice value proposition,' commented Brant Combs, Ram 1500 brand manager. He believes that's why it has remained popular enough to keep building after all these years.

"Stellantis dealer Brandon Moreland said the Classic continued to attract buyers even after the fifth generation came out because some prefer its body style. People also turn to it for the lower price.

"If the Classic is discontinued, Moreland wonders where entry-level buyers will go. The brand is expected to offer a midsize pickup down the road, he said, but some might still need a full-size pickup at a more accessible price."

Considering the Fifth Generation Ram 1500 was introduced in 2019, I am amazed that the Classic continued another five years (15 total years of production). Wow!

Vehicle Sales in 2023

Ford Mustang	*48,605*
Ram Classic	*48,175*
Dodge Challenger	*44,960*
Chevrolet Camaro	*31,028*

SIDEBAR

110 BEST COMPANY SLOGANS

Intrigued by the article "Top 10 Best Company Slogans and Taglines" that I found at www.planky.com/blog, I couldn't resist and continued to read the longer article, "110 Best Company Slogans."

The list brought to mind so many favorable memories. From the list it is interesting to watch the "Madmen"-like importance of advertising as seen by a baby-boomer's eyes.

Here is a long list to read and reminisce.

VISA: "Everywhere you want to be."
Microsoft: "Be what's next."
Porsche: "There is no substitute."
Skittles: "Taste the rainbow."
Electronic Arts: "We exist to inspire the world to play."
Purina: "Your pet, our passion."
FedEx: "When it absolutely, positively has to be there overnight."
Taco Bell: "Think outside the bun."
Washington Post: "Democracy dies in darkness."
Kentucky Fried Chicken: "Finger lickin' good."
Burger King: "Have it your way."
Camel: "I'd walk a mile for a Camel."
Meow Mix: "Tastes so good, cats ask for it by name."
Harley Davidson: "American by birth. Rebel by choice."
Nokia: "Connecting people."
De Beers: "A diamond is forever."
M&M: "Melts in your mouth, not in your hands."
Nike: "Just do it."
Apple: "Think different."
Dunkin' Donuts: "America runs on Dunkin'."
IMAX: "Think big."
Maybelline: "Maybe she's born with it. Maybe it's Maybelline."
Target: "Expect more. Pay less."
Geico: "So easy, a caveman could do it."
L'Oréal: "Because you're worth it."
Toyota: "Let's go places."
John Deere: "Nothing runs like a Deere."
Vrbo: "We have a place for everyone."
TikTok: "Make every second count."
United Airlines: "Fly the friendly skies."
Coca-Cola: "Open happiness."
Walmart: "Save money. Live better."
Ford: "Built to last."
Trix Cereal: "Trix are for kids."
Puma: "We are forever faster."
Gillette: "The best a man can get."
Heineken: "Open your world."
Goldfish: "The snack that smiles back."
PlayStation: "Live in your world. Play in ours."
Allstate: "You're in good hands."
Chick-fil-A: "Eat mor chikin."
Gatorade: "Is it in you?"
BMW: "The ultimate driving machine."
Pepsi: "The choice of a new generation."
Hershey's: "Pure happiness."
Amazon: "Work hard. Have fun. Make history."
Jaguar: "Own a Jaguar at the price of a car."
Olive Garden: "When you're here, you're family."
Disneyland: "The happiest place on Earth."
Cinnamon Toast Crunch: "Crave those crazy squares."
Google: "Do the right thing."
Wendy's: "Where's the beef?"
Facebook: "It's free and always will be!"
Verizon: "Can you hear me now?"
Union Direct: "The home of home insurance."
American Express: "Don't live life without it."
Outback Steakhouse: "No rules, just right."
UPS: "What can brown do for you?"
Kay Jewelers: "Every kiss begins with Kay."
Mountain Dew: "Do the Dew."
Red Lobster: "Seafood differently."
Mercedes Benz: "The best or nothing."
Lexus: "The relentless pursuit of perfection."
Dollar Shave Club: "Shave time. Shave money."
Bounty: "The quicker picker upper."
The New York Times: "All the news that's fit to print."
Mazda: "Zoom Zoom"
Uber: "Move the way you want."
Pringles: "Once you pop, the fun don't stop."
Vans: "Off the wall."
Dairy Queen: "Happy tastes good."
Reebok: "Be more human!"
Budweiser: "King of Beers."
Nintendo 64: "Get N or get out."
Adidas: "Impossible is nothing."
Avis: "We try harder."
Canon: "See impossible."
Hyundai: "Better drives us."
Nescafé: "It all starts with a Nescafé."
Chanel: "Share the fantasy."
Kia: "Movement that inspires."
Spotify: "Music for every mood."
MasterCard: "Priceless."
Colgate: "Cleans more than just teeth."
KitKat: "Have a break. Have a KitKat."
Pampers: "Peaceful nights, playful days."
eBay: "Buy it. Sell it. Love it."
Panasonic: "A better life, a better world."
Sprite: "Obey your thirst."
IKEA: "The wonderful everyday."
Caterpillar: "Let's do the work."
Citibank: "The Citi never sleeps."
Dell: "Every little thing is everything."
Discovery: "Explore your world."
Starbucks: "Coffee that inspires."

EPA KICKS THE CAN

In Issue such-n-such, I was sure that I had reported on the most recent vehicle exhaust emissions, EPA guidelines and the push by the auto industry to relax the forthcoming EPA rules.

So. I looked for the reference to those discussions. To my surprise, I found that I didn't waste the ink and paper or your time recapping those articles.

With the introduction out of the way, this follow-up report should, also, not waste too much of your time.

To the point: In mid-March the EPA announced that they would "kick the can."

If that's all you need to know, stop now. However, since this is big news (that we haven't been closely following), let me provide some details from Automotive News. Here are some selected quotes from the 3/25/24 article "EPA Compromises with Industry on Emissions Compliance," by Audrey LaForest.

"After nearly a year of auto industry grievances about the stringency of the EPA's proposed vehicle emissions standards for cars and light trucks, the Biden administration has a response: We heard you.

"The rule finalized last week on tailpipe pollution limits for 2027-32 model-year vehicles adopts a less aggressive pace than what was proposed last year by easing up on carbon reduction targets in the first few model years and applying more stringent cuts after 2030."

Editor's summary: The EPA kicks the can.

So, an observation: I would not like the task of future product planning in the automotive industry.

A second observation: In November, we will have another presidential election. All of the EPA's rules and guidelines could be subject to change come January 2025.

Third Observation: See the first observation.

2024 AMELIA ISLAND PICTURES

Period correct dress attire at Amelia Island (see page 30, too).

Observations

Seriously, here is a summary of the technical change by the EPA that has given the industry some "breathing room" and, for a time, it should give the consumer a bigger (and less expensive) choice in vehicles. Quoting from Automotive News: "For the light-duty fleet, the standards mandate an industry wide average target of 85 grams of carbon dioxide per mile by the 2032 model year, representing a nearly 50 percent reduction in average emission target levels from the 2026 model year.

"In comparison, the EPA's original proposal would have required an industrywide average target of 82 grams of carbon dioxide per mile by the 2032 model year, representing a 56 percent reduction."

Technically speaking: I'm going to offer my apologies. I do not know how the emissions puzzle works for our diesel-powered consumer (2500/3500) or commercial (cab and chassis 3500/4500/5500) trucks. I learned long ago that with each change in governmental administration, the emissions guidelines are subject to change and re-interpolation. (And, how 'bout what happens in California at CARB?)

I have no doubt that December's "Cummins 1.675Billion" fiasco involved emissions targets that were constantly being moved by the EPA.

In one more month it will be football season. Has anyone heard that they've moved the goal post(s)? I think you get the picture.

Counterpoint

The fictional letter to the TDR.

> Dear Mr. Editor-Dude, I'm from California. We have our share of pollution concerns. You talked about the influence of California in Issue 110, pages 34-39, "The Big Picture: EPA and CARB." You might want to reread those pages.
>
> Bottom line: California sets the parameters for vehicles sold in California. And, as you reported (Issue 119, page 57), 17 other states (representing 40.1% of vehicles sold) follow California's emissions criteria. So, California regulations are in effect for a large number of people. The EPA's "movement of the goal post" doesn't apply to us.

My response: I would not like the task of future product planning in the automotive industry. The goal posts are controlled by *two* different entities.

The goal posts are controlled by two different entities.

WATCH THOSE AUTOMOTIVE TRENDS

It wasn't too long ago that the OEMs were searching for additional revenue streams using a subscription-based model. At the time, I could not tell if the news about BMW wanting to charge a subscription to turn "on" the heated seat function was legitimate. However, with all of a vehicle's electronics controlled by "over the air" updates, you can see how this scenario (or others involving maps or music or information) could be charged to you on a monthly or yearly basis.

Did I mention that those subscriptions, once charged, become somewhat difficult to unsubscribe? I digress, likely you have an unpleasant story or two you could share.

(On a side note: You may have wondered about the TDR's old-fashioned renewal cards in the mail and the one-year-only subscriptions. Now you know. Old school may not generate the same revenue, but members aren't hoodwinked, And, yes, we still answer your phone calls if there is a problem.)

Back to the story.

From our subscription discussion, you will likely be mindful of the trend. Best case scenario, you'll not fall into costly add-on fees. To continue our look at automotive trends, let's go to Automotive News, 3/11/2024 for an article on "A Ride for the Senses." (Really, senses…a new trend?)

To set the stage, AN writer Michael Martinez was assigned to cover the press introduction of the 2024 Lincoln Nautilus.

Trend Setter – The Lincoln Nautilus?

If you are unfamiliar with the Nautilus, well, you're not alone. I had to do some further research. It is a two-row, mid-size SUV that competes with the Genesis GV80, BMW X5 and Porsche Cayenne. It has a 2.0-liter, I4 turbocharged engine with 250hp/275 torque.

The 2024 Lincoln Nautilus: Nice exterior styling.

What Are the Trends?

Okay, just another SUV…What makes it noteworthy and trend setting?

From Martinez's review, I learned the following:

- This is the first Lincoln to be imported from China. (I think the 2016 Buick SUV, Envisin, was the first import from that area.)
- The vehicle has a 48-inch panoramic display. That's right 48-inches, the curved display spans the entire front dashboard. Martinez noted "Different widgets to display navigation routes, speed, temperature, fuel economy and music; think of it as a heads-up display on steroids. The high-definition display also is a key element in a new rejuvenation mode—more on that below—that shows soothing videos." I'm betting you may need a *subscription* for some of the screen's features.
- Cabin scents are offered. Martiniz tells us, "Forget new-car smell. How about Ozonic Azure or Twilight Embers? In a first for Lincoln, Nautilus customers can pump one of three scents through the cabin by selecting it on the center touchscreen. The three cartridges are stored in, and diffuse their scents from, the center console." There are four other scents available… Exclusively from your Lincoln dealer.
- Video games. Really. Martinez tells us, "Customers can choose games through the Google Play store, including a racing game called Asphalt Nitro 2. They also can connect a third-party controller wirelessly, via Bluetooth or by plugging it in. The system also allows watching YouTube or Prime Video, and Lincoln says it soon plans to add 'leading video conferencing apps' for drivers who need to stay productive on the road." I'm betting you may need a *subscription* for some of those features.
- Rejuvenate. Yep. Massaging seats, scents, panoramic display, games, you get the picture. Martinez noted, "…to offer customers a moment of Zen, perhaps before they walk into the house after a busy day at work. Users can choose a five- or 10-minute themed session that reclines their seats, turns on the massager, pumps scents through the cabin, plays relaxing music and shows a serene video on the 48-inch display, such as the northern lights or a sunrise over a mountain range. The multisensory feature was not ready at launch, but Lincoln plans to add it via an over-the-air update this year." Did you notice the words in the last sentence, over-the-air updates? "Yep, you may need a *subscription* for that feature.

Wow, subscriptions, the wave of the future?

Wow, subscriptions, the wave of the future?

CAR AND DRIVER – MAY/JUNE 2024
AN EXCELLENT MAGAZINE

It has been a while since I opened a magazine and wanted to read (almost) every page. The May/June edition of Car and Driver was a recent exception.

Your reaction: "Car and Driver, how is C and D relevant to our Turbo Diesel pickup trucks?" Also, considering the cover's photograph of "Cyber Attack," the magazine's presence at the newsstand doesn't have an immediate connection for a Ram/Cummins diesel owner.

So, what did I find in the C and D that was engaging? (Would you believe I even found Elana Scherr's column to be of interest?)

Here goes: Elana Scherr's pull quote "We have seen the light! Unfortunately, it's from super-bright LED headlights that are frying our corneas." Sensational – frying corneas. I took the bait. Wouldn't you know, I couldn't find any medical back-up to the phenomenon in her article. But, I get it, those occasional bright lights are too bright. That is the summary of the article.

However, I did have an observation. From the text were two "member" groups that oppose, well, something that can't be changed. Duh, the cars/trucks are already on the road. Regardless, I find it interesting that the "groups" are so large. (Or maybe I'm just out of touch with groups, followers, and the like.) Here is the text: "Reddit groups, like the aggressively named r/f***yourheadlights—29,000 members strong—share videos of offensively bright tailgaters and commiserate over going temporarily blind while behind the wheel."

Editor's note: So, 29,000 "members" don't have anything better to do than type on a keyboard about headlights. I shudder to see the conversations about the national debt or election fraud.

But wait, there is more: How about the "Soft Lights Foundation." Seriously, Scherr writes, "Founder Mark Baker currently has more than 58,000 signatures on a petition to ban LED lights not just in cars but in most public places. Banning all LEDs seems pretty extreme, but Baker believes they cause health issues beyond dazzling drivers, and he's filed a lawsuit against the FDA for failure to regulate luminance in headlights and other LED applications."

Editor's note: Health issues... Really?

The real take-away from Sherr's article, "One solution could be adaptive headlights, which have been legal in Europe since 2006 and are in the slow process of NHTSA testing after finally being approved in 2022."

Here goes: Ezra Dyer gives the audience a report on his first-time use of Ford's "BlueCruise" hands-free, highway driving assistance system. The TDR audience will want to pay attention to this technology. We learned that Ram is now offering their hands-free system on the 2025 Ram 1500 truck (Hands-Free Drive Assist, page 40). His use of the system was on a 750-mile trip from North Caroline to Miami on Interstate 95.

Technically the real world classifies the BlueCruise as a "Level 2" autonomous system. (The full report on the different designations: TDR Issue 119, pages 64-65. Level 2 is "hands off" driving.)

Here are Dyer's comments: "I love these hands-free systems just from a pure geek engineering standpoint, but I also loved autonomous parallel parking when I first tried it in a 2010 Lincoln MKT. When I later bought a Lincoln MKT, I used that feature roughly twice before concluding that backing in myself was quicker and easier. Ford, looking at data transmitted from its cars, eventually realized that nobody ever used the active park assist and recently dropped it after more than a decade in production.

"You know you're in for a rough day when the navigation system says the next turn is 688 miles away. But over 12 tedious hours in the Corsair's massaging driver's seat, I think I discovered the true application for hands-free highway driving, and it's not when you're sailing along at cruising speed over vast distances.

"BlueCruise saved my sanity not on the open road but during the countless slowdowns for accidents, when traffic creeps, idles, and trundles along at 25mph for mile after endless mile. This is when your attention can flag-when driving is a thankless chore, simultaneously stressful and boring. It's also when BlueCruise is at its best, seldom canceling and consistently keeping a watchful distance from the car ahead. You get a chance to relax and observe—it's like taking a break without stopping. At times like these, hands-free driving stops feeling like a parlor trick and starts feeling like a benefit."

From Dyer's adventure, I think we can give Blue Cruise/Hands-Free Drive Assist a thumbs-up.

It is at this point you could comment, "Maybe I should consider (reconsider) a C and D subscription." (Great idea! However, see page 5, the price is no longer $9.99.) Additionally, the summaries I'm giving aren't directly Turbo Diesel, but they do have direct relevance to the market. So, here goes with some more stuff from C and D and my comments to tie the summaries to your Turbo Diesel ownership.

C and D Review

Here goes: In the review of Tesla's Cybertruck, C and D staff writer Tim Stevens tells us, in layman's terms, about Tesla's megacasting (gigacasting) and how this saves manufacturing cost but is certain to increase your cost of insurance. Here are a few paragraphs from Stevens' article.

"Traditionally, automakers use dozens of different extruded, stamped, forged, and cast pieces in the structures of their models, bonding, welding, and sticking these pieces together as part of the assembly process. Megacasting, however, eliminates this assembly complexity, replacing a multitude of parts with one large piece, such as an entire front or rear structure. Whereas smaller parts stamped and cast under conventional methods may need a few hundred tons of clamping force, the additional metal and larger surface area of parts produced using megacasting requires a press capable of achieving upward of 9000 tons of force.

"These so-called 'megapresses' are expensive machines, but the efficiency of this casting process lowers the manufacturing cost of an individual car. And that's why Tesla isn't the only automaker investing in this technology.

"'One megacasting replaces 70 to 100 parts,' says a Volvo Cars spokesperson. 'This means that all activities connected to producing, shipping, and assembling these parts are removed.'

"Megacasting doesn't just cut production costs; it can also create parts that are lighter than the equivalent assembled cast or stamped pieces. This combination is a boon to manufacturers of battery-electric vehicles looking for ways to decrease mass while increasing EV models' profit margins, driving range, and performance."

Further into Steven's article we learn that Toyota is developing a megacasting system and the technology was originally developed by the Idra Group.

At the end of the article, the downside: "'Castings have very limited capacity to deform [in a collision]; they're going to fracture,' says Sam Abuelsamid, Guidehouse Insights principal research analyst. 'When that happens, [the casting] becomes irreparable.'

"For cars with megacast structures, this means that even a relatively minor impact can have substantial implications. 'Instead of replacing a small component, you're replacing an entire structure. So it's not that it can't be repaired, but that the cost is so high the vehicle will more often end up getting totaled.'"

So it's not that it can't be repaired, but that the cost is so high the vehicle will more often end up getting totaled.

But wait, more from C and D, "Just Shoot Me" by Ezra Dyer tells about the first test drive of the Tesla Cybertruck. The title comes from Dyer observing the general public and their use of cell phones as they pose for a photograph in front of the Cybertruck.

Really...

Really. Dyer proclaims, "'The Cybertruck is the craziest production vehicle of the century, and second place isn't even close.' Yep, I agree 100%! Highlights of the evaluation: a 6900-pound truck (the optioned-out truck was 9100-pounds) that can tow 11,000 pounds; 0-60mph in 2.6 seconds; $121K price (base price $63K); 834 horsepower available; automatically lowers when you open the door; top speed 131mph; a 'test' range of 301 miles; 123 kWh battery capacity (the miles-per-kWh = 2.44)."

From reading Dyer's article, my impression: The vehicle is fast, novel and it substantiates the TDR's 3-miles-per-kWh of battery size observation (pickup trucks less, some cars more). As much as it may not be your "cup of tea," the vehicle can't be ignored.

But wait, more from C and D, "SUVs For the Real World" by the C and D staff. In this article they tested eight compact SUVs (Toyota RAV4, Ford Escape, Honda CRV, Nissan Rogue, Dodge Hornet, Kia Sportage, Mazda CX50, Volkswagen Tiguan). The take-away: the lowest base price was the $37,510 Honda, the highest $44,675 Mazda. The overall high, as-tested dollar amount $44,844 Toyota RAV4.

I included this bit of information as I thought these numbers might add some perspective to the Turbo Diesel price analysis (page 55).

But wait, more from C and D, a performance car evaluation, "climbers." Here the price of the two vehicles tested was of interest to me. Ford Mustang Dark Horse: $61,080/$78,755. BMW M2: $63,195/$75,345 (see price analysis of Turbo Diesel trucks, page 55). And, because I may have piqued your interest, the winner: "The BMW is more comfortable, more refined, and easier to drive to its limits. The BMW takes the win, but if you fall hard for the Mustang's V-8, we completely understand."

But wait, more from C and D, a "Drivelines" follow-up on their Honda Prologue Battery Electric Vehicle (BEV). Here the interesting note is that Honda is using GM's EV platform from the Blazer EV. The range 273 miles; the battery size 85 kWh capacity (the miles-per-kWh = 3.211). There's the good 'ole TDR "3-miles-per-kWh of battery size" observation.

But wait, more from C and D, a seven-page article, "Are Plug-In Hybrids Making Good on the Promise of the Best of Both Worlds?" by Dave VanderWerp. If you've read between-the-lines, the editor-dude has often opined that hybrid vehicles would/should be a logical bridge from a ICE to BEV world. Unlike my investigation in TDR Issue 113, August 2021, pages 22-30, where there were only 6 vehicles, the C and D "Roll Call" had 34. Should you have an interest in purchasing a Hybrid, this C and D magazine should be your first reference point. C and D's article, interesting stuff!

But wait…That's all folks. Seriously, I found the May/June C and D to be very informative!

OOPS – ONE MORE ITEM FROM THE MAY/JUNE CAR AND DRIVER

Of late, I have missed the irreverent wit that was a Car and Driver hallmark. To their credit, in their May/June 2024 issue was a one pager titled "Urine Charge." And the topic was the bladder's "driving range."

Seriously, medical information in a car magazine?

Yes. Here are some fascinating facts from the one-page medical review which was written by Austin Lindberg with research provided by an assistant urology professor at University of Michigan, Dr. Giulia Lane.

- The body produces 2 to 3.4 ounces of urine per hour. The body typically holds about 12 ounces.
- Once the bladder is ½ full it triggers a "first desire" feeling. Quick math: that feeling (holding 6 ounces) could happen in 3 hours or as quickly as 1 hour, 45 minutes.
- Strong desire is when the bladder is 3/4 to 90% full. If you can reach this point, the quick math tells us: 9oz ÷ 2oz = 4.5 hours, 9oz ÷ 3.4 = 2 hours, 40 minutes.
- Dr. Lane noted: "Those with the bladder of a racehorse may manage up to a little over five hours of driving before reaching this point. Most healthy adults can hold out for four hours, while others may barely make it three."
- Technically speaking, at "empty." Lane notes the bladder holds less than two tablespoons of urine. At full capacity, it can hold more than a pint.

Lindberg provides a wrap-up: "There's little harm in occasionally holding it in longer, but there are long-term risks if you regularly push your bladder's limits. The bladder is a muscle, and continually overstretching it may lead to decreased sensation—that feeling you get when you have to go—and increased difficulty when it comes time to relieve yourself."


UPFRONT

FLUID DYNAMICS

Urine Charge

Can your bladder outlast an EV's range?

Final Notes from C and D

Final note: does this explain why, on a road trip, women (smaller sized bodies) have to stop before us macho guys?

The TDR: medical and marriage advice in one publication. (You're welcome.)

Now, for more on the medical stuff, check out the next mini-story and the new column "Turbo Diesel Doctor" on pages 64-65.

BUT WAIT, MORE MEDICAL STUFF

Be honest: After reading the C and D article about the bladder's driving range, did you find it necessary to visit the restroom?

Regardless of the answer from reading the bladder range story, it is obvious that my range isn't what it used to be (along with other physical attributes that can be discussed in future "Turbo Diesel Doctor" columns).

Part of the TDR's mission statement… "to save you time." I went to the website www.betterhealth.vic.gov and found this information about urinary concerns. (Let's keep it brief, we should be talking about fuel pressure or cylinderhead bolt torque.) The not-so-dramatic summary:

"**Symptoms of urinary problems**

"Urinary symptoms commonly associated with prostate (enlargement) problems include:

- the need to urinate frequently during the night
- urinating more often during the day
- urinary urgency – the urge to urinate can be so strong and sudden that you may not reach the toilet in time
- the urine steam is slow to start
- urine dribbling for some time after finishing urination
- a sensation that the bladder isn't fully emptied after urination
- lack of force to the urine flow, which makes directing the stream difficult
- the sensation of needing to go again soon after urinating.

"Although these symptoms often do not need treatment, see your doctor if they are causing you difficulty, as they can be successfully treated."

That's all. (Hey, if this wasn't helpful, turn the page…)

DO YOU REMEMBER: "10 DIESEL CARS THAT TIME FORGOT"

Cleaning up my desk, I found an article from Autoweek stashed away in my file-folder archives. The title was "10 Diesel Cars That Time Forgot." The article printed out as 19 pages. I'm going to shorten the text to several paragraphs. See if your memory is better than mine and author Jay Ramey's. How many of Ramey's 10 vehicles do you remember?

(There were some holes in Ramey's article, so I did a bit of research to try to fill in the blanks. You'll note my additions and comments with the italic print. Also, Ramey can't count… His list only had 9 vehicles.)

- Chevrolet Monte Carlo 1979 to 1984 – Engine: GM's 5.7-liter, V8 with 120hp or 4.3-liter V6 with 90hp. The last year for the diesel option was 1984.
- Chevrolet Caprice 1980 to 1985 – Engine: GM's 5.7-liter, V8 with 120hp.
- Chevrolet Chevette 1982 to 1986 – Engine: A 1.8-liter, I4 with 51hp was sourced from Isuzu. *This package sounds tempting. Keep my fingers away from the keyboard. Repeat after me: I do not need to purchase a diesel-powered Chevette. I do not need to purchase/restore a diesel-powered Chevette. I do not need to purchase/restore/turbocharge and intercool a diesel-powered Chevette. Oh, dear.*

The Chevette!

- Oldsmobile Cutlass 1982 to 1984 – Engine: GM's 4.3-liter, V6 with 85hp.
- Ford Tempo 1984 to 1986 – Engine: A 2.0-liter, I4 with 52hp was sourced from Mazda.
- Peugeot 604 1981 to 1984 – Engine: A 2.3-liter, I4. *This car is easily overlooked as Ramsey tells us that only 36 were imported into the US. For that matter, Peugeot left the US market in 1988.*
- Peugeot 505 1984 to 1985 – Engine: A 2.5-liter, I4 with 94 to 108hp.*Yep, time to forget this Peugeot, also.*
- Volkswagen Dasher 1979 to 1981 – Engine: A 1.5-liter, I4 with 47hp.
- Renault Fuego 1982 to 1985 – Engine: A 2.1-liter, I4 with 88hp. Renault was only in the US marketplace thanks to (or no-thanks to) an alliance with AMC.

A Late Model "Forgot" Diesel

Okay, that's the end of Ramsey's article. While I was trying to fill in the blanks, I ran across a late model diesel that I'm doubtful you are aware: The Chevy Cruze.

- Chevrolet Cruze 2017 to 2019 – Engine: A 1.6-liter, I4 turbo with 153hp. Hailed as "the most fuel efficient (30mpg city – 52 highway), non-hybrid GM vehicle ever produced," the diesel Cruze went over like a lead-balloon. If you search the internet for this car you'll find a positive review from Car and Driver. Chevrolet offered this car with a manual transmission.

I think this car could be a tremendous value. *I do not need to purchase a diesel-powered Cruze. Oh, dear…*

Chevy Cruze

THE MERCEDES BENZ SUPER STAR, DIESEL CAR

A mention or list of diesel-powered cars from the past (however obscure) will bring to mind 80's vintage Mercedes Benz cars also known as the W123, W124, or W126 chassis. These cars were popular from 1975-1992. Early diesel versions featured a 3.0-liter, I5 engine, 123hp/184 torque.

There was a facelift in 1986 and the car continued with the W126 chassis designation. The diesel option for years 1986-1987 was 3.0-liters, but it was a six-cylinder engine. Power 148hp/195 torque.

Emissions compliance kept the diesel option out of the US market from 1988 to 1990. For two years 1990-1991 (until the redesign of the W126 chassis to a new model "W140") the engine was 3.5-liters. This engine does not have a good reputation (Hagerty Media, "Your Definitive 1979-1992 MB 126 S Class Buyer's Guide).

Mercedes 1986 W126

THE BEV MARKETPLACE – WHY SHOULD YOU CARE?

It wasn't too long ago (oops, in Issue 123) that the editor-dude acknowledged a new term: Media anxiety. Yes, I had grown tired of all of the "battery-this, EV-that" news coming from the press and television.

But, BEVs are today's reality, there is no escaping the news. The next series of articles will attempt to give you perspective on why you should care.

The outline for this section:

- Small World After All – Sales Numbers by Country
- Small World After All – Sales Numbers by Manufacturer
- Small World After All – Automotive News' Opinion
- Small World After All – Stellantis and Leapmotor
- Small World After All – Others: Toyota…Ford
- Small World After All – Good Luck

IT'S A SMALL WORLD AFTER ALL – SALES NUMBERS BY COUNTRY

I know it has been covered previously in the TDR, I just can't find it.

"It" is the overall, world-wide vehicle sales data for automobiles, SUVs and trucks.

And, with the preceding information on page 42 about the 14 brands under the Stellantis umbrella and Stellantis' position as the world's 4th largest automaker, "it" becomes a topic that needs further evaluation.

Here goes, the world-wide vehicle sales statistics for the year 2023 that I found searching the internet at www.best-selling-cars.com/international. The number of vehicles sold in China is not an overnight phenomenon. (China surpassed the USA in year 2009.)

Region	2023	2022	2021
China	25.798 million	23.240 million	21.090 million
USA	15.457	13.734	14.914
Europe	12.847	11.287	11.775
India	4.102	3.792	3.082
Japan	3.993	3.448	3.676
Brazil	2.180	1.960	1.977
Mexico	1.360	—	—

Context: Our Turbo Diesel

First, do you consider Ram/Cummins vehicle sales of 120-150,000 units per year significant? However, in the big picture, it does make you wonder.

Second, as the editor-dude of an enthusiast publication I should have presented this "big picture" story to you back at the start of the TDR, the Fall of 1993. Context, context, context.

IT'S A SMALL WORLD AFTER ALL – SALES NUMBERS BY MANUFACTURER

These numbers are obviously on a need-to-know basis, as the search for the data is a bit more complicated. Regardless, the search or search method, here is the "best" data that I could find. From www.factorywarrantylist.com/car-sales-by-manufacturer:

	2023	2022	2021
Toyota	10.307 million	9.566 million	9.562 million
VW Group	9.239	8.263	8.882
Hyundai/Kia	7.302	6.848	6.668
Stellantis	6.392	6.002	6.142
GM	6.188	5.941	6.294
Ford	4.413	4.235	3.942
Honda	4.188	4.074	4.456
Nissan	3.374	3.255	4.064
BMW	2.555	2.399	2.521
Changan	2.553	2.347	2.314
Mercedes	2.493	2.456	2.330

Observation: Considering that Stellantis did not previously have a substantial presence in the Chinese market, I find it surprising that they are number 4 in global vehicle sales.

IT'S A SMALL WORLD AFTER ALL – AN OPINION

To give the collection of "why you should care" articles further context, here are several quotes from the trade publication Automotive News, May 6 edition, the "Opinion" commentary page.

"The Beijing auto show last month displayed 278 electric and plug-in hybrid models. Chinese automakers, including SAIC, FAW, Dongfeng, BYD, Huawei and Xiaomi, showcased their latest vehicles and technology. Volkswagen, General Motors, Toyota, Nissan, Honda and Mazda were also in Beijing to attract buyers who have shifted to Chinese EV brands.

"Chinese automakers had a running start. Now they sell EVs with more software, infotainment and safety features than automakers in the US, and at a lower average price point.

"To compete with China on electric vehicles, automakers must balance building the types of vehicles most consumers want today and unwaveringly planning for an EV future."

Chinese automakers had a running start. Now they sell EVs with more software, infotainment and safety features than automakers in the US, and at a lower average price point.

IT'S A SMALL WORLD AFTER ALL – STELLANTIS AND CHINA'S LEAPMOTOR

From the two previous charts showing worldwide vehicle sales by country and by manufacturer, and the opinions expressed by AN's editorial staff becomes obvious that the folks at Stellantis need a larger presence in the Chinese marketplace.

Shazam! Stellantis got the message about China prior to the observations of the TDR editor-dude.

Here is some insight from last fall (10/25/23) and Reuters news.

"In October 2023 Stellantis purchased a 21% stake in EV maker Leapmotor in a $1.6 billion deal that will give it a fresh shot in China, the world's biggest car market by sales, and the smaller Chinese carmaker a European foothold. Legacy international carmakers are playing catch-up in the shift to electric vehicles and the deal gives Stellantis access to Leapmotor's advanced technology. Meanwhile, a growing number of Chinese EV makers are launching lower-cost models across Europe.

"'The Chinese offensive is visible everywhere,' Stellantis CEO Carlos Tavares told reporters. 'With this deal we can benefit from it rather than being the victims of it.'

"Stellantis, formed at the start of 2021 through the merger of France's PSA with Fiat Chrysler (FCA), has struggled to sell cars in China and has sought a reset in the country, where it has a joint venture with Dongfeng Motor Group. The group, whose brands include Fiat and Peugeot, said a year ago it was closing its joint venture with Guangzhou Automobile Group that makes Jeeps in China. Stellantis' new deal follows a tie-up between Volkswagen and Xpeng announced in July which heralded a new era of automotive alliances in China and reflects how the country has emerged as a global center of EV technology.

"As part of a joint venture 51% controlled by Stellantis, the Chrysler parent will have exclusive rights to export, sale and manufacture Zhejiang Leapmotor Technology's products outside Greater China.

"The partnership will help Stellantis expand its EV lineup and meet a 2030 target of EVs accounting for all of its sales in Europe and half in the US. Leapmotor, ranked ninth by new energy vehicle sales in China, has been looking to license its EV platforms and other EV assets to established foreign automakers to generate cash. The company said last month it needed at least a five-fold increase in sales to survive in a consolidating EV industry."

Leapmotor, ranked ninth by new energy vehicle sales in China, has been looking to license its EV platforms and other EV assets to established foreign automakers to generate cash.

Stellantis/Leapmotor Update – May 2024

So, the announcement was in October of 2023. Time is needed for governmental red tape and the contract documents to become official. What is the latest on Stellantis and Leapmotor? Here are some excerpts from an article at electrek posted in May.

"In October we reported the plan was to call the new joint venture with Leapmotor 'Stellantis International,' in which the latter would help sell the former's EVs in new markets outside of China, including Europe and possibly the US.

"By March 2024, the new partners announced their joint venture had been approved after Stellantis gained regulatory approval in China to continue its stake. This deal was the first of its kind for a Western automaker, awarding Stellantis exclusive rights to build, export, and sell Leapmotor brand EVs outside of China.

"We have learned that all the necessary paperwork appears to have been completed, and executives from Stellantis and Leapmotor are preparing to officially launch the joint venture and announce its team as early as next week.

"Around the same time as March reports that the joint venture had received regulatory approval to move forward, Leapmotor shared that it had already established its executive team and shared images of them on its Weibo page. Other users on Weibo have said the new partners have already established plans for the production of Leapmotor EVs in Europe, more specifically, Italy. Reuters has previously reported EV production could begin at Stellantis facilities in Poland. Production is rumored to begin as early as 2026 with a targeted output of 150,000 vehicles per year ahead of plans to sell approximately 500,000 Leapmotor-branded cars outside of China by 2030. Neither Stallantis nor Leapmotor have confirmed these targets."

AMELIA ISLAND PICTURES

McLaren CanAm Car

BMW 3.0CS race car.

IT'S A SMALL WORLD AFTER ALL – OTHERS: TOYOTA, VW GROUP, HYUNDAI/KIA, GM, FORD

With the announcement of the Stellantis and Leapmotor joint venture, I wondered who-what-when and where the other automotive manufacturers were partnered. I also wondered how best to explain the joint venture/partnership/collaboration to the TDR audience.

Then the wise saying of Grandpa Patton came back to mind: "If you can't explain it to a five-year-old, you don't know what you are talking about."

Busted.

In the world of corporate "togetherness," I don't know how to explain it to a five-year-old. In defense of the editor-dude, each corporate collaboration is as unique as a modern-day marriage ceremony: Prenuptial agreement? Custody of children? Shared bank accounts? Separate bank accounts? Property ownership? I think you get the picture. Each venture is unique.

Geez!

Each corporate collaboration is as unique as a modern-day marriage ceremony:

Doing a quick search using the "recognizable" parent company name, here is a look at the corporate pairings that I found using Wikipedia and news articles.

Toyota – GAC Group (2004)
VW Group – VW Group China (1978)
Kia/Hyundai – Dongfeng Yueda (2002)
Stellantis – Leapmotor (2024)
GM – SAIC Motor (1997)
Ford – Changan and Jiangling (2012, 2022)
Honda – GAC Group and Dongfeng (2003)
Nissan/Renault – not listed
BMW – Brilliance China Automotive (2018)
Changan Automobile – *
Mercedes – not listed

*Changan Automobile is China's oldest (state owned) automobile maker. It does have joint venture holdings with Ford. How do they count the yearly sales numbers? See marriage analogy – it's complicated, I do not know.

IT'S A SMALL WORLD AFTER ALL – GOOD LUCK

Thoroughly confused?

I am.

It is a small world, after all. And, good luck trying to get the Disney tune off your mind. The song's debut was at the 1964 World's Fair (remember those) in New York. The lyrics are simple, And, much like trying to understand corporate joint ventures or marriage arrangements, I wish I understood song writing royalties, 'cause over the year's this tune has been played over and over and over.

MORE ON BEVS AND CHINA

Now that we have an understanding on the importance of the Chinese marketplace, I'll share a final BEV story with you.

The front-page headline from the 4/22 edition of trade publication Automotive News reads, "EV Surplus Drives Hefty Discounts."

The article tells us that first quarter sales fell 9% from the same first quarter in 2023. The average transaction price was down from $55,167 to $47,735. BEV's made up 7.3% of new vehicle sales in the US in Q1, an estimate of 292,000 units. Projecting out for the year that would be 1.2 million vehicles.

In China, it is a different story. Shipments to dealers and customers jumped 32% from the year 2023 and 2.1 million units were delivered in the first quarter. Projecting out for the year 2024, that would be about 8 million vehicles.

Final Note/Conclusion

All of the above facts and figures on BEVs became somewhat tainted in that we've not discussed the influence of government regulations, requirements, mandates and subsidies that go beyond my comprehension. Regardless of their influence, the bigger overall picture shows a move to electric propulsion.

Final observation: If it was simply about transportation from point A to point B, we would ride an electric bicycle with a rain suit and umbrella stashed away in the side bag.

If it was simply about transportation from point A to point B, we would ride an electric bicycle with a rain suit and umbrella stashed away in the side bag.

INFLATION ADJUSTED PRICING

No doubt, many of us can remember those high inflation, high interest rate years of the mid-to-late 70s/early 80s.

Gerald Ford's "Whip Inflation Now"

Yes, new Turbo Diesel truck prices have reached six-figure amounts. Yes, 100K for a pickup truck seems absurd. Yes, the media-dude (that's me) can manipulate the data.

Or, is the following information that I found when trying to comprehend the six-figure Turbo Diesel manipulation or simply perspective? Check out this website: www.usinflationcalculator.com.

What's Your Truck's IAP?

Looking back at my 1996 Dodge/Cummins 3500, two-wheel drive, extended cab truck, the MSRP was $29,518. Adjusted to 2024, the inflation adjusted price (IAP) would be $58,988. Here is some further price history from new Ram vehicles I've purchased:

The 2003, 2500, two-wheel drive, extended cab: $32,415 and the IAP, $55,237.

The 2007.5, 3500, two-wheel drive, mega cab: $38,874 and the IAP, $58,786.

The 2010, 2500, two-wheel drive, extended cab: $36,814 and the IAP, $52,730.

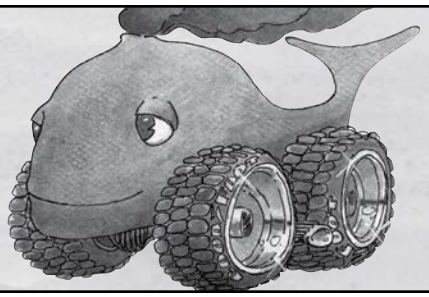
The 2014, 1500, four-wheel drive, extended cab: $43,816 and the IAP $58,032.

Finally, the 2020, 2500, two-wheel drive, extended cab: $51,801 and the IAP $62,756.

How would your truck's original MSRP look if you plug it into the "inflation calculator"? Manipulation? Perspective? Or, simply interesting data?

Robert Patton
TDR Writer

Four Whaling



Journalist G.R. Whale talks about all things Automotive and Diesel.

THE BIG THREE

Detroit's Renaissance Center, colloquially "RenCen," has dominated the city's skyline for decades and as you'd expect all of the Big 3 names appear in its history. The original proposal for such a center came from Henry Ford II. Ford was leasing space in it until General Motors bought it in 1996, serving as corporate headquarters since; Chrysler has association by *omitting* it from the Detroit skyline on some Chrysler vehicle cabin trim. I can't say it was Ralph Gillies' idea, but it would align with the sense of humor I've observed.

Although only the center tower is cylindrical and there are seven in total, I call it a five-cylinder building just like another of the architect's notable buildings, the Bonaventure Hotel in Los Angeles. Befitting multi-cylinder buildings, a bar or restaurant on top of these buildings, and at least two others by the same architect, revolved, though not in RenCen's current iteration.

Former GM corporate offices: The Renaissance Center (RenCen).

Chrysler apparently had a crystal ball, as GM is moving out of the RenCen to a new location a few blocks away. I'm sure it's a smart move from a business perspective, and few GM visitors will miss the labyrinthine layout of the RenCen. Maybe Stellantis' next easter egg skyline will have the building again, if not the Eiffel Tower or a windmill.

ELECTRICITY CLEANS UP

A recent release from a legislator touted millions of dollars coming to my county from some spending bill, including plenty of infrastructure upgrades. Many of these are because mother nature keeps destroying previously replaced infrastructure, but I can't really argue with a bridge that goes beyond nowhere. Among the bullet points, $850,000 for a new electric street sweeper in a local beach town.

I could not get a quote for a brand new one, but recent sales and people who know people suggest they could get three new clean-diesel or CNG sweepers for about the same money…"900K minus a bulk discount." For $850K I could have bought four less than four years old that day.

Then I checked air quality, with the beach town showing very good air quality (an AQI index of 17) better than most of the world's major cities and similar to some also on salt water. Really bad places around the world showed AQI in the low 200s, and in the US, Texas cities had a firm grasp on the top ten, all in the 100-150 range. The next week it was rural Minnesota because of Canadian forest fire smoke.

I can understand a beach town—even one as this with a breeze almost every day—wanting to keep things clean for their 4.5 square miles and 22,000 residents. And the port in this town is heavily investing in electrification (that power comes predominantly from natural-gas fired plants), but I doubt one street sweeper has a notable effect with ocean-going container and auto-carrier ships loading and unloading. _While I could find no new data I did find some 2018 research that showed the particulate emissions from the act of sweeping generally made the exhaust emissions from the sweeper an insignificant number, leaving me to ask: With all that stuff the sweeper stirs up, is it really worth spending three times as much on an electric sweeper?

DEALER NAMES

Some "local" Ram dealers have run various ads for "Power Wagon Rebel" and "Rebel Power Wagon" omitting any "HD" reference, so for giggles I stopped by one night for a look. All I found were Rebel HDs and Power Wagons (even if I can't read the badge correctly I can tell the radius rods, antiroll bar and wheels apart). I wandered through Ram's media material and their website and couldn't find any such thing, so I inquired of Ram if they had a dealer order guide or something else with the names and sales codes on it, thinking this might be another Big Horn/Lone Star conundrum. They've described "Power Wagon Rebel" as "a misunderstanding" but haven't sent the guide yet, so if you've seen it on something official, please pass it along.

FORD TREMOR (OR TREMORS?)

I finally got some seat time in the refreshed-in-2023 Super Duty in the form of an F-250 Tremor. It didn't quite go as planned.

Tremor: Ready to rumble.

I was watching it backing out of a parking space (and painting a distinct Goodyear pattern on the concrete) I told the associate, "That looks like the tightest rear end I've ever seen on a truck with a switched electric locker." I think that associate may not know what I meant referring to a "switched electric locker," and by his focus that "tightest rear end" meant something entirely different to him. A quick check-up at the dealership resolved the problem.

My camping buddy called to bail out, so with overnighting out and many of my "regular" wheeling areas closed because of rain or snow (it only made trails more challenging, but there are trail damage and the lowest common denominator user to consider), we revised and headed towards the San Andreas fault line. Give me a truck with so much "TREMOR" wallpaper that even the shock absorber labels have it, and I can't help myself.

Really? We must let everyone know it is a Tremor

Size: Xtra Large

This truck revels in size Xtra Large. It's 2.5 inches taller than a TRX or Power Wagon if it's a millimeter, the hood is closer to eye level than any unmodified pickup truck I've driven. The corner steps in the back bumper are about the same height as the tailgate deck on my First Generation. When I first saw it, I thought those bedside steps folded into the pockets, but they're fixed, and I pondered if they're a minor aerodynamic aid to clean up something behind the cab/bed aperture. The 160-inch wheelbase falls between Ram's 149 and 169, but the turning circle is only a few inches better than Ram's LWB. At least it has trail turn assist, which brakes the inside rear wheel, for the soft stuff.

F-250 is a large package.

A big truck equals a big engine—or they wanted to use all ten gears with the 35s—so Tremor offers only the larger engine choices: the 7.3-liter gasoline V-8 or the 6.7 high-output PowerStroke at $12,500. Relative to the standard 6.7, the HO gets stainless steel exhaust manifolds, water-jacketed compressor and tuning changes to add 25 horsepower and 150 lb-ft, for 500hp at 2600 revs and 1200 lb-ft at 1600.

Where's the engine? Take a memo from Ram (and others), cover the top with a removable plastic cover.

The Great Unknown

Using a step stool, I peered into the unknown, where I got the impression a coolant circuit diagram would be darn-near as busy as the underhood wiring diagram on my First Generation, and just as, if not more so, curse-inducing as the 3-liter Duramax I've heard others complain about. I couldn't actually see the exhaust manifolds, but the number of heat exchangers may rival a Veyron, and the largest I could see beyond radiators was the coolant-to-air, charge air cooler tucked up by the driver-side battery.

Yes, it's busy under the hood.

With two coolant circuits and an extra 1.8 quarts for the HO's cooled housing, it holds nearly 11 gallons, but the first change isn't until 200,000 miles or ten years, every 100K/5 after that. Engine oil system: It carries 15 quarts of 10W-30 (default) with changes determined by the truck, 30K interval for fuel and air filters (but the foam engine air inlet filter goes 50K), and 150K for ATF, filter and axles. Fuel capacity is 34 gallons for this configuration, 48 on long-wheelbase, and 7.5 gallons of DEF. Since this Platinum had 2-kW Pro Power on board, it runs two alternators, a standard 12V/250A and a 24V/157A unit driven by a separate belt. To my eye, the entire assembly is centered slightly passenger side of centerline, and the pickup box is slightly driver side of centerline.

The oil filter is easy to locate/change.

Driving Notes

Since this truck's GVWR is 11,000-pounds it weighs empty about my First Gen's GVWR and has effectively about the same payload. But with three times the power and torque, and twice as many speeds, it's a lot quicker…even if top speed is just 17 mph better.

My drive notes estimated a "0-60 in the low-mid 6s, but it feels like nearly a second is consumed by gear changes." They aren't particularly slow changes, there are just so many of them. Ford was mum on how much torque management is employed, but it didn't get anywhere near peak boost on the digital display until fourth gear, with the rear tires still struggling to cope, and my all-mechanical truck can barely reach full boost in second. Car and Driver recorded 0-60 in 5.5 seconds with their tester, but the no-brake-torque 5-60 took 6.8, and the quarter-mile trap speed was two mph lower than the electronic speed limiter's 99mph, so the odds of running out of passing power are lower than ignominiously bouncing into the speed limiter. It's essentially loafing along at most speeds. Unloaded the dash suggested 18mpg on a cruising and winding two-lane, and half a day four wheeling didn't put a huge dent in it because, well, diesel.

The Tremor pack (which is 4x4, Crew cab, 6'8" bed only) adds LT285/75R18 tires on specific alloy wheels, a limited-slip front and locking rear differential, unique suspension with higher front ride height, steel side steps that feel like 60-grit sandpaper and don't trap anything, skid plates, vent tubes up high on the firewall and requisite wallpaper. The Dana axle's front hubs are labelled AUTO and LOCK, 90 degrees apart but never required manual intervention. I've not seen a fording depth number, but I'd think the bottom of the bumper perfectly safe, and while none of my off-road activity was severe and I never touched any skiplate or side step, it didn't always go up or get through on the first line. Once my progress was halted because the truck apparently thought I was on a collision course with a mogul (idling in first), so I added another item to my ever-expanding "disable before driving" checklist. My biggest irritant off the pavement was that moving through some of the drive modes would change from 4-Low to 4-High, which made no noise from underneath, so unless I noticed the yellow indicator had changed on the sunlit dash I was occasionally not geared as desired. On the plus side, off-pavement throttle mapping was spot on. That's a good thing when "theoretical" full torque in four-low, first gear would put 52,000 lb-ft to the axle shafts.

Greg's not afraid to go off-road...

Options and Control System

For an extra $3900 Ford cleanly slots a 12,000-pound Warn winch inside the front bumper, with easily accessible lever and a two-piece wireless remote system. Alas, it had a remove-before-flight style lanyard on it I had to keep stuffing into the fairlead so it wouldn't abrade all the paint off, flapping about in the breeze. I had to mute the front park sensors a couple of times, but never the rear.

There is some tire sing from 50mph and mostly mirror generated (?) wind noise above 70mph, just like a Power Wagon on similar tires, but it's not intrusive and handily overcome by Bang & Olufsen sound system. Ride quality approaches a Rebel HD on 20s, the firm spring and shock rates only partially offset by the large sidewalls. Steering is also beam-axle ordinary, though Ford offers a lane-keeping function that uses a motor on the shaft to take some load off the driver: It did work but the near-constant correction quickly made me decide DIY wasn't so bad.

Ride quality approaches a Rebel HD on 20s, the firm spring and shock rates only partially offset by the large sidewalls.

On the dash it is "engine brake," but everywhere else uses the more accurate "exhaust brake." It does the job, but even in towing mode using it like I do on mine (to actually slow down and control descent speeds) required enough thumb-twiddling the shifter rocker that I wished I could text as fast as my kid. And, if you downshift for slowing, it does not revert to full auto by holding the "up" rocker for a second or two. Service brakes had good pedal feel and easy modulation in the articulated stuff, despite an odd tremor from the rear on steep, rutted terrain, and plan on needing a truck length or two more than most things around you to stop from highway speeds.

The controls are logically grouped, with abundant hard buttons for quick access—exhaust brake, cameras, park sensors, hazard, traction and hill descent/crawl control are all handy—and if the first layer isn't enough, rest assured there's a menu, or menus, for that. I wager I used the massage-seat menu the most often. The configurable dash (perhaps not to the same degree Ram's top level is) and landscape center big screen were the way I prefer them, the head-up display just barely above the hoodline for me, and there are four types of cabin power sources. Much of it is automated, including the headlight switch which will mute auto headlights and such, but only until the ignition is off. I can imagine campers would be as annoyed as my neighbors when I lit 'em up one early morning. The truck sported a "75" year decal top-center of the windshield repeated on the start-up animation inside. I'd have thought the digital could at least keep up with the calendar as I drove it months into 2024.

With metal speaker grilles, attractive wood trim on gloveboxes and doors, contrast-stitching and suede upper door inserts Ford's put some effort in to sprucing up the cabin. They also have a Porsche-like option where they'll keep the carpet, lay a vinyl floor in, and charge you $115. And then require $250 in carpeted floor mats. I would say it is not as plush as a Rebel HD or Power Wagon with Level 2 equipment, or a top-flight Silverado ZR2 or GMC AT4. Also, the higher Limited trim does not offer the Tremor pack.

Tremor interior, nice!

It sounded to me like the roll-up tonneau cover should be avoided if your truck sees a lot of sand or other fine debris, but it was simple to operate and secure. The bed was functional and full of useful touches—75 years of practice—though I was surprised to find none of the molded-in recesses for 2x4 or 2x6 to make your own deck or divider. The hitch and safety chain loops appear more than capable for the 9+ ton towing rating, and all the trailering aids will make amateurs look like pros at the launch ramp or campground.

Until they remember the drain plug or awning.

Pricing for the 2024 hasn't changed much from the '23 tested numbers. So, plan on spending $65K to get into any Tremor, $78K if you want the diesel, and more than $100K for a replete package. This Platinum sample with winch seemed to have everything but the moonroof, which left me wondering where the roof speakers went if you chose the glass. Me thinks the logical market for this is the business owner weekend-pulling a few equally-expensive side-by-sides or a huge toybox to the dunes, or the rodeo guy who just won the big buckle, but still has to drive his battered and bruised self a thousand miles towing his horses and home.

G.R. Whale
TDR Writer

Editor's note: Tremor is an interesting name for a vehicle. In the context of a truck, tremor obviously means an "earth moving" kind of thing. Yet, when you go to a dictionary, the first definitions you see are related to "shaking, usually from physical weakness, emotional stress or disease."

It is obvious the Ford folks did not call for advice on how to name this truck. (Nor did they call me when the Ford Probe was introduced in 1988.)

Motor Minded

Reflections on the human side of the man/machine relationship by clinical psychologist and motojournalist, Mark Barnes, Ph.D.

DRIVEN

I just finished replacing the entire wiring harness on one of my motorcycles. This was an upgrade to the next model-year's setup and resolved a charging system deficiency. The job took me about ten hours, though if I had to do it again, I could cut my time in half (which might still be twice what a factory-trained mechanic would require). While there was certainly a considerable amount of tedious, time-consuming labor involved, most of my ten hours were spent *solving puzzles*, not actually accomplishing physical tasks.

After removing the multitude of parts necessary to access the full wiring harness, I had to deal with four dozen connectors of every conceivable design. Most could only be unplugged after figuring out each ones unique, arcane latching arrangement (with hidden or disguised tabs and levers) that would repeatedly confound me. No doubt the designers responsible for these inscrutable mechanisms considered them both elegant and obvious, but to me they were needlessly frustrating, as I worked my way along the wiring loom's length.

Compounding these difficulties was the seemingly sadistic positioning of many of the plugs attached to fixed structures. These plugs might have been easy enough to slip into place, but their removal was impeded by an adjacent part that either blocked access to the releasing element or prevented human hands or common tools from grasping the plug with sufficient might to unseat it. More parts would have to be removed, or special tools fabricated, when it would have been *soooo* easy for the designers to simply orient the plug with its latch on the opposite side. Particularly upsetting were the times a plug turned out to be a couple millimeters too large to fit through a narrow orifice where the loom, like a slithering python, otherwise passed unencumbered. What "should" have been a quick and straightforward part of the replacement process – unplugging and re-plugging connectors – was therefore a nightmarish series of halting, curse-worthy disruptions. Clearly, the wiring harness had originally been put in place before most of the rest of the motorcycle was assembled.

Clearly, the wiring harness had originally been put in place before most of the rest of the motorcycle was assembled.

Having now unraveled all its mysteries, I could replace the wiring harness a second time with far greater efficiency. I'd know where and how to massage the secret buttons, what sequencing would avoid the need to undo and redo my work, and which sections of the bike truly had to be disassembled. Of course, I'll (hopefully!) never get to capitalize on my new-found expertise, but the most important lessons of this project are more generic and global. They're the same lessons learned and re-learned during most every garage project I've ever completed, no matter what type of vehicle was involved. They're the lessons of patience and perseverance – or an indication that I'm a glutton for punishment.

Editor's note: Glutton for punishment, indeed. I stick with the same cars and trucks and avoid new technology.

Are the puzzles that invariably present themselves to us home mechanics a source of grievance or gratification? Is the glass half empty or half full? How we answer is a function of attitude and perception. While I was genuinely annoyed by many of the obstacles I encountered while swapping out that wiring harness, I managed to keep my cool and continuously exercise my *curiosity* instead of my sense of persecution. This is *definitely not* how I always do it, so I wondered what makes such an approach possible some times and not others.

When I recall the mechanical (or electrical) projects that have provoked the most extreme consternation, they share certain problematic features. The first and worst is time pressure. This might be due to needing a functioning vehicle for a scheduled outing with others, a narrow window of opportunity afforded by weather conditions, delays in getting parts or tools, or my own procrastination. Time pressure increases our level of anxiety, which may be helpful, like a cup of coffee, in focusing our minds – up to a point. Beyond this threshold, anxiety (like too much caffeine) is counterproductive, fragmenting and scattering our attention, increasing our emotional reactivity, and precluding the employment of calm, steady reasoning. I cannot count the times I've made catastrophic, utterly bone-headed decisions with a deadline bearing down on me, decisions I would have made far more sanely and constructively if not in a time crunch. This is why I now try, whenever possible, to take care of maintenance and repairs the moment such needs become apparent, rather than waiting until they're actually required for an event. No matter how simple and quick a task may appear to be at the outset, there's always a strong chance of encountering unexpected hurdles. How many times has a 20-minute chore ended up swallowing your whole afternoon – or weekend? The less time available, the more mistakes occur, which then require more time to correct; it can be a wickedly vicious cycle.

Editor's note: Yep, try replacing a simple electrical start switch with only 20 minutes to the start of a race. Solution: bump-start the manual transmission-equipped car.

Got Tools?

The second factor making an enormous difference in whether a project's inevitable conundrums will be approached as fun riddles or infuriating frustrations is our level of preparation. Is the work area clean, uncluttered and reasonably comfortable? Are all the required tools and materials handy? Do we have clear and complete instructions? Have we arranged our schedule to minimize interruptions? Are we well-fed and watered? Obviously, emergency last-minute fixes may have to be pursued in less-than-ideal conditions, but the more such questions can be answered in the affirmative, the better our odds of success and the more enjoyable (or at least less upsetting) we'll find the process. Even in a pinch, it pays big dividends to invest in these variables at the start. Rushing into a new project while the pieces of a prior one still litter the same space is a recipe for disaster. Dropped parts take a few seconds to retrieve on an empty floor, but always find uncannily obscure resting places when other objects provide cover, wasting huge amounts of time in unwelcome games of hide-and-seek. Having to reinvent the wheel, rather than simply follow instructions, multiplies the hours necessary. (If only I'd had a key for those damn connectors!) Needing to run out for supplies or order parts midway through a project, or just stopping to take care of some domestic duty, can destroy our flow and require much additional time to reorient upon resuming the task later, although taking strategic breaks often improves efficiency. Low blood-sugar, dehydration, and uncomfortable temperatures all interfere with cognitive functioning and mood regulation, both of which must be in good working order to optimize progress.

Finally, there's the issue of our general psychological state. Starting a garage project amidst some disturbing emotional upheaval can go either of two ways. The project may offer a much-needed respite from other worries, delivering a valuable calming influence overall. Distraction can be an excellent method of modulating acute distress, although it becomes problematic as a long-term solution. But distraction can also work in the opposite direction, with turbulence from outside the garage detracting from our concentration and patience inside it. In this case, pressing on is apt to be self-defeating, with bad results for the project and, consequently, our mood elsewhere, too. Better to wait until the storm has passed and perhaps forfeit whatever activity had necessitated the tight deadline. Some expectations simply must be surrendered; applying more and more force usually breaks something, whether a physical part or our emotional equilibrium.

Applying more and more force usually breaks something, whether a physical part or our emotional equilibrium.

All Turns Out Well

Even with all my irritation, the wiring harness project was a net-positive experience. I solved the necessary puzzles effectively, if not efficiently, and I maintained a (mostly) good outlook because many of the factors above were set up to my advantage. Mechanical projects provide us with countless challenges. It's up to us to address these as opportunities to learn and take pleasure in overcoming. Otherwise, we're better off passing the job to a professional, even though this may go against our grain as hard-core puzzle-solvers absolutely determined to DIY.

Hmmm… What about this peculiar determination? Are we just being masochists?

Are we just being masochists?

Do It For Me?

Most folks are content, if not happy, to let someone else deal with the headaches of repairs. They also don't look for reasons to launch upgrade projects when their vehicles are functioning reasonably well already. Why would some of us feel *driven* to make life harder than it has to be? Do we really need to adjust and modify each and every item that enters our garage? Why can't we just leave well enough alone?

Yes, the overt aim of tweaking our vehicles is to improve their comfort, safety, appearance or performance, but something else compels us to spend inordinate amounts of time, effort and angst on the process of customization. There's just no other way to justify the inefficiencies and disproportionate costs involved, since the gains made are often inconsequentially miniscule (a few ounces saved, several tenths of a horsepower added, an improvement in one area impairs something else to an equal degree) – not to mention the fact our results can end up being worse than what existed before.

Of course, we may have genuinely fabulous successes to which we can point for vindication. This or that accessory actually *did* make a world of difference, and it didn't even cost much! Some expensive modifications are worth every penny and seem like bargains when amortized over years of enjoyment. However, while I can't speak for everyone, I bet these outstanding values represent only a small minority of the edits we perform on our machines. The same could be said for tool purchases. I use 10% of my tools for 90% of my mechanical work. How about you? It's hard to make a rational argument for most of these expenditures. Specialty tools used once can easily cost more than the expense of having someone else do the job for which we bought them.

If the stated goals aren't the true or total driving force behind our wrenching, then what more is required to account for it? We must look not at our vehicles, but at ourselves. There is a rational explanation, but it's not in the terms we use to rationalize our behavior. Emotional dynamics follow a logic of their own. Said logic is legitimate and consistent, though it doesn't conform to the same rules we apply in other domains. So, what's in play here?

Creativity

Human beings are an inherently creative bunch. Whether or not we consider ourselves artists, we express ourselves in countless ways every day. What we choose to wear, how we arrange our environments, the words and intonations we use, all reveal things about us, including our histories, our priorities, our worries, and our affiliations, among myriad other attributes. Regardless of whether or not we have a Twitter account, we're all "tweeting" all the time, just like the birds that inspired that app's metaphor; they announce their identities constantly with their distinctive calls.

Our vehicles can be extensions of our identities. This might be a matter of broadcasting an image, such as that of a fearless, powerful competitor (sporty hardware, big motors), an unstoppable adventurer (off-road-oriented modifications, stickers from distant lands), or one of numerous other possibilities. This kind of communication can be authentic, aspirational, or fraudulent, with poseurs recognized over time. There's another type of identity enhanced by our vehicles, too. They become extensions of our bodily selves, and reflect back qualities such as competence, versatility, reliability and grace – or the lack thereof. In this way, they speak about us *to ourselves*, no matter if anyone else is paying attention.

One of the most basic and universal tenets of human nature is our need to see ourselves in a positive light. Individuals define "positive" in widely varying ways, some of which are polar opposites, but the overarching principle remains the same. Frequently, we try to compensate for what we consider weakness with displays of strength, inadequacies with displays of achievement, and neediness with displays of self-sufficiency. By convincing others, we hope to become believers ourselves, or maybe we'll "fake it 'til we make it." When events or discoveries threaten to puncture our balloons of self-regard, we reflexively rally our defenses to avoid the resultant shame and despair. When deflation is unavoidable, we seek solace in whatever form is available, healthy or unhealthy, and work to restore a positive identity through realistic or unrealistic means as quickly as possible.

Even when under no immediate threat of injury to our self-esteem, we routinely bolster it with habitual activities. This isn't the only reason we do things, but it's more of a driving force than most realize. We keep things tidy to maintain a sense of ourselves as righteous and in control, or let entropy rule to prove we're above such concerns. We obey or defy social conventions to associate ourselves with the group we admire most. We take care of others to demonstrate our dependability, or seek rescue to verify our worthiness. The list goes on and on, so let's cut to the chase: we perfect our vehicles, at least in part, *to perfect ourselves*.

The list goes on and on,
so let's cut to the chase:
we perfect our vehicles, at least in part,
to perfect ourselves.

Images

Whether it's to project an image outward or reflect an image inward, our vehicles provide us with an irresistible canvas on which to paint our self-portraits. Few people need a truck on the basis of cold, hard logic; they're often emotional acquisitions. Even if purchased as a matter of practicality, they seduce their owners with the visceral thrills of power, capacity and freedom, and become much more than simple transportation. After selecting a truck because its attributes align with our pragmatic needs and personal identity, we still want to make it uniquely our own by imprinting it with our ideals, tailoring it to fit us just right.

With so much at stake for us psychologically, it's no mystery why we make great sacrifices to eke out tiny – or even illusory – improvements in our beloved machines. Regardless of the outcome, it's the involvement that is so deeply gratifying. Polishing doesn't make a body panel work any better, but it does make the part *feel* better to us (look at my reflection!), so the effort is worthwhile. We've made other things better, too, and the mere possibility of another success supplies ample motivation. When life leaves us feeling out of control, applying our skills with a wrench and screwdriver restores a sense of order and agency. In between crises, every project – whether upgrade or repair – adds to our identities as effective problem-solvers, bolstering our confidence in facing challenges elsewhere.

Enthusiasm

This intense level of involvement is at the heart of enthusiasm. The investments made – not only in terms of money, time and effort, but of *emotional energy* – make it deeply personal. Being an enthusiast means having a complex and highly charged relationship with the thing about which one feels enthused. This invariably requires a finely tuned interface between human and gear, whether we're talking about a baseball player and their glove, a photographer and their camera, or a musician and their instrument. It's certainly no less true of a driver/mechanic and their machinery. The boundary between person and thing must dissolve for the two to become one, for the magic to happen.

For many of us,
the drive to perfect this harmony
is inexhaustible.

No matter how excellent a vehicle may be in objective terms, it won't be precisely in sync with our idiosyncratic, emotionally based ideals until we make it so. For many of us, the drive to perfect this harmony is inexhaustible. ***(Editor's note: As witnessed, too, by the "2024 'Amelia Island Pictures' scattered about in this magazine.)***

Mark Barnes
TDR Writer

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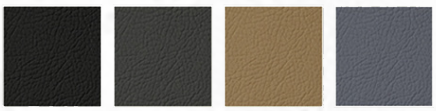

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SHOWN ABOVE: Dash options for 1998-2002 Dodge Ram 2500/3500 and 1998-2001Dodge Ram 1500.

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TURBO DIESEL DOCTOR

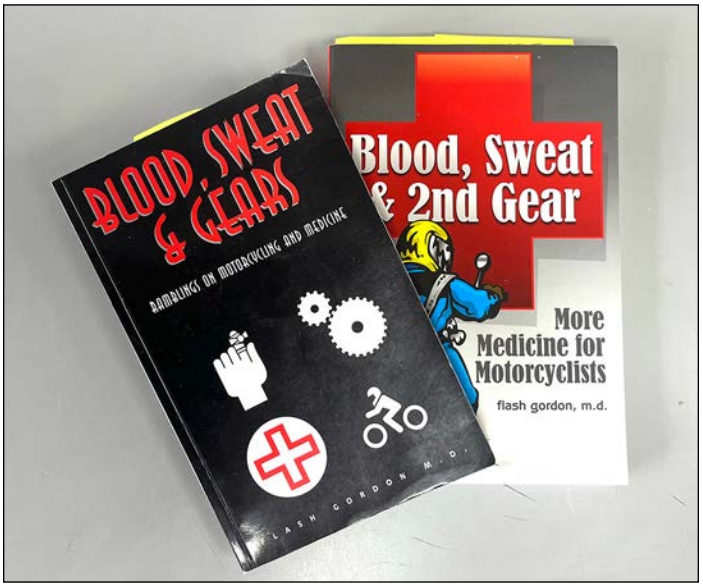
Medical Advice from Flash Gordon M.D.

THE TURBO DIESEL DOCTOR

We have been fortunate to have writers contribute to the TDR that were "discovered" at other publications. A new addition to the TDR is a favorite of mine from the days of Motorcycle Consumer News (1991-2020), Flash Gordon M.D.

Likely, you wouldn't seek medical advice in a diesel nuts-n-bolts magazine. However, I'm hopeful Gordon's "humorous and tell it like it is" style will capture your interest and perhaps move you to be more health-care aware. I'm honored and thankful that Gordon will be a contributor to the TDR.

A brief introduction: Flash Gordon is a primary care physician (semi-retired) in Marin County California. While writing for Citybike magazine he wrote his first book, "Blood, Sweat and Gears" about motorcycling and medicine. Updated in 2007, his second book was "Blood,Sweat and 2nd Gear."



Here is a note from Gordon that was a part of his introduction to his "2nd Gear" book. "But for me, writing's about the basic meaning of being a doctor. The term 'doctor' comes from 'teacher' (like 'doctrine' is a 'teaching') and giving people useful knowledge really makes me happy (it's like the Chinese proverb 'Give a man a fish and he will eat for a day. But *teach* him how to fish and he will sit in a boat and drink beer all day long. Or something like that…). By doing my column, I could get useful information to lots of folks at once. And I could also inflict bad jokes on many people, too."

SHRINKING SUITS

Without further delay, Flash Gordon and an excerpt from "2nd Gear" about the "shrinkage" of his formal suit.

Recently I had to attend a formal event. Fortunately, the local tailor was able to accommodate my urgent request for some "modifications" to my wardrobe. Strangely the belts and the waistbands of other pants had been shrinking, too. Since replacing everything would be too expensive, I decided that losing weight would help. Unfortunately, just deciding to lose weight didn't do a thing.

So, I reviewed the medical literature, and found some startling information and interesting tricks that made it relatively easy to drop 28 pounds. Really!

If you've noticed the same problem, the information I found might help you fit into your wardrobe, too.

This article isn't going to touch on the latest drug/infotainment/celebrity stuff (Ozempic/hypnotherapy/see-food diets). It is proven that the drugs will curb the appetite, but I'm concerned about the long term, yo-yo effect.

So, let's get started. The best reason for losing weight is your health. Do you want to live longer? Scientists have known for a long time that experimental animals live longer when they're thin, about 30 percent below their normal weight. Here's why.

It turns out that your body handles foods differently when you're in "negative caloric balance," which happens when you burn more calories than you eat. Positive caloric balance is just the opposite—you eat more than you burn. When you're in negative balance, your body handles fat and cholesterol differently. Instead of depositing cholesterol in your coronary arteries, the fats are broken down. You can even remove cholesterol that's already in your coronaries, reducing your risk of sudden cardiac death, heart attack, and stroke. This is a big factor in extending lifespan.

It doesn't take much to change how your body handles cholesterol—it's been shown that losing a pound a year *consistently* will lower your risk of death from heart disease, stroke, or diabetes by about 75 percent. It's also been shown that men who maintain their weight at what it was when they turned 20 tend not to have the decrease in testosterone and sexual function that most men have as they age (and as they gain weight).

Lose Weight/Gain Weight

It's a given that overweight people who lose weight live longer than those who keep gaining. What surprised me was a recent study showing that overweight people who tried to lose weight but weren't successful lived longer than fat folks who didn't even try. It's not clear why this happens—perhaps those folks who are trying to lose weight eat healthier or exercise more, now and then. It could be that those folks who tried to lose weight achieved negative caloric balance more often than those who didn't, which helps. This directly contradicts the old saying "The road to Hell is paved with good intentions."

Folks in America are gaining weight now more than ever. You've heard about the "epidemic of obesity." It's real, and it's not funny. Obesity-related heart disease, diabetes, hypertension, and some cancers kill about 300,000 folks in the U.S. annually, and 59 million Americans are obese. So why is it so hard to lose weight? Here's my theory.

For most folks, feeling hungry is very unpleasant. That's due to several factors—both the actual, physical discomfort that's caused by being hungry, and the mental baggage that goes along with it. Many kids were punished by having food withheld. "You're going to bed without your supper, young man!" or, "No dessert for you!" This causes hunger to be associated with a lot of negative emotions, which makes it tougher to tolerate when we're adults. But I noticed something that changed those negative feelings for me.

You know when your muscles are sore after a workout? Though they hurt, it's kind of a "good" pain—you feel proud of it (at least, I do). In the same way, after about a week of dieting and feeling hungry, I found I'd lost several pounds. Great! After that, I felt a sense of accomplishment when hungry. My body was saying, "Yes, you're succeeding in accomplishing some weight loss!" Pretty soon, the feeling of hunger became self-reinforcing. After that, the weight loss got easier. And I learned some tricks from research that helped, too.

Not surprisingly, there's been lots of research on diet techniques—almost a third of the men and half of the women in the U.S. are on a diet at any given time. A search for "diet" on Amazon.com comes up with more than 73,000 hits. So, which diet is best?

We hear a lot about the high protein and low carbohydrate Atkins Diet. Many folks have had good luck with it. Not long ago, eating a lot of complex carbohydrates (i.e., whole wheat bread versus white bread) was popular. Some folks are on low fat diets. There's also the South Beach Diet, the Zone Diet, the Low Glycemic Index Diet, and many more.

But no matter what diet you're on,
you'll only lose weight if you eat
fewer calories than you use.
In theory, that's simple. In practice, it's hard.

Fewer Calories – What a Concept

But no matter what diet you're on, you'll only lose weight if you eat fewer calories than you use. In theory, that's simple. In practice, it's hard. (And in theory, there's no difference between theory and practice—but in practice, there is.) So, what are calories? They're measures of the energy that your body can use to make your muscles move, your heart beat, your brain think, and keep your body temperature around 98.6° F.

The trick is eating fewer calories. Some diets are shown to satisfy hunger better. Eating protein tends to satisfy you for a longer time than the same number of calories from starch (carbohydrates). Bulkier food (that is, a bigger volume for the same calories) satisfies hunger better, too. A cup of raisins, for example, has about 500 calories. A cup of grapes, about 110. (Hint, the water in the grapes fills you up!)

Ease Into a Program

We're going to ease into this. The first step can be to cut out all those sugar-infused drinks and their diet/zero calorie friends. Start counting those calories and push away from the table. I'll check in with you in the next magazine and we will see how you are doing.

Flash Gordon M.D.
TDR Writer

Editor's note: So, between Flash's medical advice and the tips from Car & Driver (page 50), you are better informed by reading the TDR, correct?

Good luck counting those calories (and portion control and all those mini-snacks).

AMELIA ISLAND PICTURES

Another picture from Amelia Island, 2017. Another race car. The aerodynamics of this car look simple: V-shape/big wing. However, this 1991 Toyota-powered/AAR Gurney car used the air channeled through the nose, out the side and air under the car for additional down force. It won 21 races in 28 events. Rule changes in 1993 made the car obsolete. Moral of the story: Don't be too successful in your racing endeavors.

Ranch Dressing

Esoteric Dissertations on Manure Shoveling by John Holmes.

THEME

The editor asked if we knew of any rumors about what was going to happen to the new Rams. Well, the best one I've heard is that Stellantis is going to switch to the ZF 8-speed transmission in the HD Rams for the 2025 models. I hope so. I love the regular 8-speed ZF transmissions in our 2020 Ram 1500, 2021 Gladiator and 2016 Grand Cherokee.

POLLY'S COLUMN

This time my column will be very different. The passing of my wife of 56 years has really changed my life. Much of my time now is spent closing out her affairs. Polly was going to write about Kerrville Auto Body Inc. in her column for this issue, but she never got to finish it. So, I'm going to try to put together here how I think she would have presented it in her "Polly's Pickup" column. After she had a minor accident with her beloved Jeep Gladiator, it went to the body shop that we have used since 2008. The only trouble was that it took almost four months to get the parts due to the Jeep being a Limited Edition.

Anyway, let's talk about Kerrville Auto Body. This shop has been operating since 2005 and in the past two years it has been averaging around 590 vehicles per year. As usual, they did a great job putting the Jeep back together and it drives perfectly.

Joe Martinez

Joe Martinez is the long-time Manager and a good friend. Greg Elliot was the Service Manager on the Gladiator. The Parts Manager, Jesse Jackson, was the guy that nearly pulled his hair out trying to track down the necessary parts. I got a big kick out of it when he told me he couldn't find the part number on the grille guard, and I had to tell him that the reason was that I had made it myself and there was no part number on-line. Anthony Martinez had a hand in Parts Distributing and Receiving (he had to keep sending back the wrong parts he had received).

Parts Manager Jesse Jackson and Service Manager Greg Elliot.

The guy that banged out the dents was Jose Martinez and he had to figure out how I had mounted the grille guard on the rig. Mario Moran has been painting cars since he was 18 and did a fine job touching up the Jeep. One last guy, Fabian Butler was the detailer and was only 16. I enjoyed talking with him as he cleaned up the Gladiator to turn it back to me. You see, I started out as a detailer when I was 15 at a Nash dealership. Wow, that was several years ago…

The Gladiator getting detailed.

I think that this covers what Polly would have put in her column, and you'll see some pictures of the Gladiator as it came off the tow truck at this excellent body shop, then continuing on to it being delivered to me, plus all of the steps in between to fix it. I hope this is about what she would have written, similar to her last couple of columns outlining other automotive agencies in our area. I know she is watching me from Heaven.

LAST ISSUE RECAP

On page 4, the editor put in a nice little note about Polly…Thanks. On page 6, I liked the "My Week with a Kia BEV: the GT6." Andy's personal experience with that kind of vehicle is valuable. John's fantastic rides were outlined in his "The Cost of Admission" on page 8. I loved his '53 Studebaker. He goes on to talk about how car shows have changed over time…much more expensive! There was a great write-up by the editor-dude on page 12 about his experiences at Kissimmee and Scottsdale.

Moving on to page 24 finds Connie's impressions on TDR's contents that she had read in the previous issue. I checked to see how I did in her opinion. There was quite a good discussion on tire replacement on page 28. I don't agree with the statement that you never replace the original equipment tires on your vehicle. After getting excellent performance for 50K miles on the Goodyear Wranglers on our Grand Cherokee, I ordered the same tires for replacement. I'd never had a tire with Kevlar sidewalls before. Page 44 had a great story about the Cummins/Feds/CARB fiasco. We have way too much government. Mark portrays the love affair on trucks starting on page 54. Okay, I'll admit that I really like our trucks. Does that make me a bad person? At least I have lots of company among the TDR readers.

The story switches to winches and how to not get stuck spelled out by Joe on page 66. Then Scott gets into pressure washers and how he installed bed lights on his rig. It made me so glad that ours came with lights installed at the factory. BTW, I bought our gas pressure washer at Harbor Freight. It was a reasonable price and being gas, you can use it anywhere without worrying about electric power.

James talks about batteries on page 86, which reminded me of my last battery incident. I drove our '21 Gladiator the 30 miles into town and stopped at the library. When I came out all I got was a little red battery symbol on the dash. It was dead. Fortunately, I was only a few blocks from our great dealership, and they were there in a few minutes with a "jumper". After getting it started and back to the shop, they found the battery totally dead and replaced it under factory warranty, which surprised me. I couldn't believe it. I usually get around 10 years out of a battery since I always use a battery maintainer. Thank goodness for factory warranties.

On page 94 Stan describes the quick release kit for the grille on the 2010-2018 Rams and how he really likes it. I'll second the motion! I wish it was available for later models. He also likes the condenser guard and screen. Me too.

On page 98, Doug brings up something I'd never thought that much about before, torque wrench accuracy. I'll have to check mine. He's right, torque wrench accuracy is important.

There's a lot of talk about sound levels on page 102. As you can see, the Ram 1500 EcoDiesel is one of the quiet ones. I can verify that. Our 2020 is the quietest of our three rigs. Jack's quote on page 110 needs to be repeated: "For the better part of two decades, the diesel manufacturers have been trapped in a deadly waltz with government regulators both here and in Europe." In closing this section of my ramblings, I tip my hat to the editor-dude for including so many Mecum and Hagerty auction pictures of the fantastic cars in the 124 issue.

STUFF I'VE READ

The Wall Street Journal discusses more EV stuff like, "EV Revolution Gets a Reality Check" where they say that buyers aren't as eager as manufacturers. This is pointed out by the Ford F-150 Lightning electric truck factory cutting output in half and the workers are being switched to gas-powered pickups. A similar headline reads, "Cooling Demand Puts Electric-Car Startups in Bind." Rivian Automotive and Lucid Group had disappointing production outlooks for this year saying EV demand is being hit by high interest rates and economic uncertainty. This is backed up with, "Troubled EV Maker Fisker Pauses Output," after stock shares have fallen 91%. Next comes a whole section of the paper saying, "Electric Vehicles Traded In as Americans Stick With Gas." Some dealers stopped taking any electric vehicles as trade-ins due to their rapid decline in value.

On the other side of the bad news is, "Stellantis Plans $3.2 Billion Buyback." No, not cars but stock shares. Their full-year revenue increased 6% over 2022. The report keeps going with, "Stellantis to Return 11% Of Market Value in Cash" where it seems that the company under-promises and then over-delivers when compared with their Detroit peers GM and Ford. That's attracting investors with the help of hard cash. That's the good news, now comes the bad news, "Chrysler-Parent Stellantis Laying Off About 400 Salaried Employees in US" mostly in software and engineering divisions. This is all about the automaker trying to introduce its first electric vehicles in the US.

Then in the WSJ there were two more big sections entitled "The Electric-Car Revolution Is Losing Its Charge" and "What Happened to the Electric-Car Revolution?" The manufacturers were once the darlings of Wall Street, but now they are running out of cash and running out of time. They all wanted to be the next Tesla, but it just isn't happening.

On top of Stellantis' internal problems, they have "California's Nationwide EV Coercion." You may not live there, but many "allied" states will soon be living under its auto rules. Stellantis and California have struck a deal to protect the state's electric-vehicle mandate from future political and legal challenges. This is another example of how the collusion between big government and big business hurts Americans. After that you see, "Stellantis CEO Stays All-In on EVs" where Carlos Tavares bets big on a flexible vehicle platform as other companies retrench. He says that even if there are some bumps in the road, he believes the electric transition is inevitable. We shall see. One of the big questions in this transition is, "Can We Power the EPA's EV Fantasy" which highlights the need to overhaul our electrical grids and distribution networks. That would require labor and resources that we don't currently have.

MAGAZINE MADNESS

I looked over a lot of magazines for this issue, but I didn't find anything much that I thought the TDR readers might want to hear about. There was just story after story about their latest test drive of a new EV. At least Bottom Line Personal had an interesting article about electric vehicles costing 25% more to insure than comparable gasoline-powered vehicles. EVs tend to be more expensive to repair or to replace. Parts and labor to fix EVs cost more due to the requirement for special tools and specially trained mechanics that are needed to work on those vehicles. Going back to our favorite vehicles, diesels, there was a good explanation regarding, "A Closer Look at Diesel Fuel Systems" in the Amsoil magazine. It outlines the various types of injection systems, how they perform, how they wear and how deposits build up. Then it goes over how to counter the deposits, fight cold weather and address other performance issues with diesel fuel additives. I use their stuff with good results.

INTERNET INSANITY

Motortrend.com always has lots of stuff like, "Best Full Size Trucks For Towing" and it lists the 2023 Ram 1500 at 12,750-pounds. It goes on to, "Best 1-Ton HD Trucks For Towing" pointing to the 2023 Ram 3500 hauling 37,090-pounds. They also list the "Most Reliable Diesel Pickups" which include the '94-'98 Ram 2500-3500 with the good 'ole 12-valve Cummins. Next comes the '03-'07 Ram 2500-3500 with the HPCR Cummins. Having had one of each of those, I agree completely. Next comes, "How Much Does a 2025 Ram 1500 Ram Cost? You'll Pay for That New Power." Ram is dumping the Hemi V-8 altogether and replacing it with the new 3.0-liter, Hurricane inline-six making 540hp and 521torque in their high-output version. You're looking at a range of $50K-$90K depending on the model you pick. That's a jump of $13K for some models. Of course there is, "2025 Ram 1500 First Drive: No More Hemi" which questions whether the Hurricane can replace the Hemi. In conclusion, they say, "We Promise, You Won't Miss the Hemi." I liked, "2025 Ram 1500 Tungsten Interior Review: The Fanciest Damn Pickup Truck Ever?" Opulence reigns supreme with crystal and diamond accents including a 1,228-watt Klipsch audio system. Of course this doesn't come cheap, with a starting price of $89,150. You can haul your stuff during the week, but then on Sunday you want a nice vehicle to go to church in. I know you'll be excited about, "2025 Ram 1500 Conjures Warlock Trim, Spells Not Included." That option has been added to the newer 1500 family. Finally, "Stellantis CEO Wants to Beat the Chinese Automakers at Their Own Game" where he says he wants affordable vehicles, not trade barriers, to win sales. Good luck.

Dieselarmy.com had "5 Emissions-Friendly Power Upgrades for Your 6.7 Cummins." You've got to read the whole lengthy article by Jason Sands! Everybody needs more power. ***Editor's note: See sidebar "5 Emissions Friendly...Summary" (next page) for more discussion.*** The best story was, "OE Spotlight: Ram Trucks to Get New ZF Eight Speed Transmission." Yeah, it's time to drop the 68RFE six-speed transmission. ***Editor's Note: See sidebar "ZF, Really?" (next page) for more discussion.***

The Motorage Newsletter had "Unblocking Ram transfer case motor." The bulletin applies to 2016-2020 Ram 1500/2500/3500/4500 vehicles equipped with Electric Shift On Demand transfer case. This is another example of "code setting" where the technician will need to reprogram the ECU with the latest available software. ***Editor's note: See sidebar "TSB 08-094-20" (page 70) for details.***

Vehicleservicepros.com told about, "Thawing Ram DEF tank" which applies to 2019-2022 Ram 2500/3500/4500/5500 trucks equipped with a 6.7L Cummins Turbo engine. Again, another code may be set when there are rapid temperature swings above and below freezing which may cause an incomplete thaw of DEF tank. Be sure not to over-fill that tank, which can cause that problem. ***Editor's note: See sidebar "TSB 18-034-21" (page 70) for details.***

Automotivefleet.com had a couple of announcements from Stellantis like they are restructuring the North American Sales Organization, and that Ram has announced a new business unit called Ram Professional that will implement several new services for commercial and professional customers. Those customers will benefit from a simplified and all-encompassing business solution with products and services that best fit their business needs. They also noted, "Report: EV Repair Costs 28% Higher than ICE Vehicles." There was a chart showing costs over time for different types of EVs and ICE-powered vehicles. ***Editor's note: See sidebar "Higher Costs" (page 70)for details.***

FINALLY

I've learned some things living in Texas like:

A possum is a flat animal that sleeps in the middle of the road.

There are 5,000 types of bugs and 4,998 of them live in Texas.

"Fixinto" is one word meaning I'm going to do that, and with that I'm fixinto end this column.

John Holmes
TDR Writer

2024 AMELIA ISLAND PICTURES

The Porsche 917 racecar was a part of the Broad Arrow auction at Amelia Island. (My apologies, I don't have access to the auction results.)

SIDEBAR
"5 Emissions Friendly…Summary"

Curiosity got the best of me, and I went to dieselarmy.com to find the article. If you thought there might be some news about big horsepower numbers…well, that's what the sensational media-types do.

Clickbait.

Here is the summary

- Edge Products (www.edgeproducts.com) offers the EZX tuner. "Edge was able to safely extract another 60 horsepower out of the 6.7 Cummins while helping it deliver more than 1000lb-ft of torque." The EZX can adjust the power levels with your phone. The folks at dieselarmy tested the unit and cut the 0-60mph time down from 8.4 to 7.7 seconds, ¼ mile elapsed times were reduced from 16.4 to 15.6 seconds.

  Observation: This is all good. And, considering the previous notice and fines from the EPA (Edge was one of the first to be "busted," back in the early 20-teen years), I can only assume the Edge EZX has CARB and EPA approval. However, at this juncture of EPA observation and enforcement, you'll not see an evaluation of the EZX in this magazine.

- Banks Power (www.bankspower.com) offers the Monster-Ram Intake System. The write-up: "More than double the airflow of the factory air horn." The Army-Guys noted that peak boost was achieved 200rpm sooner. The intake has extra parts for "off-highway modifications like water-methanol or nitrous oxide injection." (Nope, those home-brewed modifications don't meet emissions approval…)

  Observation: Air flow is good. EPA and CARB approval? If it is sold by Banks you can rest assured it has been tested and approved. Air flow is good, likely it helps to lower exhaust gas temperatures. I need more data, but I'm not in the market to "improve" the performance and then become my own warranty station. Life and maintenance are complicated enough without me adding new-and-improved headaches.

- Compound Turbochargers from Diesel Power Source (www.dieselpowersource.com). Blah, blah, blah and a quote from dieselarmy: "Extra power, more boost and cooler exhaust gas temperatures are all benefits of a compound turbo system. Typical increases in horsepower of 22 to 26% are expected."

  Observation: Yep, that's what extra air can do for you. But, for more power you have to add fuel. The kicker (quoting from dieselarmy): "Note: While this kit is completely emissions-friendly and can keep all emissions intact, as of this writing, DPS is still seeking CARB certification and does not yet have a CARB exemption." Geez, I would have never guessed that.

Geez, I would have never guessed that.

- S&B air filter (www.sbfilters.com) offer an air filter kit that goes hand-in-hand with the Ram Active Air system.

  Observation: See Issue 114, pages 38-41 for my thoughts on aftermarket air filtration.

- Cummins Cheetah turbocharger (www.fleeceperformance.com) will support power levels of up to 700 horsepower.

  Observation: The turbo "supports up to 700 horsepower," but you only get to 700 horsepower by adding fuel. Where's the EPA/CARB certification for the extra fuel? Emissions aftertreatment? You are your own warranty station with this one.

Where's the EPA/CARB certification for the extra fuel?

Thanks for suffering through the editor's rant.

SIDEBAR
"ZF Really?"

Curiosity got the best of me, and I went to dieselarmy.com to find the article. If you thought there might be some definite news… well, that's what the sensational media-type do.

Clickbait.

Seriously, as I searched "Ram/ZF Eight Speed" I found several reports, all were also talking about engine output of 1000lb-ft of torque. I also found this same report/rumor in a report (www.musclecarsandtrucks.com) dated *June of 2020*. Geez.

Doesn't Ram already offer 420hp/1075torque with an Aisin transmission? Do the 68RFE and Aisin transmissions just fade away? Further coverage of the topic was found at www.dieselarmy.com, www.HDRams.com, www.moparinsiders.com, and www.ramtrucks.com. The write-up sounds good: "The ZF eight-speed also benefits from a fully integrated transmission control unit (TCM) that connects via a single connector with programmed adaptive shifting and comfort strategies. It also delivers automatic skip shifting for a reported 30-percent increase in acceleration. Inside the bellhousing is a dual damper lock-up converter. The dampers act as shock absorbers for the torque convertor as they absorb engine and transmission vibrations, optimize fuel economy, and help smooth engine operation."

Observation: Again, doesn't Ram already offer 420hp/1075torque with the Aisin transmission? Then, again, if the ZF is offered to Ram at a lower price...

Robert Patton
TDR Staff

SIDEBAR
Motorage Newsletter and TSB 08-094-20

In John's column, Motorage made mention of a TSB and I made an assumption that it was new news/released this year. Research tells me it was a TSB from 2020, and the summary was previously written up in our yearly summary of TSBs. (Good deal, keep those old TDRs close at hand.) In this case, Issue 115, page 37, tells us:

08-094-20 '16-'20 DJ/D2/DD/DP
10/10/20

Flash: Drivetrain Control Module (DTCM) Update

This bulletin applies to DD, D2, DJ, and DP vehicles built on or before June 14, 2020 equipped with an electronic transfer case. The customer may experience a malfunction indicator lamp (MIL) illumination:

- C140E – Transfer Case Motor Blocked

In addition the customer may describe the following:

- The "Service 4WD" message/fault is displayed in the instrument panel cluster (IPC).
- Transfer case shift fork tabs broken during range shift.
- Noisy (clunking/ratcheting) transfer case range shifts.
- Failure to complete transfer case range shifts.

The repair procedure involves a software enhancement to the drivetrain control module (DTCM). This update will help reduce premature transfer case failure.

Good deal, keep those old TDRs close at hand.

SIDEBAR
Vehicleservicepros.com and TSB 18-034-21

In John's column, Vehicleservicepros.com made mention of a TSB and I made an assumption that it was new news/released this year. Research tells me it was a TSB from 2021, and the summary was previously written up in our yearly summary of TSBs. (Good deal, keep those old TDRs close at hand.) In this case, Issue 119, page 28, tells us:

18-034-21 '19-'22 DJ/D2/DD/DP
11/10/21

P203E and P203F Additional Diagnostic Information/Information Only Bulletin

This "information only" bulletin provides additional information regarding diagnosing Diesel Exhaust Fluid (DEF) issue in extreme cold weather. Diagnostic Trouble Codes (DTC) P203E – Reductant Level Sensor 1 Circuit Intermittent and/or P203F – Reductant Level Too Low set.

Reports have been received of vehicles setting DTC P203E and/or P203F. Many of these vehicles were located in areas of extreme cold or in areas where the temperatures can go from extreme cold to warm in short periods of time. An analysis of returned parts from several of these vehicles has shown a high rate of No Trouble Found (NTF). Further analysis of information returned from the field has narrowed down the cause into three possible scenarios.

Scenario #! – DEF Tank Overfilled.
Scenario #2 – Residual Ice in the DEF Tank or Covering the Level Sensor.
Scenario #3 – DEF Crystallization Covering the Level Sensor.

The DEF level sensor is new starting in the 2019 Model Year. The new design level sensor uses an Ultrasonic Frequency (UF) signal to detect the proper fluid level. Previous model years use a radio frequency type sensor, which operates differently and can be less accurate.

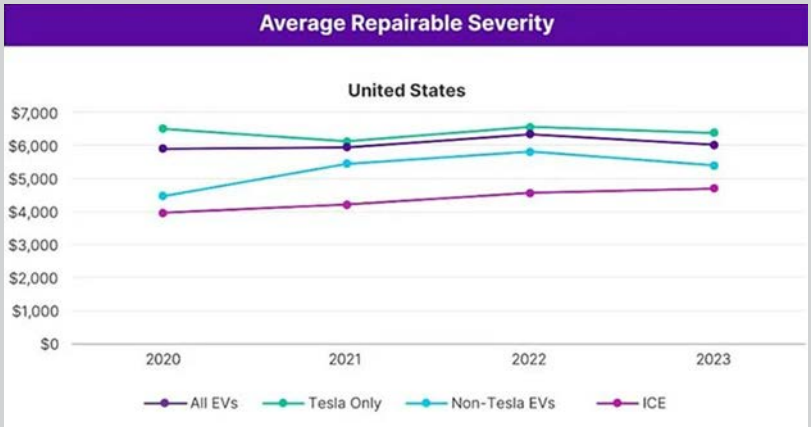
Robert Patton
TDR Staff

SIDEBAR
Higher Costs

Logging onto Automotivefleet.com, I did a search for the EV Repair Cost data. Here is what I found:

- Today, roughly 1.8% of vehicles sold are EVs and EVs represent about 0.8% of insurance claims.
- Last year in the US, the average repairable severity for repairable EVs was $6,018 compared to $4,696 for ICE alternatives.
- When it comes to the cost of those repairs, ADAS (advanced driver assistance systems) is the driver, rather than the presence of an EV powertrain.

Finally, here is the chart that John referenced:



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- **Long Blocks** - 5.9L and 6.7L
- **5.9L and 6.7L Turbos**
- **Heads**
- **Fuel Injectors** - singles and six packs
- **Fuel Injection Pumps, Water Pumps, Starters**
- **ECM Modules**

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Have Ram, Will Travel

Joe Donnelly's Truck and Travel Stories

The assignment for this issue was to discuss something interesting that we had read. Let me refer you to the 1996 movie "Matilda," starring Danny DeVito, Rhea Perlman, and Mara Wilson. Matilda was the extremely smart and gifted child of clueless parents, and Dad (Danny DeVito) told her: "Now go watch TV like a good kid. Sit up and look at the TV. What do you want a book for? Why would you want to read when you got the television set right in front of you? There's nothing you can get from a book that you can't get from a television faster."

In this spirit, I will reference some You Tube videos related to what you will read about Getting Un-Stuck, Part IV. Sometimes "pictures can be worth 1000 words."

GETTING UN-STUCK PART IV

First, here is a list of the off-road and recovery equipment that I carry if going into a remote area for hunting or exploring:

- Tools, zip ties, iron wire, fuses, leather gloves, duct tape, plastic trash bags
- Cheater pipe for ratchet/breaker bar, pry bar, 3-lb. hammer, pipe wrench
- First-aid kit, fire extinguisher, maps
- Orange rain ponchos, coats/blankets/hats
- Water jugs, vehicle fluids, air filter, ratchet straps
- Jacks, hi-lift with Jack Mate, bottle, aluminum "racing" floor jack
- 12"x12" wood base, blocks 1.5:, 3.5" etc. thick, jack stands
- 4 or more Bow shackles, ¾" nominal (7/8" pin), 4+ soft shackles
- Tow straps, kinetic rope, winch extension rope, tree protector strap
- Traction boards, tire chains, shovel
- Winch with either latching hook or closed shackle mount
- Winch remote controller, 3 winch line dampers
- HD batteries, jumper cables/charge box
- Snatch blocks, steel and soft shackle/aluminum ring
- Shackle mount for receiver tow hitch, hitch pins
- Tire repair kit, Colby valves
- Portable air compressor, tire pressure gauge
- Communication devices—cell phone, handheld "walkie-talkie" radios
- For sand, Deadman Off-Road earth anchor
- 3 winch steel cable clips (clamps) or Factor 55 Fast-fid for synthetic winch rope
- Good spare tire of correct size/diameter

Next, let's go into more detail about some of the topics introduced in Part III, Issue 124, pages 66-76 and some related issues.

Position of Loads on the Soft Shackle

In the video, Robert Pepper reported that the shackles stretch under heavy load, but there is little recoil upon breaking. Breaking around the knot is the most common place for failure. Often a strand or two breaks first, but not always, and breaking strength is variable among seemingly identical shackles. The position of the knot is not critical, particularly because the variability of breaking strength shackle-to-shackle is apparently larger.

https://www.youtube.com/watch?v=HuaY761rwgM&t=1s

Afraid Knot Ropes also tested soft shackles for breaking strength versus positioning of the load. They reported average strengths of 24,339-pounds with load behind the knot, as on the orange soft shackle in the middle; 23,281-pounds with loads centered on the strap portions, as on the blue shackle at the top with two bow shackles on it; and 22,101-pounds with one load at the eye end, as with the blue shackle with two hooks on it at the bottom of the photo. If the eye end was left big from pulling the knot through it, the strength decreased, to 21,005-pounds.

https://www.youtube.com/watch?v=sNPhHc3Z9OI&t=3s

Three attachment positions for soft shackles—central, behind the knot, and at the loop.

How Many Winch Dampers Are Needed – Do They Work?

Some people have argued that winch dampers are unnecessary, while others claim that one or two are plenty. Some fill the damper pockets with dirt to add weight. What are some expert opinions from experienced off-roaders, and what do test results show us?

Winch line dampers, with pocket for dirt to add ballast.

Video-guy Ronny Dahl recommends two dampers, one near the tree protector strap (anchor point) and one near the vehicle. A third damper would be used with a double line pull.

https://www.youtube.com/watch?v=OXxLh8shMu8

Seek Adventure tested the effectiveness of winch dampers and their placement. If using a single damper, it should be placed in the middle of the rope, and filling the damper with dirt greatly increased its effectiveness. Two dampers would be placed one-third and two-thirds along the winch cable.

https://www.youtube.com/watch?v=gPba-34ARZY

More video, Mad Matt tested positions of dampers and the effect of adding weight (dirt) to them. He recommends three dampers and adding about 10 pounds of dirt to each damper.

https://www.youtube.com/watch?v=aNVG4E8XzSI

Strap Versus Kinetic Rope Recoveries

These were discussed by Mad Matt, who pointed out the potential dangers of the latter technique, and he recommended that the vehicle doing the recovery not go over 5mph while “snatching” the stuck vehicle. Here a white strap is on the left, and an orange kinetic rope is on the right.

https://www.youtube.com/watch?v=cmXjoG39lAY

https://www.youtube.com/watch?v=DEbHplg6baw

White recovery strap and orange kinetic rope.

Improved Bow Shackles, Grinding Forging Flash

In the video, testing by Unsealed 4x4 has shown that the failure point of a steel “bow” shackle is the base of the threaded part of the pin.

https://www.youtube.com/watch?v=66BXmM_JuBI

Failure point of steel shackle.

The bow is forged and there are typically rough parts in the middle from the forging process. I prefer to lightly grind off the roughness with a carbide bur in a die grinder and polish the area with an aluminum oxide wheel made of sanding cloth. Today there are shackles with broader bow areas, rounded at the edges for better support of recovery ropes or straps.

Steel shackles showing forging roughness, bottom left and center. Polished shackles top left and right, with pins top center. Carbide bur and polishing wheel bottom right.

Not All Traction Boards are the Same

Almost all traction boards are made of some sort of "plastic," usually nylon or polyethylene, or polypropylene. Some have attached metal cleats, and some have a molded flat section that serves as a jack mounting base. Max Trax is a well-known brand from Australia, but there are others of varying levels of quality and effectiveness, often at much lower prices. I have never needed them, but they are a good addition to the list of recovery equipment, especially for loose surfaces such as sand. As two examples, Ronny Dahl tested several brands in western Australia:

https://www.youtube.com/watch?v=SntXKcKKvW8

Varsity Overland liked the Bunker Indust budget-priced boards:

https://www.youtube.com/watch?v=-P_hr9PevtI

Here we see a shovel at the left, and the two sides of a pair of traction boards, with the flat area for a jack in the middle of the right hand board.

Shovel and Bunker traction boards.

Choosing an Air Compressor

A dual cylinder compressor is best for airing up four tires at once, but for airing a single tire, such as after fixing a flat, a single cylinder compressor is enough since the tire valve only accepts a bit over 2cfm. There are numerous brands available, some expensive and intended for frequent use or to power such things a differential an air locker. Among the moderately priced units, Smittybilt and Harbor Freight Maddox are good choices. For off-road use especially, you will want a tire inflator/air compressor that runs off the vehicle battery. Forget the cigarette lighter port for power. Get a more capable unit that has alligator clamps which attach directly to the Turbo Diesel's battery.

Maddox air compressor, top. Yellow extension hose, center. Power cables in lower left, and hose with integral pressure gauge lower right.

Repairing Tires on the Trail

You will want at least a rudimentary tire repair kit with "ropes" to plug the hole after reaming it out a bit. If the tire valve is the culprit for the loss of air, and if you are lucky, a new stem insert will fix it. If not, you can replace the valve on the trail with a Colby valve, although it will not address the tire-pressure-monitoring-sensor issue. You will shove the old valve into the tire and install the Colby to get you to civilization for a permanent repair at a tire shop. Don't forget to bring a first-aid kit!

Colby tire valves top left, tire plugging ropes and kit with tools to install rope and ream hole in tire to the right. First aid kit on the bottom.

Wired and Remote Winch Controllers

Most winches come with an inexpensive wired controller (on the top in the photo) to spool the cable or rope in and out of the winch drum. Even with a fairly long cord, the operator is still close enough to be in harm's way if the winch cable snaps and the steel cable and/or a heavy shackle or hook fly through the air. Good wireless remote controllers, like the Harbor Freight Badlands Apex shown at the bottom, allow the operator to be up to 80 feet away, and may have an emergency wired option in case the wireless controller's battery fails.

Conventional winch controller at the top. Below is a remote controller, with module for the winch control box and an auxiliary power cable for the remote in case of battery failure.

Even with a fairly long cord, the operator is still close enough to be in harm's way if the winch cable snaps and the steel cable and/or a heavy shackle or hook fly through the air.

Agency 6 Winch Shackle Mount

One of the best shackle mounts for safety (as a closed system, versus a hook with a flimsy latch) and flexibility of use is the Agency 6 mount, made of high strength aluminum with a US Certified 6061 T6 CNC machined aluminum body and a 17-4 hardened stainless steel pin. It uses two 8-32 screws holding a cover plate to retain the pin, instead of an internal snap ring, which would be more difficult to remove and re-install on the trail. The rounded, triangular opening readily accepts the pin, as well as the bow end of a shackle, and makes attaching a soft shackle easy. Notice also the thick, rounded opening of the aluminum hawse fairlead to protect the winch rope from abrasion during spool-in.

Hawse fairlead at top, with winch line to Agency 6 closed shackle that can accommodate steel shackle pin, shackle body, and soft shackle.

Should You Tighten the Bow Shackle Pin?

It turns out that with the shackle pin seated, a ¾ inch (nominal, with 7/8" diameter pin) shackle fails at about 68,125-pound breaking load; with the pin backed off ¼ turn, 65,166-pounds; and finally with the pin backed off ½ turn 65,759-pounds in Robert Pepper's test.

https://www.youtube.com/watch?v=9mYzflG28uw&t=1s

Thus, as he discussed, whether you tighten the pin will depend more on whether you will need to disassemble the recovery gear quickly, or whether you are concerned if the shackle will vibrate or the pin will rotate in use, possibly letting the pin come out.

Side Loads with Bridle Strap

For the rest of the story on a bridle strap, we can again refer to Robert Pepper's tests based on real-world load cells to back up the trigonometry calculations. For a 30-degree included angle, 4000-pound load from the winch gives 2070-pound load on each strap, but also 536-pound side load on the two anchor points. This included angle results from using a 12-foot-long strap, with anchor (recovery) points 35 inches apart. If you reduce the included angle to 20 degrees, the side (inward) load on the recovery points is substantially less, about 395-pounds for a 4000-pound pull.

https://www.youtube.com/watch?v=V13ARMYoAos

The recovery points on the rear bumper of my Turbo Diesel are 43" apart (shown in Issue 124, p. 71) so to achieve a 30-degree included angle, the bridle strap must be about 15 feet long. For the preferred 20-degree angle, the strap should be 21 feet long. Thus, we see that a long bridle strap is needed for heavy pulls and widely spaced anchor points on the vehicle being recovered, in order to prevent excessive bending forces on the recovery points. As an alternative, you can use the trailer hitch as a single recovery point with an insert that has a rounded hole to accept the pin of a steel or a soft shackle.

Recovery point for trailer hitch with steel and soft shackles.

Off-Road Tires

There are on-going arguments about the advantages of narrow versus wide off-road tires, and snow tires as well. Three of the many videos that provided me with useful advice are:

https://www.youtube.com/watch?v=spOUcaUzIHY&t=3s by Robert Pepper

https://www.youtube.com/watch?v=6wAJAOxh8LE&t=2s by Tinkerer's Adventure

https://www.youtube.com/watch?v=wf_mIlU82Ac&t=4s by Tyre Reviews

In addition, Ronny Dahl seems to prefer wide, mud tires for his exploits in western Australia. He does not address use in snow, as he does not encounter it. He is experienced in mud, dirt, and sand-based off-roading.

https://www.youtube.com/watch?v=xKAVf5EdZY0

https://www.youtube.com/watch?v=SaZQpS05QMs

Other applications may favor narrow tires or find little difference because the narrow tire may give a longer contact pattern versus the wider pattern of a wide tire. For desert and rocky trails that I encounter, I have come to prefer the 8" tread width of 255-80-17 Falken Wildpeak AT3W tires over their wider, 10" tread 285-70-17 offering.

Falken Wildpeak AT3W tire in narrow (8") tread.

Falken Wildpeak AT3W tire in wide (10") tread.

GENO'S GARAGE

Be Prepared.

DEF INJECTOR TROUBLESHOOTING
FOR 2013-2018 RAM CUMMINS 6.7L TURBO DIESEL TRUCKS

We've read about problems with the DEF injector in the Turbo Diesel Register and we've experienced some of the issues ourselves.

The majority of problems with the truck's DEF system seem to be caused by a clogged DEF injector. The message that shows on your dashboard:

"Service DEF System See Dealer"

Ouch, is this going to be inconvenient and expensive? Maybe not. Here are your options:

1) Self explanatory "See Dealer." Bring lots of money with you.

2) Remove, clean and replace the existing DEF injector as described in the TDR (Issue 108/Stan Gozzi and Issue 118/Brandon Parks).

3) Remove and replace the DEF injector (Mopar #4627241AE).

In the past, the only cost-effective option for the DIY-owner was Option #2. With our "Be Prepared" sale, we are able to offer the Mopar injector at a low price ($99.95 - versus the suggested price of $253.95). This makes Option #3 your best choice.

Seriously, be prepared. Read the articles, then select option #3 and have a spare ready for service.

$99.95

Part No. GG-4627241

We're including two Mopar (part no. 06102003) replacement bolts with this "Be Prepared" special. The replacement gasket is already installed.
Genuine Mopar Part Number: 4627241
Only available at this price while supplies last.

VISIT US ONLINE OR CALL TO REQUEST A CATALOG

www. genosgarage.com

770-886-2500

RAM TURBO DIESEL
PARTS AND ACCESSORIES

1500 • 2500 • 3500 • 4500 • 5500

INVESTIGATING NEW TURBO DIESELS

My neighbor, John Brown, recently purchased a new Turbo Diesel.

My neighbor's new Turbo Diesel.

He purchased a single rear wheel, 3500, Crew Cab with the eight-foot bed. It came with the 50-gallon fuel tank (I wish a bigger tank was available with the short bed that I prefer).

50-gallon fuel tank on his Turbo Diesel.

I noticed that the four rear oil pan bolts on the Aisin transmission are still hidden by the cross member as I last discussed in Issue 112, page 78.

Aisin crossmember still restricts access to the pan bolts.

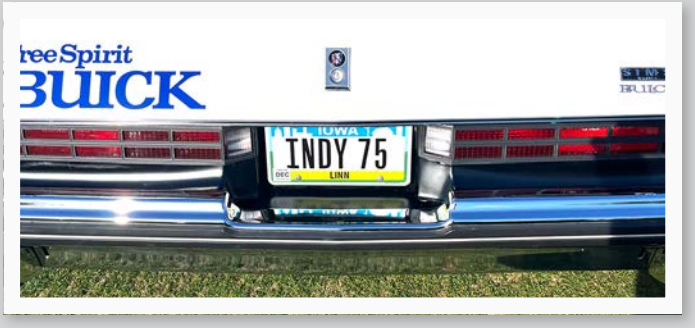
Here are the obvious differences from 10 years of evolution (yep, mine is a 2013). The 4.5 Generation HO version has these changes:

- GCI block
- Hydraulic lifters
- 10-bolt crank
- Forged rods and larger bearings
- Exhaust manifold
- Injectors
- Fuel pump

The TDR's year-by-year Buyer's Guides have the details of the 2019-2024 Cummins 6.7 CGI engine(s).

- Hood
- Grille
- Bumper
- Front fenders
- Tailgate fender
- Radius arms (lightening holes)
- Rear axle on 3500s
- Interior—dash, console, etc.
- Taillights
- Headlights
- Updated 68RFE automatic transmission on non-HO's with a better valve body

2024 AMELIA ISLAND PICTURES



Yes, that is a 1975 Buick Century, Indianapolis 500 Pace Car edition (1 of 1813 produced). Buick also was the marquee pace car in 1939, 1959, 1976, 1981, and 1983.

MAINTENANCE ON MY 2013 TURBO DIESEL

Fuel Filter Change

I have changed the fuel filters every 13,000 miles (versus the 15,000-mile recommended interval). I discussed the procedure in Issue 86, page 106, but should add a few comments from the recent filter change at 65K miles. First, don't remove the water-in-fuel module from the bottom of the rear filter while it is on the truck. It is shown at the left here.

Turbo Diesel rear, chassis mount fuel filter with water-in-fuel sensor at the left.

Even though you opened the valve and drained the filter, enough diesel fuel remains to make a mess if you remove the valve before putting the filter on your bench, in a catch pan. Once you remove the wires from the connector above the filter, (shown at the top center in the photo, painted orange) you can unscrew it with the same strap wrench that you use for the oil filter.

Chassis mounted filter with water-in-fuel sensor connection at top, painted orange.

Second, don't over-tighten the plastic cap on the engine-mounted filter! The O-ring seals the cap and if you tighten the cap more than "snug" it will be very hard to remove next time with the 1-1/8" six-point socket. I used an oil filter canister cutter to open the rear filter casing, and the media look like they did catch a lot of particulates, asphaltenes, etc.

Used chassis mounted fuel filter that was cut open with an oil filter cutter.

The engine-mounted filter did not look bad and is a multi-layer filter. However, what it is expected to catch will be very small particles that won't be obvious to the naked eye.

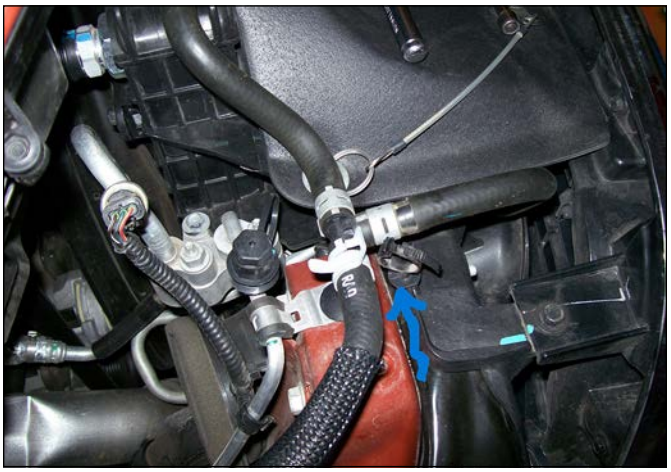
Used engine mounted fuel filter with central core removed. How do the filter(s) look to you?

Coolant Change

It was also time to change the coolant, since it was ten years old. The original Mopar specification was MS12106, but it seems that the correct replacement specification for the concentrate is MS90032, which I used with dilution by distilled water. I drained about 5 gallons of the original coolant by opening the lower radiator hose at the Y connection with a cotter pin removal punch and collected it in a 5- gallon bucket that I placed underneath. The Y connection is easily accessed after removing the air box. I removed the upper radiator hose at the radiator and used a short radiator hose elbow to pour in the new coolant there and squeezed the upper hose nearer to the thermostat to help purge air from the system. Here are the procedures I used:

1. Remove the air box lid and hose going to the turbocharger, just as you do to change the engine oil filter.

2. Remove the bolt at the front "tongue" of the air box and open the plastic hose clamp (blue arrow in the photo) so you can move the small hoses and T fitting out of the way.

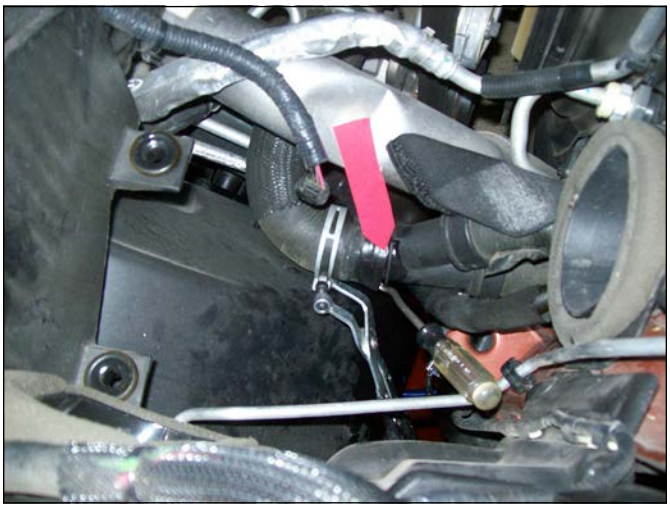


Used engine mounted fuel filter with central core removed.

Pop the air box bottom out of its grommets, and unplug the electrical connector (red arrow) for the flapper valves, so you can set the box aside.

Side of the air box facing the engine, with red arrow to the electrical connector.

3. Now it is easy to see the lower radiator hose, next to the boost air pipe. Drain the coolant at the connection in the bottom hose.



Draining coolant at the lower Y connection in the radiator hose, 2013-14 Turbo Diesels.

Connection for draining coolant on 2015-18 Turbo Diesels.

Use a thin-shank #1 Phillips screwdriver to get a modest coolant flow into your clean catch pan. Loosen the expansion tank cap to moderate the flow from the hose at the connector. You will be able to drain about 5 gallons of coolant by this method.

4. Replace the hose clamp and air box.

5. Install the new coolant into the radiator using a short elbow hose on the upper radiator hose fitting, while squeezing the radiator hose closer to the thermostat, to help purge air from the system.

Filling the radiator and engine with coolant using an elbow shaped piece of radiator hose.

Finish the filling process at the expansion tank, squeeze the hose some more, and loosen the banjo fitting above the EGR to allow air to bleed out at the high point of the cooling system (red handled screwdriver points to the fitting in photo). The expansion tank can also be seen at the bottom left in the photo.

Banjo bolt to loosen for purging air from the cooling system.

Two unrelated topics which I have addressed on the forums recently are: (1) the tools to hold the tappets and to hold and counter-balance the camshaft with its attached gear. You can go back to Issue 36, pp. 46-48 for a discussion of camshaft changing on the engine (12-valve back then).

Camshaft changing tools. Trough for tappets at top, fulcrum and plates that clamp to cam gear on bottom.

And (2) welded-together wheels that I use instead of jackstands for better stability. They also serve as stools for working inside the engine compartment. I have made up stands of 5", 12", and 16" heights.

Different height welded wheels to use as stools and as jack stands.

RECENT ADVICE ON THE 68RFE TRANSMISSION FROM TRANSENGINEER

Condition: P0706 Code

P0706 indicates an invalid Trans Range Sensor code (that is, one which should never exist). The TRS uses a set of 5 spring-loaded pins which ride against the code plate (a metal and plastic plate that moves back and forth on top of the valve body when you move the shift lever). The PCM monitors whether each of these pins is grounded or not. So, the 5 TRS pins create 5 TRS circuits that are either closed (grounded) or open. If we denote the 5 circuit states as C for closed or O for open, then we get a TRS code such as CCOOC (which is Park), OCOOO (Reverse), etc.

So now for a little detective work... When an invalid TRS code is detected, the PRND indication in the dash should change to show "ALL" positions (that is, all positions will be "boxed" or otherwise indicated at the same time). In premium clusters where the PRND letters are colored rather than boxed (PND normally being green when selected, and R being red), the "ALL" condition is often mistaken for Reverse (since R is red while P, N, and D are all green). My guess would be a bad connection on one of the TRS circuits.
TransEngineer

Condition: Where to put a tyrans temp sensor

The factory trans temp is actually sump temperature (not "to cooler" or "from cooler" temp). It is read from a thermistor, which is located inside the transmission solenoid module.

I think you'll find that your trans sump temps are more related to vehicle speed, and engine load, than to ambient temperature. At low vehicle speeds, your Torque Converter Clutch (TCC) is typically unlocked (which generates more heat in the converter), and you don't have enough airflow to effectively cool the trans cooler. So stop-and-go driving in traffic, or pulling a trailer up a steep grade at low speeds, are usually worst cases for high trans temps. Once you get it up to speed, the temp should come down.

Running for brief periods at 210-230°F sump temp is not a problem. Hottest fluid anywhere in the system is in the "converter out" ("to cooler") line. That is the upper cooler line on the trans. I would put a temp probe in that line.
TransEngineer

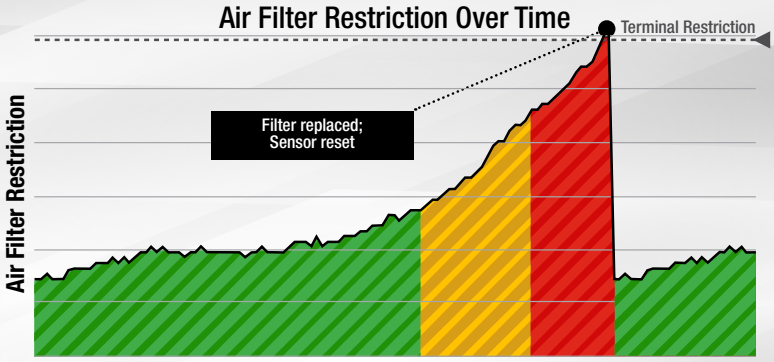
Joe Donnelly
TDR Writer

FleetguardFIT LED Air Restriction Indicator

A visual signal of when to change your air filter.

How It Works

- Monitors restriction across the filter
- LED indicator changes color (green, yellow, red) based on restriction
- Provides visual indictation and electrical signal of filter status
- Inbuilt logic waits for 5 seconds of restriction state before latching, preventing false alerts



FleetguardFIT LED indicator is bright and easy to see when installed.

LED Color Indication Schemas

COLOR INDICATION	PART # SK15967 This includes a grommet and a barbed fitting for a universal installation or when no threaded port is available.	PART # SK15959 Replace your current 25" threaded mechanical Restriction Indicator.	PART # SK15960 Replace your current 21" threaded mechanical Restriction Indicator.
SOLID GREEN (with 5 sec delay)	0-13" H_2O	0-16" H_2O	0-13" H_2O
SOLID YELLOW (with 5 sec delay)	13-17" H_2O	16-20" H_2O	13-17" H_2O
BLINKING YELLOW (with 5 sec delay)	17-21" H_2O	20-25" H_2O	17-21" H_2O
SOLID RED (with 5 sec delay)	Above 21" H_2O	Above 25" H_2O	Above 21" H_2O
BLINKING RED (with 5 sec delay)	Miswiring/Sensor Failure	Miswiring/Sensor Failure	Miswiring/Sensor Failure
RESET (with 5 sec delay)	Time R-Y-G	Time R-Y-G	Time R-Y-G

Know Exactly When to Service

Know Exactly When to Service

- Proactively turn break-downs into planned maintenance events
- Service only as needed to get maximum life out of your air filter
- Indicator provides visual, accurate information for timely maintenance decisions

Conventional vs. FleetguardFIT Features & Benefits	Fleetguard LED Restriction Guage	Conventional, Manual Air Restriction Guage
Accurate, reliable, and continuous electronic measurements	✓	--
Dynamic, Color-coded Visual Indication of Service Life	✓	--
Integrated into vehicle telematics for real-time data analysis	✓	--

Scan to learn more about FleetguardFIT

Want to learn more? Visit fleetguardfit.com today!

fleetguard.com

Back in the Saddle

Truck Accessorizing with Scott Dalgleish.

HURRICANE ENGINE IMPRESSIONS

I am gearhead. I like everything with wheels and engines. Seems like as more and more technological advancements are finding ways into the automotive industry the use of old technologies is also becoming more commonplace. I recall when I first learned about turbocharging and its benefits back in the 70s. Back then, I wondered why turbocharging was not being used in everyday applications. However, at the time it was cost prohibitive. But those were the days you could buy an L88 Corvette for under $6,000 out the door.

In today's world of emissions compliance, fuel economy, and the consumer desire for more power, turbocharging is a more common component. ***Editor's note: For year model 2024, turbocharged engines are now the norm as about 60% of the new ICE vehicles have a turbocharger.***

Take the latest offering from Ram, the 3.0 Hurricane. The turbocharged engine's standard output is said to offer 420 horsepower and 469 torque with the high output version claiming 540 horsepower and 521 torque. Not only more power, but better fuel economy as well. The two-wheel-drive 2025 Ram 1500 with the standard-output Hurricane is EPA rated at 18mpg city, 25mpg highway, and 21mpg combined. Not bad from a 3.0-liter, six-cylinder engine. The rapid rate of technological advances is staggering. I mentioned back in Issue 121, with the technology available today the 3.0-liter EcoDiesel makes 260 horsepower and 480 torque, which is more than the 2003 Cummins engine (235hp/460torque).

Couple the performance enhancements with the latest versions of creature features and the driving experience has moved to a whole new level. I love vehicles that feature lane keep assist, adaptive cruise control, collision avoidance, blind spot monitors, park assist and lots of cameras. I will admit my first experiences were more apprehensive in nature, but as I became more proficient at using the new features my trust grew and my driving experience became more relaxed. ***Editor's note: We noted that Ram is offering their 1500 truck (Tungsten trim) with "Hands Free Drive Assist," see page 40. Scott gave us his favorable story on hands-free technology in his column (Issue 116, page 74-75) as he described the BMW cruise system.*** I liken it to making the transition of being a VFR (visual flight rules) pilot and moving to an IFR (instrument flight rules) rating…you learn to trust your instruments.

REUSEABLE AIR FILTER (ECODIESEL)

Likely you've noticed the TDR has less and less coverage of the Ram 1500 EcoDiesel trucks. I think we all remember the excitement when the vehicle was released in late 2013 as a new-for-2014 truck. My 2023 Ram 1500 was the last year of the diesel offering, the truck had a nice 10-year run.

Those last years of production were hand-in-hand with so many parts supply problems. And, when you look at my 2023 EcoDiesel, it is somewhat of a "limited edition," a Fifth-generation Ram 1500 chassis and a second iteration of the 3.0 diesel engine.

Long story—short version: Parts availability and the jacked-up price of a Mopar air filter sent me on a search for an aftermarket solution.

Yes, I know the editor-dude would frown on my decision***. Editor's note: Nothing new here, counter-point articles happen often in the TDR.*** The most recent discussion on air filters is found in Issue 114, pages 38-41, "The Way We Were." However, in the past I have used reusable filters. I came across Green Filter, greenfilter.com, at the 2023 SEMA show and their product would address the Mopar problem(s) I've encountered.

What first caught my eye was the construction of the filter. The Green Filter appears to be similar to many of the other offerings (exception: it is green rather than red or blue). But, that is not what caught my eye. Notice how clean the line is that separates the filter border and the media area. Green Filter uses a process they call "Low Pressure Molding" that achieves this result. The effect is obvious. A larger, less obstructed filter area equals more filtered air flow into the engine.

Green Filter's filter border (black) meets media area with a clean-cut line. Nice manufacturing.

Green Filter Data

In addition to the unobstructed filter area, Green Filters states they offer the following benefits:

Woven Cotton—Deep pleats in the double-layered cotton which create a 10-15% increase in filtration surface. This increase allows a greater volume of air while maintaining superior filtration. Green Filter specially designed cotton filter traps particles as small as 5 microns.

Steel Mesh—Steel wire mesh encases the cotton filter, providing strength and dent resistance so the filter will work under the toughest conditions.

Low Pressure Molding—Other filters use simple pressure molded injection process to bond the perimeter rubber to the interior components. That method saves considerable manufacturing time, but in the process, a considerable amount of rubber can seep onto the filtering surface. (Yep, a tie-in to my first impression.) While it may not look like much, that spill-over rubber can restrict as much as 25% of the intended air flow. Green Filter uses a four-step production process which virtually eliminates rubber seepage and maintains maximum air flow through the filter.

Proprietary Lubricant—The lubricant used by Green Filter creates a positive magnetic charge, or ionic bond, with the filter's stainless-steel mesh. The positive charge attracts the negatively charged dust particles entering the filter, causing them to cling to the steel mesh and allowing the cotton to remain clear for maximum air flow.

In-house Technology—Long before Green Filter was manufacturing a single air filter for street-legal machines, they produced hundreds for the international motorsports industry.

The installation was straightforward. Using a large Phillips screwdriver, remove the air box cover, remove the old filter and install the Green Filter. The fit is perfect. Install the air box cover and you are done.

Green Filter Cleaner Specially formulated recharge oil and cleaner retail for approximately $23.

All Green Filters are designed to last for the lifetime of the vehicle and are covered by a Limited Lifetime Warranty. They are proudly Made in the USA.

The Green Filter for the Ram 1500 retails for approximately $63 with the Ram 2500 and 3500 filters retailing for approximately $90.

Editor's note: The TDR's <u>Perfect Collection</u> (Volumes I and II) have soooo much information on cold air, air intakes and air filter construction that I'm not going to revisit the stories here. Most recently, TDR 114, pages 38-41, also has a discussion on air filters.

SPECIALTY DETAILING TOOLS

I happened by the Braun Brush booth this last fall at the SEMA show and immediately noticed some tools I could put to use. Chatting with Braun's Max Cheney, I realized I was talking with the expert when it comes to cleaning brushes/tools. The right tool for the job: invaluable. Here are some brushes that have made my life easier.

History: Braun Brush

Braun Brush is one of America's oldest family-owned industrial brush manufacturers. Braun Brush company was founded in Brooklyn,New York, and the first manufacturing facility was opened in 1875. Fast forward *150 years* and Braun Brush built a new facility in Medford, Oregon. Braun remains to this day a family-owned business now operated by Lance Cheney, great-grandson of Emanuel Braun, the founder of the company.

Auto Wash and Detail Brushes

Braun Brush believes that you deserve the best car wash products and auto detailing tools. They are the source for the softest, non-scratching car wash brushes. Braun Brush is also the manufacturer of "Wheel Woolie" tire brushes that gently clean with soft carpet fibers.

The following are several of the products and kits they offer for professional/hobby/enthusiast automotive gearheads like the TDR audience.

Woolie Vent Brush 24-inch—This 100% non-scratch synthetic wool-like material and polypropylene slim handle is a great fit for car vents. The long head and slim profile allow you to clean deep inside your vents. This is another one of my new favorite tools. It allows me to clean in places that were not previously accessible. Price $22.30.

Vent Brush 24-inch.

Detailing Brush Set—This kit includes Braun Brush's most popular hand detailing brushes.

- Pad Cleaning Brush with Extra Stiff Black Nylon
- Stiff Nylon Cleaning Brush with Red Nylon
- Stiff Stainless-Steel Scratch Brush
- Black Horse Hair Upholstery and Piping Brush

There are countless uses for this set. I recently used the stainless-steel brush to clean corrosion on a battery post. Price for the set, $21.50.

Wire brush for clean-up of battery terminal(s).

A brush for all occasions.

Automotive Upholstery Brush Black Horse Hair—This is a standard to carpet and furniture cleaning professionals. It fits nicely in the hand with an 8 1/2" long shaped handle, with hanging hole. Trimmed to a short 1 1/4", the horse hair is filled tight to facilitate solid cleaning action on fabrics and upholstered surfaces in your automobile. I like this brush to clean tire sidewalls. The long handle allows me to clean the tire without bending down, making the job easier. Price $21.00.

Yep, works well on tires and wheels.

Detail Brush Round Boar Hair—These brushes can be used on all interior and exterior surfaces. The fibers are delicate enough to remove the finest dust particles and sturdy enough to clean lug nuts, dash boards, vents, crevices and more! This brush is great for lug nuts and in and around vehicle badges. Price $22.50

Round Boar Hair Detail Brush

Wheel Woolie Caliper—The Spoke Woolie® is very similar to the original Wheel Woolie, except it has an angled head. This allows for easier cleaning behind the spoke and brake caliper and other hard to reach areas. Like the Wheel Woolie, the head is constructed of polypropylene fibers that reduce splatter. I love this brush! It makes cleaning behind brake calipers a cinch. Price $38.50

Braun "Wheel Woolie"

Scott Dalgleish
TDR Writer

Contact Information:
Braun Brush
www.brush.com
43 Albertson Ave.
Albertson, NY 11507
800-645-4111

Product installations, evaluations, and gearhead commentary by James Langan.

BRAKES AND AIR FILTER

Rear Brakes for the First Time

Several times in this column I have mentioned my conservative braking habits. Having a manual transmission and an exhaust/turbo brake helps. Nonetheless, I have also achieved exceptional friction material longevity on cars and trucks with automatic transmissions.

Long brake pad/rotor life is easy if one actively assesses traffic conditions and movements as far as they can see, mostly ahead but to the rear as well. Usually there is substantial momentum available from fuel already burned, but many stay on the skinny pedal far too long and then go directly to the brakes.

I am not advocating driving under the speed limit, or even just barely the speed limit in the left lane (being *a leftist*), that is not polite or necessary. In fact, I frequently go fast, haul loads, pull trailers, am in city traffic, and drive mountain grades, yet still get at least twice the life from my brakes than anyone I know. (Maybe there are subscribers who can stretch their friction material like I do? You should write a letter to the TDR and tell us about your driving habits.)

In TDR122, I shared an overview and details of the first 100,000 miles logged in my 2014, Crew Cab 2500. Pictures of the still-thick original brake pads spurred the editor to comment that he could hardly see any wear. Indeed, they looked meaty, but exact measurements were impossible with them still in the calipers. Unfortunately, that data is now available due to a premature OEM part failure.

Impressively thick brake pads after 100,000 miles.

Ignoring a Problem and Deferred Maintenance

Many of us have heard the adage *pay now or pay more later* (or something similar) regarding deferred maintenance. Back in 2019, I adjusted the parking brake shoes on my 2014 crew cab and noticed grime on the adjuster star through the adjustment hole on the right rear backing plate. It wasn't much, but the area should have been dry, and I should have dug deeper instead of doing nothing. Three years later when doing another brake inspection, the oil had not dried but wasn't notably worse. There was trouble. Gear oil was dripping off the backing plate onto the inside of the right rear wheel.

Gear oil dripping from a brake rotor.

Oil was also inside the wheel and showing traces down the tire sidewall.

What Gearhead Doesn't Have Experience Working on Brakes?

Readers know that I do much of my own preventative maintenance, modifications, upgrades, and light repairs. Brakes are not difficult or complicated and are considered an easy and routine job for many. But, I've kept only a few vehicles beyond 100,000 miles, and they still didn't need brakes, so my experience is limited.

As an example, with the help of my visiting brother-in-law, we (mostly him) replaced the front pads on the front of our 4Runner two years ago at 110,000 miles. With the rotors still looking great, we zipped down to my local Toyota dealership for new OEM replacements and slapped them on. That is the extent of my brake job experience over the last 25 years.

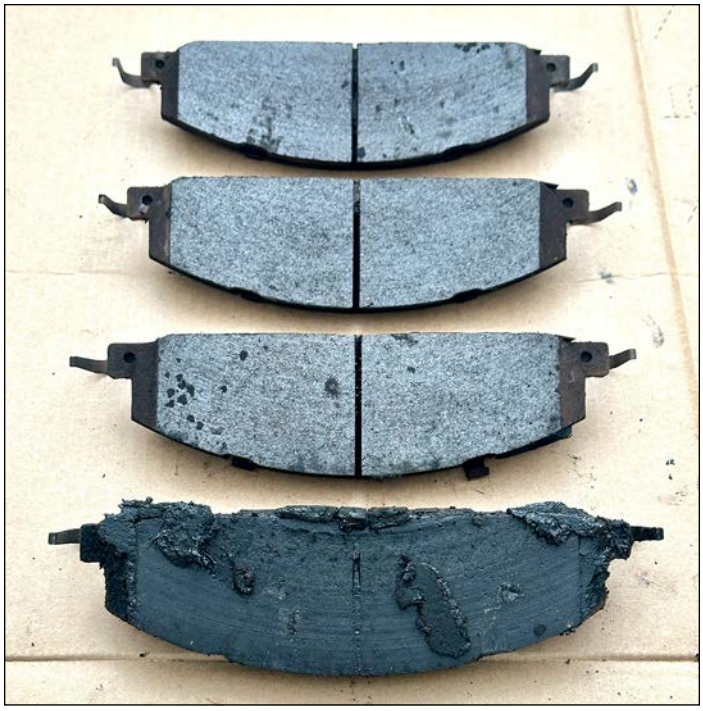
Do It Yourself or Pay a Professional?

In the past, I was a regular customer of Les Schwab Tires. They are a big outfit throughout the West and based in Oregon, focused on tires, brakes, wheel alignment, and suspension upgrades. Several years ago, I became acquainted with Sean, a technician at one of our local stores, and I trust him and his work.

After his inspection, Sean called with the bad news. By ignoring the initial signs of a problem I had completely soaked the parking brake shoes, pads, and the right rear rotor, and they needed to be replaced. The rotor could've been turned, but he was concerned about getting all of the gear oil out of the center of the rotor cooling fins, and the possibility of contaminating the new friction material.

As is often the case, most shops would rather replace more parts to avoid future problems, ensure the quality of their work, and honor warranties. This costs more but is often a good idea for both the shop and the customer.

Parking brake shoes and hardware are not supposed to be oil-soaked.



Plenty of friction material remaining on the OEM rear pads, but an oil seal leak ended their life. What a mess.

What the surface and interior of a brake rotor should look like. (This was the "good" left side.)

Oil soaked rotor for comparison, both were replaced.

Before knowing the extent of the damage, I had already specified to use OEM brake pads, and to me OEM Ram meant Mopar. However, the *bproauto* brand was installed, and they did come from the local Ram dealer. Apparently Stellantis launched this overseas brand in North America in 2023. Geno's Garage sells brpoauto with Mopar next to the name in their catalog, so that's OEM enough for me. ***Editor's note, see "bproauto" story on pages 36-37.***

Sean and I had already discussed using aftermarket parking shoes and hardware. These were Raybestos, a name that many enthusiasts are familiar with, and a leading brake products manufacturer since 1902. But what about the rotors?

The Mopar rotors would have cost me about $312 each. Geno's Garage sells the bproauto rotors for my 2500 for about $150. But, with a time consideration to consider, I chose Raybestos which cost me $252 each. The part number was 780733.

The total for all the parts and labor was a substantial $1350, and I only saved $130 by picking Raybestos rotors instead of OEM. I started questioning the wisdom of this decision. However, the rotors and even the friction material had nothing to do with needing these repairs, it was the premature failure of a factory axle seal (and my negligence) that made new rear brakes necessary. The SKF part number I used was 28540. My warranty expired years ago, and this is an example of how *I am my own warranty station*.

Raybestos part #780733 rotors for the rear axle.

How Long Could My Original Brake Pads Have Lasted?

With approximately 19 mm of friction material depth when new (I couldn't confirm the specification in print), and 10 mm remaining both on the rear and front axles after 114,000 miles, I logged an impressive 12,666 miles per 1 mm with the OEM parts. Estimating 16 mm of usable depth I could theoretically travel 202,000 miles before needing replacements. We shall see if I can go that far on the fronts.

I could theoretically travel 202,000 miles before needing replacements.

Break-In And Personal Inspection

Break-in recommendations from Les Schwab were to avoid excessive hard stops during the first 1,000 miles, and their warranty includes workmanship and materials for 25,000 miles or 36 months. That's plenty of time for an early failure to be discovered and covered.

At home after the repairs, I crawled underneath to inspect things. There was still a bit of grime on the backing plate, it had been cleaned but I decided I could do better. I used a rag and Simple Green and then a half bottle of brake cleaner to bring it up to my standards. A few days later my wife and I made a 500-mile road trip that included two hours of heavy rain, which further flushed the undercarriage.

Routine gear oil level checks are not part of my maintenance regime because, if there are no obvious leaks, the oil is still inside. It was unlikely that much differential oil had been lost, but it seemed prudent to pull the Mag-Hytec rear cover dipstick and check.

Backing plate still had some caked-on dirt after the repairs.

Endless Love for Mag-Hytec Products

The oil on the Mag-Hytec dipstick was so clear and clean after 30,000 miles on the oil that it took several attempts to confirm the level was where I wanted (midway above the minimum line). There was a minuscule amount of fuzz on the magnet in the tip the dipstick, indicating there are no problems or abnormal wear.

Mag-Hytec has been a part of the Turbo Diesel Register story since near the beginning. The products are fantastic, are repeatedly endorsed by TDR writers, and I've been driving with Mag-Hytec aluminum under my pickups since their introduction in the 1990s. Sometimes the original is still the best.

A few years ago, Banks Engineering introduced their Ram-Air differential cover. Then and now I acknowledge that Banks appears to make good products, and I have installed some of their performance parts in the past. However, I do not buy their insinuation that the Mag-Hytec differential covers are poorly designed and will potentially starve the gearing of lubricant because the covers are flat instead of curved. Then and now I call *bull*.

Millions of miles of higher-capacity lubrication and cooling have been logged with Mag-Hytec, and if there was a design flaw, there would have been countless failures. The Mag-Hytec differential cover was developed by an aerospace engineer specifically to reduce possible lubrication or overheating failures. You can pry my Mag-Hytec away from my cold, dead, rusty axle.

It seemed wise to check the rear axle oil level after a leak. It was fine. No shavings or material to speak of on the magnet in the tip of the Mag-Hytec dipstick.

Air Filter Maintenance

Air filter replacement is not thought about nearly as much as oil or fuel filter changes. My owner's manual says it should be changed every 30,000 miles, which is likely adequate for most environments.

When enthusiasts focus on intake filtration, many think about high-performance options from the aftermarket, which may add a few horsepower at the top of the power band. For the truly high-performance crowd, like racing applications, maybe these make sense. But, do they work just as well as an OEM filter? Are there no trade-offs, only performance gains as the advertising claims?

K&N was and is the brand that most know, but of course there are others and I do not want to discriminate. I'm not saying that all aftermarket filtration is bad, and my experience with them is limited. However, in the past I embraced the almost universally accepted but unverified hearsay about the unquestionable advantages of running a high-flow, cold-air intake in non-racing applications. My 1993, W350 chassis cab had a K&N filter briefly, but then I starting learning what I didn't know from authoritative resources like the Turbo Diesel Register. ***Editor's note: Thanks for the endorsement, but our data often comes from outside reading and data from Ram or Cummins. The most recent report on air filtration was only three years ago: Issue 114, pages 38-41, so I'm not going to do a reprint.***

Essentially the only place for grit to get into the engine is through the intake, and our trucks don't like to breathe dirt any more than we do. There is frequent wind and much blowing particulate matter here in the high desert of Nevada, and I drive off-pavement often. These are arguments for more frequent changes using the best possible filtration media, even if it *might* offer a few less peak horsepower at the top of the rpm range.

The air filter interval for the 1996 F-350 that I owned for 18 years was also 30,000 miles, but I reduced that number to a conservative 20,000 miles. It had a low-tech gauge on the air-box that rarely showed restriction, but I kept an eye on it. I do admit to being lackadaisical in recent years regarding some Fourth Generation Ram maintenance.

Got Service Air Filter Warnings?

Late-model Turbo Diesels have a multitude of sensors measuring all kinds of things. I had never seen the *service air filter* warning on the display of my Tradesman. But, on the final leg of a road trip I observed a check engine light (CEL) and the corresponding P2280 airflow restriction trouble code.

I had been driving briskly up-and-down mountain grades in the Sierra Nevada of Northern California, including occasionally downshifting the G56 manual transmission from overdrive to fifth/direct, and spinning the engine to use all 350 horsepower for high-speed passing of slower traffic.

Service Air Filter warning on my Tradesman EVIC, which was accompanied by a warning bell that continued to chime every few minutes. The Edge Insight scanner showed code P2280, intake flow restriction. The Edge Insight was then used to erase the trouble code.

Have You Replaced Your Air Filter Lately?

Not only did the CEL illuminate, but the EVIC *service air filter* warning continued to popup every few minutes and was accompanied by a warning bell. I was close to home, so I kept the hammer down. Had this happened during the first half of our trip I would have done a quick-and-dirty remove and replace at an auto parts store.

Once home, I popped the hood. I am a fan of having parts on-hand, which include filters purchased from Geno's Garage. Opening the air-box and removing the old Fleetguard revealed that it was *dirty*.

Top of the filter looked just fine.
Lifting the filter out of the air-box told the story!

Old versus new.

Oily and Gritty

Never have I seen air filters so oily and gritty as on my Fourth Generation Turbo Diesels. The backside was clean, so the seal and filter were good, and the media had done its job, but the bottom of the filter and air-box contained a fair amount of oily grit.

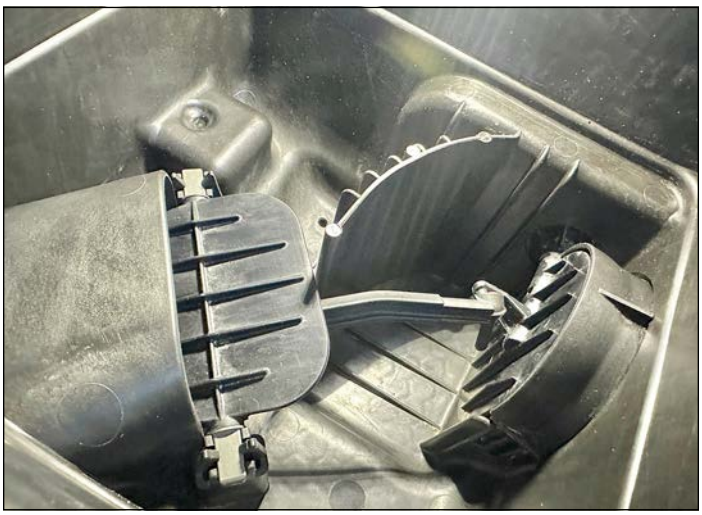
One of the benefits of doing your own maintenance, even the easy stuff, is spending more time on details. Almost no professional technician will take time to do the mundane clean-up work that we can do for ourselves. I am not faulting the mechanic; most mechanic pay is based on *flat rate* hours booked. Working faster and logging more hours equals a bigger paycheck.

The caked grit and grime could be missed without looking closely. A bright shop light directly above the open air-box helped me scrape and remove most of the gooey crud from the bottom half with a screwdriver before wiping it almost factory clean with degreaser. With a rag stuffed into the intake lid tube, blasts of compressed air removed anything loose I couldn't see or reach. My Edge CTS2 cleared the code and check engine light, and a brief test drive afterwards confirmed all was well.

My maintenance logbook has been neglected in recent years, I have just been writing notes on scraps of paper when doing work and not recording them in my permanent books. Likely it has been more than the 30,000 miles since I replaced the air filter in my 2014 Crew Cab. Shame on me, but I am thankful for the modern truck sensor telling me that maintenance was needed.

Editor's note: James' air filter maintenance prompted me and Stan Gozzi to check the cleanliness of our air system. The corresponding (dirty) pictures are on page 99.

Oily grit scraped out of the air-box.



Almost as clean as new. Ram-air actuator reconnected.

TESLA CYBERTRUCK AND ELECTRIC VEHICLES

Editor Patton suggested TDR writers comment on the Tesla Cybertruck…

I try not to be an outright *hater* of electric vehicles (EV), but they certainly don't fit my heavy-duty pickup wants or needs, and I agree with the straight talk about them shared here in the TDR from the other knowledgeable folks including Greg Whale, John Holmes, Kevin Cameron, Jack Baruth, and others.

There is no free lunch and the energy to propel electric vehicles comes from the same power grid that powers everything else in our modern world. According to the US Energy Information Administration, approximately 40% of US electricity generation in 2022 came from natural gas, coal was about 20%, nuclear power 18%, and renewables approximately 20%. Of those renewables the biggest player was wind at 10%, followed by hydro at 6%, and solar at 3.4%. These numbers tell the story… EVs are generally powered by fossil fuels. The emissions are created elsewhere, but that doesn't make them zero-emission vehicles. Let's not forget the tremendous amount of mining that is required, mostly overseas, to obtain the precious metals necessary to make the batteries for which recycling and replacement presents an additional unsolved problem.

Not Enough Truck

One can argue that any traditional body-on-frame *utility vehicle* was or is a truck. I'm thinking old-school here... Suburbans, International Travelalls, the Chevy Blazer, and Dodge Ramcharger. These are considered full-size platforms, emanating from a half-ton or larger pickups. Utility vehicles started to become much less utilitarian a few decades ago and have morphed into luxury boxes. Most rarely do work, and all are now stuffed into the same universal name: SUV. Maybe a large SUV or traditional utility vehicle can still be a *truck*, but the others not so much. To me, the Cybertruck is more modern SUV than truck.

When it comes to hauling big, bulky, and heavy things, the traditional shape of trucks includes a cab in the front and a rectangular box in the back. Whether open or covered, they are designed for heavy loads, and it's a design that has worked well for the intended purpose since the Model T. The fastback style design of the Cybertruck with its power tonneau cover closed is not conducive to hauling bulky things.

Of course, hauling cargo and pulling trailers adds weight, and moving the extra mass requires more energy. Currently many electric vehicles suffer from relatively short traveling range per charge. Even if an EV offers similar range, the lack of refueling infrastructure and the time it takes to refuel (from natural gas, coal, or nuclear power) greatly impacts their utility, particularly for heavy-duty uses. According to a real-world Car and Driver evaluation from March 2024, at 75 mph in moderate 72°F weather, their Tesla Cybertruck made it 250 miles.

https://www.caranddriver.com/news/a60131308/2024-tesla-cybertruck-250-miles-real-world-range-test/.

There was no mention of how long it would take to recharge, but one online source said that the fastest Supercharger would take about 70 minutes. My modified and armored 2014 Ram 2500 with the stock 31-gallon fuel tank, [figuring a pessimistic 15 mpg at a steady 75 mph (regardless of the weather or terrain)] would go about 465 miles. Refueling would take less than 15 minutes.

Then I Saw A Few

Recently I saw my first Cybertruck at a local Costco. The experience reinforced my previous impressions, I'm not a fan. However, I must give them credit for the large tires, a LT285/65R20, which are approximately 34-inches tall.

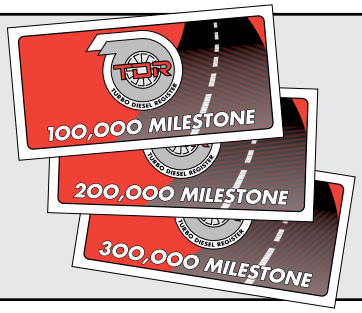
Tesla Cybertruck… need I say more?

Shortly thereafter, I made a trip to the San Francisco Bay Area and saw three Cybers on the same freeway within about 50 miles, a reward for being so close to Silicon Valley. Again, I observed how oddly-shaped they are, and I am skeptical about their utility. They appear to have terrible visibility from inside the truck, but maybe I'm wrong? Or maybe all the cameras and sensors can compensate for what the driver is actually supposed to be doing: Driving.

Drive diesel and tell 'em you saw it in the TDR!

James Langan
TDR Writer
www.RoadTraveler.net
Instagram: @RoadTraveler
YouTube: RoadTravelerNet

TDR/R/R



TDR/REFERRAL/RECOGNITION/REWARD

Thank you for your help in increasing the TDR membership. Your efforts via discussions, copies, and brochures handed out to other Turbo Diesel owners are noted each time a new owner joins us.

This referral program is more important than ever. In the early years, the TDR had support from Chrysler in the form of new truck owner information. With internal changes at Stellantis this information is no longer available. Thus, the TDR membership has to be self-reliant in its marketing efforts.

Many members have asked for additional brochures and have commented about their work distributing the material. For the efforts put forth, you would expect a higher number of responses. Don't be discouraged! Your positive discussions may not immediately net a new TDR member. Many people have the intention, yet find it hard to part with dollars.

Referral

The subscription number listed on the top of your address label is a valuable tool that the TDR uses to keep track of subscriptions and to recognize/reward those TDR members who are active in new subscription referrals.

Recognition

How do you participate? It's easy. On the TDR brochures that you pass out in a "grassroots photo-copy membership drive," or on an original TDR brochure, be sure to include your name and subscription number. As new subscribers join us, we'll check the application for a referral name/number. Then, we will recognize TDR members for their participation in the "TDReferral/Recognition/Reward" column each quarter.

Reward

Recognition is great, but how about a WIIFM (what's in it for me)? How does this sound? For your help in expanding the membership of the TDR, we will send you a Cummins Diesel Power cab plate. I love incentives, don't you?

Let's give away some money. It's fun to get a surprise cab plate in the mail. But we would like to add a bit of excitement to the TDR/R/R program. Here is the deal. For each referral, we will put your name into a hat for a quarterly prize of $100. Obviously, numerous referrals per quarter increase your chances of winning. Our winner this quarter is Geoffrey Putnam.

RICHARD PAYNE
MIKE BERTI
WYATT OWENBY
GEOFFREY PUTNAM
RICHARD SZKLANY
DON ANGELECHIO
JIM MURRAY

HIGH MILEAGE RECOGNITION

In Issue 22 (Fall '98) we started a program to recognize and reward high mileage Turbo Diesel truck owners. We developed a TDR milestone tag to commemorate mileage achievements. Proof of mileage by a photo of the outside of the truck and a picture of the odometer is appreciated. (If you can't get a good focus on the odometer, we'll trust you.)

If you would like a high mileage tag, please send in your photos. Include $5 in postage or cash to cover the shipment. Tags are given out at 100,000 mile increments, up to 200K. At 300K, 400K, and 500K we'll send a decal. These decals are sent at no charge. Just send in your photograph and address.

This quarter we sent a 100K tag to:
Michael Pierson

This quarter we sent a 200K tag to:
Ian McIntyre George McFadden

This quarter we sent a 400K decal to:
Michael Pierson

HIGH MILEAGE RECOGNITION

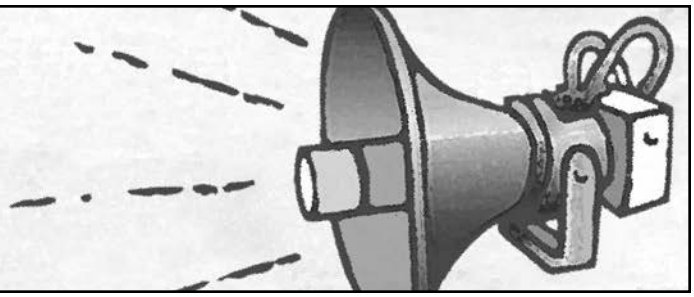
Nick Caurro 400K

Michael Pierson 100K

Ian McIntyre 200K

George McFadden 200K

THE REST OF THE STORY



Stan Gozzi retired from Chrysler in 2017.
He has graciously agreed to stay active in this hobby.
His column "The Rest of the Story" will give you a glimpse of the trials and tribulations that the factory guys have to endure.

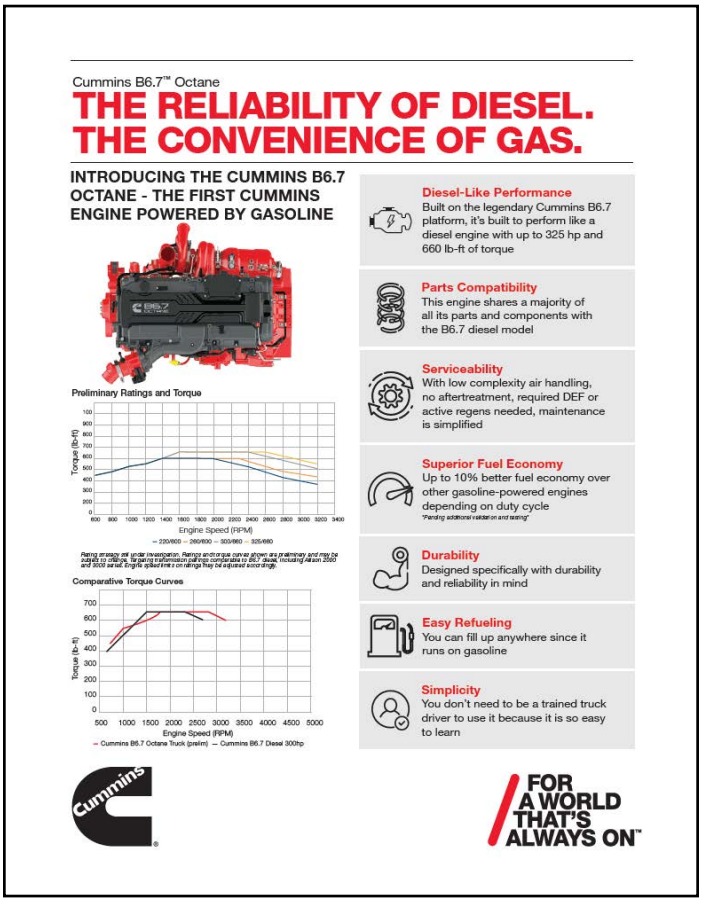
PRODUCT RUMORS

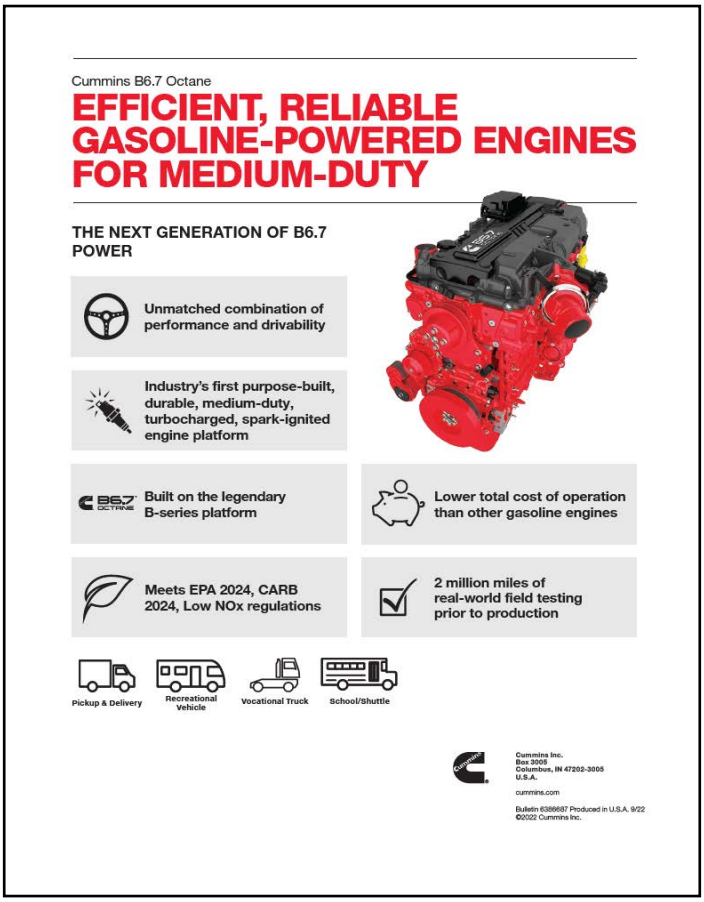
The editor-dude suggested two topics for this issue. What rumors have you heard concerning a new product, and the time honored, "What have you done to your truck lately?"

We will start with new product rumors, but this first one isn't a rumor, it is actually in limited production for testing. It is the first-ever Cummins gasoline-powered engine. It is called the Cummins B6.7 Octane. It is being developed along with another family of engines, called the Fuel-Agnostic line of engines that are capable of running on diesel, natural gas, gasoline, and propane. They are planning 6.7, 10-liter, and 15-liter engines for Medium and Heavy-Duty applications.

The specifications on the 6.7 gas are pretty impressive (see Fact Sheet). Testing shows 325horsepower and 660torque. They are advertising 10% better fuel economy than other gasoline powered engines. With Chrysler's Hemi line of engines replaced by the twin turbo, Hurricane straight-six engines, this could make a nice alternative for Ram HD trucks, for those customers that are looking for excellent performance without the diesel price premium. That is assuming that the pricing will be significantly less than a diesel option. Logically, it should be, as the major cost of a late model diesel engine is represented by the fuel system. Who knows if Ram will tap this engine for HD trucks? We can only speculate that it becomes an option.

Speculation: There has been a lot of it lately on the forums concerning a new transmission for the Ram HD Turbo Diesel trucks. As far as I can tell, it is just speculation. I have no evidence to support the rumor. Although, adding a medium duty ZF sounds like a reasonable solution to compete with GM and Ford 10 speed transmissions. I have a buddy with a 2022 Ford F-350 and the 10 speed shifts flawlessly. It is so smooth; unless you watch the tach you can't tell when it shifts.





Cummins B6.7 Octane flyer. Very impressive numbers for a gas engine.
It is advertised as medium and heavy-duty applications, but not specifically for Ram. We can hope.

TRUCK UPDATES

What have I done to my truck since last issue?

Actually, not too much. This past semester was my last one teaching at the college. I can't believe it has been 8 ½ great years since I retired after 36 years at Chrysler. It just feels like the right time to retire "for real" and do some traveling. It seemed that with school two days a week, and life getting in the way, there just was not time to do all the fun stuff we wanted to do. So, in mid-May, we packed up the truck and trailer and headed east for five weeks.

Maintenance at 67K

My Ram Turbo Diesel has 68,590 miles and the Perform Service message just showed up in the cluster. Luckily, I always keep spare filters on hand, so it was finally time to change the PCV filter. It is a pretty simple task, a few bolts, one hose, one electrical connection, and the filter is ready to be changed.

Carefully inspect the silicone perimeter seal for any damage (there shouldn't be) and wipe it clean. Lube up the O-rings and press the new filter into place. Button it all back up, making sure to torque the cover bolts to 89-inch pounds, fire it up and check for leaks. All in it was about 15 minutes to complete the job. It's hard to believe what shops charge for these things.

Now comes the hardest part, resetting the reminder. Sounds really easy, but apparently it was just too difficult for me to understand the five simple steps. ***Editor's note: It takes longer to reset the "reminder" message than it does to do the maintenance.***

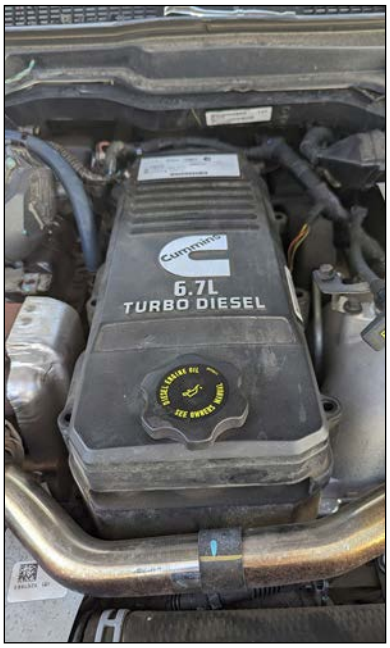
- Turn the ignition switch to the ON position, but do not start the engine.
- Depress and release the brake pedal two times.
- Fully depress and release the accelerator pedal slowly two times within 10 seconds.
- Turn the ignition switch to the OFF/LOCK position.
- Restart truck to check that message was reset* (I added this step).

*It indicates that if the procedure is not successful, repeat the steps, apparently as many times as necessary.

The first couple times at resetting "Perform Service" I was not successful, and I noticed something strange when pressing the brake. Unlike a vehicle with vacuum assisted brakes the pedal went partially down then became very hard. Our trucks use a hydraulically assisted booster using hydraulic pressure from the power steering stored in an accumulator to provide assist if the engine dies. You should get two power assisted stops before the pressure is used up in the accumulator. The pedal felt significantly different than vacuum assist, almost impossible to press it all the way to the floor. Not good or bad, just different.

Maybe I was overthinking it, how hard to press, all the way to the floor, slowly, quickly…..

After about five unsuccessful attempts, I started thinking perhaps I need to have the door shut, and just in case, the seat belt buckled. No joy. A few more unsuccessful tries and it was time to get out wi-Tech and see if there was a reset procedure in the factory scan tool. Nope, no such procedure exists. I tried a few more times.



PCV cover ready to come off.

OEM filter that lives under the cover. It simply pulls up and is held in place with two tubes and O-rings.

This is actually the valve cover. Just check the white perimeter gasket for condition. Wipe it clean, lube the O-rings with some oil and press the new filter in place. Reinstall the cover and torque the bolts and studs to 89-inch pounds.

Stan Does the Message Reset Hokey-Pokey

The reset procedure that finally worked was two quick presses of the brake pedal, just enough to turn on the brake light switch, followed by two slow presses of the accelerator pedal all the way to the floor. I'm saving up for a new starter for when it goes bad from all the additional engine starts to reset the message. Good thing this only needs to be done every 67,500 miles! And in case you have never had to reset your reminder, the procedure is nowhere to be found in the Owner's Manual or the Diesel Supplement. In the supplement manual, it directs you to the factory service information for the reset procedure. If you didn't have access to a factory service manual and you were not a member of the TDR, you would likely have to make a visit to your friendly dealer. Google was so much faster than looking at the Owner's or Service Manual. It even comes up with results from fellow TDR members. ***Editor's note: I've not yet reset my "fuel filter change" message. Oh, well...***

If you didn't have access
to a factory service manual
and you were not a member of the TDR
you would likely have to make
a visit to your friendly dealer.

I also took a look under the truck to see when I last changed the differential fluid. I use an ink pen to write the mileage on the cover. The last change at 44K. Back to the shelf for four bags of Amsoil fluid. Since I was running out of time before the trip (and I have never found any metal in the differential), I opted for the suck and fill method many of the dealers use. Okay, I can hear the dissenters now, you should always pull the cover to determine the health of the differential and get any bad stuff out. Well, if it's bad, we're leaving anyway, because we have fun things to do for the next five weeks and I will deal with it when it fails. On a positive note, the fluid looked almost clear coming out, not bad at all for 23,000 miles on it, with a significant number of miles of light towing.

Well, if it's bad, we're leaving anyway...

Next up was a quick rotation of the tires. The fronts were 1/32" taller than the rears, so on the rear they go. On our last cross-country trip, the one to the Cummins 100-year anniversary/TDR get-together in Columbus, Indiana, the OEM tires wore in the rear significantly more than the fronts. It will be interesting to see, now that I have measured, rotated, and properly inflated, if the BFG K02's performs better. For all the trash talk about the OEM TransForce tires, I hope so.

USED TRUCK GRID HEATER

One of my students purchased a 2017 Ram Turbo Diesel a couple months ago. He decided to delete the OEM grid heater and install the Black Market Performance spacer and screw-in grid heating element (Issue 120, page 78). It is a block of aluminum about 2"thick that is mounted to the intake air horn between the horn and the CAC cold side hose. The installation is fairly simple except for the close fit of the spacer block and the Allen head longer screws included with the kit. There is little room to work, and a long-reach ball-end Allen socket would make the installation much easier. Once installed, he started getting a P2609 grid heater performance code. We hooked up wi-Tech and actuated the grid heater relay using the scan tool. The relay clicked, but there was no current flowing to the grid heater, as measured by a clamp on the amp meter. Thinking it was a defective heater element, we removed it, reattached the lead, and grounded it with a jumper cable. It got hot quickly, and the amp meter now showed 51 amps. We determined that it must have had a bad ground to the heater.

Inspecting the installation, there is a red gasket on both sides of the spacer block (see photo) that does a great job of insulating the spacer from the air horn. There is no direct ground path. We thought about drilling and tapping the spacer for a ground stud, but instead tried clocking the spacer in one direction to get one or more of the mounting bolts to contact the spacer. Once all the bolts were loose, I twisted the spacer while the student snugged up the bolts. Once tight, a second check found the grid heater now drawing 51 amps and working properly. So far, the CEL has remained off. They should probably include a note in the instructions or provide a spot on the spacer to attach a dedicated ground.

Black Market Performance Grid Heater Relocation Kit. It is installed between the air horn and cold CAC pipe. Notice the red gasket above and below the spacer. It acts as a perfect insulator so unless one of the mounting bolts is touching the spacer to provide a ground path, the heating element will not operate.

AIR FILTER SHOW-N-TELL (MAINTENANCE STORIES)

On page 92, James Langan shared his air filter maintenance story with us. Unfortunately, he had not logged the data on the previous maintenance interval. Yep, it was dirty and a diagnostic trouble code (DTC P2280) "Intake Flow restriction" let him know it was time for service.

Others have commented on the dirty nature of the air filter when it is serviced. Below are three pictures (four if you count James' on page 92) that should give you peace-of-mind. Nothing is wrong, it's just that a diesel engine uses a lot of air and our filters get "ugly" in a short amount of time.

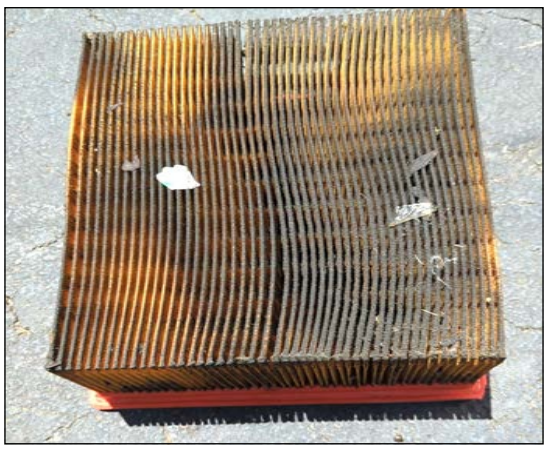
Along with the "dirty" comments, TDR members frequently ask if exhaust gas recirculation (EGR) or crankcase vent fumes could contribute to the dirty, oily nature of the front side of the filter element.

EGR is reintroduced far downstream of the air filter, at the EGR valve, just past the air grid heater. Crankcase vent fumes are separated at the "big box" that Stan serviced on top of the engine.

Outside air is the only thing that reaches the front of the air filter.

Stan and I talked, neither of us have a good explanation for the dirt and grit you see in the air filter pictures.

The filter from Stan's student's truck, a 2017. Mileage unknown.



Stan's air filter after 35K miles.

The editor-dude's air filter after 22K miles.

Editor's truck: The 2019 and newer trucks: Air ducting from the top of the radiator/lower lip of the hood.

Fresh Air for Your Truck

However, in our air filter box/air filter maintenance, we did compare the fresh air inlet locations.

Observation (discovery!):

2010-2012: Fourth Generation trucks – no "Ram active airbox," air is from the fender well area.

2013-2018: Ram active airbox. Air is from the fender-well area and "Active Air" from the front radiator area.

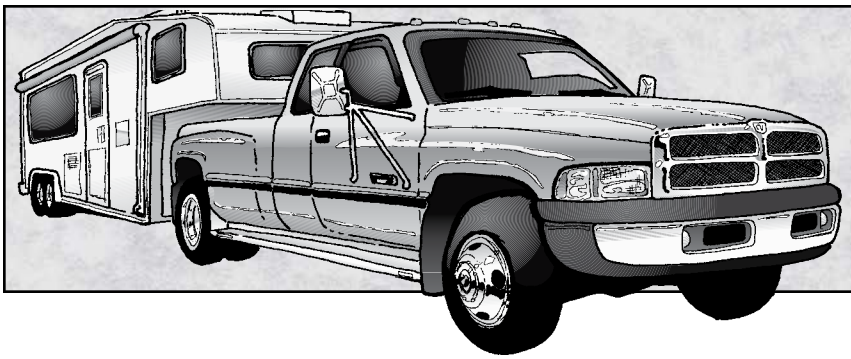
2019-2024: Fourth Generation.5 with new 6.7CGI engine – no active airbox, air ducting is from the top of radiator/lower lip of hood.

Mopar shows two filters: one for 2019-2024 and one for 2007.5-2018

Fleetguard shows one filter for all 2007.5-2024

Next issue, watch for an update on how our trip went. Hopefully uneventful.

Stan Gozzi
TDR Writer



TDRV

The TDRV column focuses on towing with your truck for work or play. It covers towing accessories and products, related technical discussion, and TDR member experiences. This column is edited and written by Doug Leno.

INTERESTING READS: BRAKES AND HITCHES

Like most RV enthusiasts, I choose social media outlets where the "signal to noise" ratio is low. For example, customers of Alliance RV (the manufacturer of my fifth-wheel), gather and exchange tips and advice in closed Facebook groups that are well moderated and where the manufacturer has a strong presence. It's generally good reading.

Within this and other RV-themed social media outlets, I have observed two recurring subjects that are not well understood: Disk brake conversions for trailers and the physics of fifth-wheel hitches for short bed trucks. My purpose for this issue's column is to add some clarity to these two subjects.

Disk Brake Dopamine

You may be wondering why I think this topic isn't well understood. The short answer is that people generally like disk brakes but might not understand why!

Understandably, many wonder why 120-year-old drum brake technology is standard equipment on modern recreational trailers. The reason is cost and market acceptance: RV axle manufacturers such as Lippert are the leaders, supplying inexpensive electric drum brakes as standard equipment in high volumes. Tow vehicle manufacturers are the followers, producing electric brake controllers as standard equipment. I happen to be very pleased with Ram's integrated brake controller supplied with my 2022 Mega Cab. More on that later.

These discussions lead to the inevitable questions: Should I purchase the manufacturer's disk brake upgrade option on my new trailer?[1] Should I purchase an after-market disk brake conversion? While the topic is interesting, I have to acknowledge that my trailer stops just fine with factory drum brakes! I know this because I can adjust my brake controller to the point where my trailer tires lock up. And, I've even experimented on severe downgrades in the mountains of Wyoming just to see if I could demonstrate brake fade or inferior stopping power that might contribute to an accident. I could not.

Would disk brakes lock up my trailer wheels better? I'm reminded of the editor's comment in Issue 97's TDRV column: "Tire traction stops the vehicle. If you want shorter stopping distances, consider new tires. Also, press the brake pedal harder."

The Disk Dopamine Determination

I have yet to see any negative comments regarding a hydraulic disk brake conversion or a well-chosen factory disk brake upgrade. Everyone likes disk brakes! Comments range from "I feel more secure" to "I have greater stopping power" or even, "you won't believe the difference."

Everyone likes disk brakes!

I wanted to get in on this disk dopamine too. Was it the satisfaction of having invested in more expensive, automotive style safety components, or was there some objective measure of success? While nearly everyone in my research described an improvement in stopping performance, no one could quantify it, not even with an approximate percentage. I even reached out to one reputable disk conversion company, who repeated all the standard lines (above), but could not tell me that disks would stop my trailer faster, given that I can already achieve lock-up.

I'm reminded of the Scottish-Irish physicist, Lord Kelvin[2], who provides this insight: "When you can measure what you are speaking about, and express it in numbers, you know something about it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely, in your thoughts, advanced to the stage of science." ***Editor's note: If you can't explain a concept to a five-year old, you don't understand it.***

1 When purchasing my trailer, I declined the disk brake upgrade because I identified a superior solution in the aftermarket!

2 Fun fact: Lord Kelvin is the inventor of the absolute temperature scale that bears his name.

Searching for the Numbers

It was time to "know something" about my trailer brakes. My research started with TDR Issue 97. From that article you know that the editor recommended searching for quantifiable numbers.

Editor's note: Oops, I don't remember Issue 97. That was August 2017, it's now 2024. Here is a recap: In "TDRV" TDR member Paul Odegard retrofitted his Excel fifth-wheel (30-foot) with a Kodiak conversion kit that was installed by Humphreys Hitch and Trailer Parts, Pensacola, Florida, (850) 941-4010. The website: humphreyshitchandtrailerparts.com. (Yes, they are still in business.) A Trailer Life (remember that magazine) had discussed the conversion in an August 2016 feature article. The TL folks noted stopping distances of "up to 50% less."

In his write-up, Paul noted that the conversions range between $2000-$3000. Also, he summarized: "The 'seat of the pants' feeling of safety, comfort, and smooth braking I felt within the first 10 miles of driving, both in town and on the highway, quickly showed me that this was going to be a great ride. Further trips have shown that this conversion works as advertised. Testing further has shown that the trailer brakes now have enough capacity when used alone to stop the whole truck/trailer combination in an emergency. They're strong!"

Additionally, Paul noted these disc brake features. "There are several advantages in a disc brake setup. Disc brakes are self-adjusting and can better dissipate heat buildup during repeated brake use. The frequent wiring problems of drum brakes such as electrical shorts and open circuits due to flexing and vibration are eliminated. Finally, is there a price for 'peace of mind'?"

All of the preceeding are compelling purchase considerations.

However, without data, (Where is the TL chart? Was there a chart?) the editor-dude was skeptical. I closed my comments with the following: "Seriously speaking, assuming you have the traction, the advantages Paul listed about disc brakes (self-adjusting, better heat dissipation, less wiring problems) are valid purchase considerations. Yet, in an effort to save you money, please remember stopping is only as good as the traction. Now, the question of the day: Have you taken the time to really dial-in your trailer with its old drum brakes? You have? Go forth and further investigate disc brake kits."

It looks like that will be Doug's next move. For now let's get back to Doug's report.

I've had good confidence in my brakes ever since purchasing my trailer, although I did switch braking profiles from "heavy electric" back to "light electric." You're about to see why.

So, the question of the day: Have you taken the time to really dial-in your trailer with its old drum brakes?

I spent several hours over several days over various road conditions experimenting with different settings. I wasn't satisfied with the standard rule of thumb, which is to adjust controller gain until the trailer brakes alone can stop the combination while rolling on level pavement at idle (with tow vehicle transmission in gear). To be sure, this is a good first-order approximation, but it assumes that calibrating the braking profile at idle speeds will always deliver good performance under highway conditions and hills. It won't.

The table below shows the results of my experimentation.

Brake Controller Gain	Light Electric	Heavy Electric
3		Truck slightly leads trailer
3.5		Good on the highway. Too grabby in town
4		Trailer leads truck.
5	Truck severely leads trailer	Trailer severely leads truck.
6	Truck slightly leads trailer	
7	Very close, but truck still leads	
7.5	** Goldie Locks! **	
8	Trailer leads truck too much	Did not test.
9	Trailer severely leads truck	
10	Did not test	

Observations

My take-away: I was able to show that "light electric," with a higher gain setting, performed better than "heavy electric" and a lower gain setting. This is likely the biggest reason why my trailer stops just fine with drum brakes: the braking profile matches the brakes. Additional observations:

- Recreational trailer owners depend on the brake controller manufacturer to design the right profile or to provide configurable choices. For example, one popular after-market brake controller, the Tekonsha P3, provides the familiar "power" (or "gain") control but also provides three different "boost" settings to accommodate trailers of different weights. The more expensive Curt TriFlex NEXT controller supplies nine different "load" settings in addition to 10 different gain settings.

- While Ram engineers haven't provided as much flexibility as Tekonsha or Curt, they know that one size does not fit all: Ram has provided four different profiles: Two for standard electric drum brakes and two for "electric over hydraulic" disk brakes.

- I know that I can calibrate my brakes using the "idle speed" rule of thumb, and that the braking profile of "light electric" provides the right performance even under emergency situations.

Conclusion(s)

Everyone's trailer is different. With a pair of 7,000-pound (rated) Dexter axles and only 15,000-pounds Gross Vehicle Weight Rating, some might argue that my trailer has a drum brake advantage, compared to others. It may be unusual to see this kind of engineering margin in the industry, but I don't think loading my axles at 15% below their rating explains my braking performance[3].

Beyond the subjective peace of mind of having invested in automotive style safety components, the source of disk brake dopamine is now clearer to me: Disks must provide a better braking profile or marriage with the brake controller.

Some additional conclusions:

- Some brake controller/axle combinations may deliver insufficient stopping power with the standard drum brakes! Trailer manufacturers are not required to prove that a brake controller they didn't design will lock up the drums on an axle they didn't supply, in conditions they can't test.

- While it takes a considerable time investment and might cause some minor discomfort among passengers, I find that it is important to test for lock-up and to verify emergency braking performance under controlled/safe conditions. This is far more reliable than configuring braking performance at idle speeds, hoping you never have to test the unthinkable.

I close this segment with the observation that modern recreational trailers are an interesting assembly of commodity "off the shelf" parts – usually with very little engineering margin. Alliance RV, for example, could have supplied my trailer with a pair of 6,000-pound rated axles and still "met" the loading conditions intended by Lippert, the axle supplier. What does that 6,000-pound rating really mean? Generally, it means that the brakes supplied on the axle will stop the rated weight. It's just that Lippert does not manufacture brake controllers!

However, as it turns out I'm still interested in disk brakes, because of their well-known benefits that Paul spoke of back in Issue 97. Also, consider that RV drums are notorious for wiring failures and inconsistent braking performance due to internal mechanical issues. Drum brake shoes are also more difficult to replace, compared to disk brake pads, the latter of which are readily available at local auto parts stores.

There's probably some disk brake dopamine in my future, after all.

Doug Leno
TDR Writer
Rvdoug.com

3 A quick calculation with nice round numbers shows that with 20% of GVW on the pin (3,000 lbs.), my fully loaded trailer puts 12,000-pounds on 14,000 pounds of axle. That's only 15% of design margin.

FIFTH WHEEL HITCHES FOR SHORT BED TRUCKS

For owners of fifth-wheel trailers and short bed trucks, there is only one way to avoid striking the cab while maneuvering through a sharp turn: Locate the pin further behind the cab. There are only two ways of accomplishing this: Move the pin further way permanently, under all driving conditions, or move it away temporarily, only during the turn itself. This latter choice can be either automatic or manual.

The purpose of this segment is to discuss the engineering physics of two popular solutions to this problem. Spoiler alert: These two solutions, despite their tremendous weight difference, apply approximately the same weight to the tow vehicle's rear axle! Now that I have your attention, let me summarize the two choices:

- Pullrite: The Pullrite "SuperGlide" is an auto-slider type hitch that moves the pin further away from the cab as the turn angle increases towards 90 degrees. Under normal driving conditions, this hitch locates the pin directly over the tow vehicle's rear axle, where it should be. I'll be discussing the model 2315 hitch, which is essentially a PullRite model 2300 that drops into the Ram factory puck system. The downside? it weighs 298 pounds!

- Andersen: The Andersen pyramid style hitch permanently locates the pin 9.4375" behind the axle, in the only configuration that moves the trailer's front cap far enough away from the cab to be useful. I'll be discussing the Andersen solution simply because of its popularity and because its dimensions (notably how far behind the axle it locates the pin) are published.

Discussion of this subject in the various forums usually goes something like this:

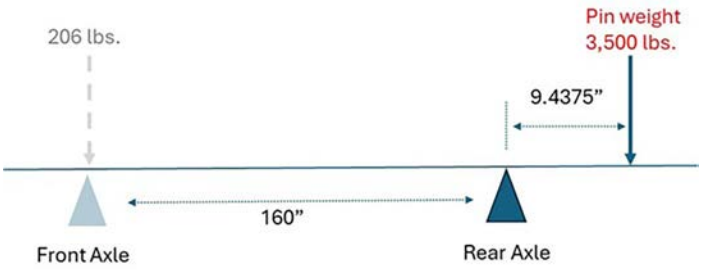
Q: I want to accommodate a sharp turn without striking the cab. Should I get a Pullrite SuperGlide or the Andersen Ultimate (pyramid style) hitch?

A: Get the Andersen. Why would you add 300 pounds to your truck bed if you don't have to?

Score one for Andersen? However, a more thoughtful answer to the question involves a simple teeter-totter analysis to see what happens when you locate the pin behind the tow vehicle's rear axle. Note that I'll be addressing only the static weight portion of the issue, and not the stability disadvantages of doing this. That's a subject for another day. To be fair, I'll assume that anyone using the PullRite 2315 hitch has a heavy trailer, as this is the beefiest solution the company has to offer: I'll use a pin weight of 3,500 pounds because that's a nice round number, and 25% of my trailer's 15,000-pound Gross Vehicle Weight Rating (25% is generally accepted to be the maximum recommended pin weight).

A more thoughtful answer to the question involves a simple teeter-totter analysis to see what happens when you locate the pin behind the tow vehicle's rear axle.

Note that the Andersen hitch locates the pin 9.4375 inches behind the axle, providing very effective cab clearance for most 96" wide trailers, although it won't do for my 101" wide trailer. A schematic diagram of this configuration is shown below:



As you can see, I'm using a truck wheelbase of 160 inches, modeled with the teeter totter fulcrum at the rear axle. The question is this: How much weight must go on the other end of the teeter totter (over the front axle) to achieve balance?

The answer is roughly 206 pounds. Of course, there's a lot more than 206 pounds holding our front axle down (the engine, among other things), so we aren't pulling a wheelie here. What's important is that with 3,500 pounds on the pin, the front axle is now 206 pounds lighter. That means 206 pounds is transferred from the front axle to the rear axle. The more generalized equation is this:

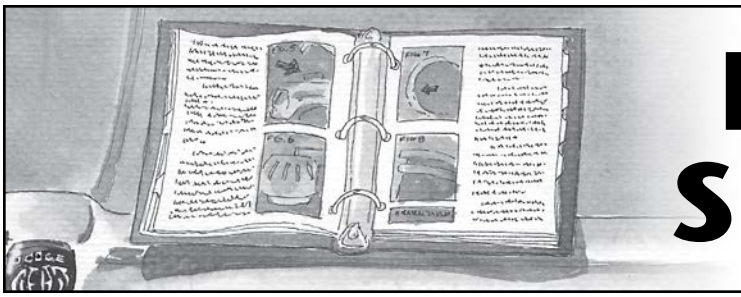
$$weight\ transfer = (pin\ weight)\frac{(distance\ behind\ the\ axle)}{(wheelbase)}$$

$$= (3{,}500\ lbs.)\frac{(9.4375)}{(160)} = 206\ lbs.$$

The Andersen hitch itself weighs approximately 35 lbs. Add 15 pounds for the gooseneck ball itself that is required for such a mounting solution, and we now have a hitch that weighs 50 pounds. Add 50 pounds to the 206 pounds transferred from the front axle and guess what: That super-light 35-pound hitch has just added 256 pounds to the rear axle! Wait – that heavy auto-slider weighs only 42 additional pounds! For 42 more pounds on the rear axle, you have an over-engineered puck-mounted auto-slider capable of 6,000 pounds of pin weight.

Of course, the transfer of weight from the front axle to the rear does not impact the total gross weight of the tow vehicle, but it does contribute to the total rear axle load. My point: The next time you consider the heavy weight of an auto-slider, consider the transfer of weight from the front axle that results from permanently locating the pin behind the axle.

Doug Leno
TDR Writer
Rvdoug.com



From The Shop Floor

Tips From Turbo Diesel Repair Shops.
In previous TDR magazines we've had input from repair shop locations, and we've scattered the articles throughout the magazine. In this issue my thanks again goes to TDR Writer and Master ASE Technician Andy Redmond. Andy operates a one-man, specialized repair shop in the north Dallas, Texas, suburb of Plano. I'm hopeful you'll enjoy the insight that Andy brings to the magazine.

ONE THING LEADS TO ANOTHER

A customer's 2017 Ram 2500 came to us for exhaust manifold gasket replacement. Several were leaking and squealing when the exhaust brake was actuated and the engine was cold. Oh, by the way—please locate the low heat output in the interior and the brake squeak.

One way to make this job easier is to use a front wheel drive, power train support bracket. (Hey, I have lots of different tools here at the shop.) The makeshift bracket allows you to support the exhaust manifold with turbo and downpipe attached.

Brackets used to support the exhaust manifold.

The replacement procedure: Remove the EGR cooler. Then position the support bracket and attach it to the exhaust manifold. Support the assembly. Loosen the manifold bolts, then change one gasket at a time. Follow your factory service manual torque pattern/specifications afterward. A flex head, stubby 3/8" drive torque wrench shines here also. The gaskets were replaced with Mahle gaskets

Exhaust manifold gaskets, what a pain they are to replace.

Tepid Heat

The low heat concern was greatly improved by doing a much-needed coolant flush. The heater core was filled with C-L-R cleaner, soaked overnight, and follow up with several distilled water flushes. I had the owner ante up for a new Mopar coolant reservoir. It was a mess.

Old coolant reservoir, what a mess.

Brake Squeak

The brake squeak was easily located. There was very little lining material left. A brake job is much more than a quick "pad slap." I use Akebono brake pads or the OEM pads from Mopar.

I use a "Mityvac" pneumatic vacuum bleeder to suck the old nasty fluid from the master cylinder. Then I refill the master cylinder with new brake fluid. Next, I depress the brake pedal half way. A pedal depressor is handy, but a length of 2x4 with the ends wrapped with rags to prevent damage to your upholstery will suffice.

Begin fluid evacuation at the right rear caliper, followed by left rear, right front and then the left front. (Be mindful that the master cylinder does not run out of fluid). After the fluid is clear/clean, remove the bleeder and pedal depressor.

Next, use a caliper press tool (and an old brake pad as a shim) to push the brake pistons back in.

Service the pads and replace the stainless hardware. Upon completion, slowly depress the brake pedal several times before attempting to operate the vehicle. Recheck the master cylinder fluid level.

WHAT'S IT GONNA BE?
A 2001 NO-RUN PROBLEM

Recently a 2001 Turbo Diesel was towed to the shop. The engine abruptly stopped while idling after a cold start. Several modifications were noted: An Edge fueling module and a Fass Fuel pump. After recharging the dead batteries, I didn't hear the Fass pump buzz or run when the ignition key was "on." This could be a big problem.

What's it gonna be? A failed PCM, a failed VP44 injection pump, a failed ECU, an open fuse, an open fuse caused by wiring damage?

To begin troubleshooting, I had no battery voltage at the PCM or ECM. Did I check the fuse? I went to the fusebox for a look at "Fuse 3." I replaced the fuse, and eagerly switched the ignition on. The "no bus" message was gone and the Fass pump ran for a few seconds. Next the scan tool was connected, which pulled some DTC codes from the modules—a P1689 (communication to injection pump) being the primary concern.

Now what?

Our bus seems solid, so why does the truck crank, but not start? Even more worrisome, why did Fuse 3 (20 amp) "blow" to start all of these time-consuming diagnostics? Could the Edge programmer's pump tap/splice crimp circuit tap at the injection pump module be blamed? (Oooh! I might be on to something.)

Next the apps/bell crank assembly at the VP44 injection pump was removed for an inspection. The Edge tuner's pump "tap" wire was missing insulation (rodent damage), allowing the wire to short on fuel line bracketry. Problem found? Maybe, but why didn't this open or "blow" Fuse 9 (10amps) in the junction block (inside the truck on left side of instrument panel)? It was at this point that I asked the customer if we could remove the Edge programmer and the associated wiring that was "rodent damaged."

Yep, problem solved.

Andy Redmond
TDR Writer

2024 AMELIA ISLAND PICTURES

A stunning 1947 Delahaye 135 Roadster. The pink canvas top is a contrast to the deep, deep pink body color.
Broad Arrow auction: Expected sale price $650-850,000.

PRODUCT TDR SHOWCASE

New Product Discussion

TRANSFER FLOW FUEL TANKS

by Joe Donnelly

I'm often asked about modifications that I've made to my 2013 Turbo Diesel. Back in Issue 83, pages 78-87, I talked about the addition of a Transfer Flow 75-gallon fuel tank. In my 10 years of ownership the Transfer Flow unit has served me well!

75-gallon Transfer Flow tank installed in my 2013 Ram.

I stay in touch with the TF folks and, most recently, we talked at the November 2023 SEMA Show. They asked if I could update the TDR audience on their latest product(s) for our trucks. "No problem, I'm glad to do it!" was my response.

I really am a fan of their metal-construction tanks. Sure, they are heavier than the plastic tanks, but that drawback is overshadowed by the features of metal: It can take abuse and temperature variation much better than plastic construction. Here is a feature/benefit discussion.

I really am a fan of their metal-construction tanks.

Transfer Flow's metal fuel tanks are known for their exceptional durability. Their tank systems are expertly crafted with high-quality materials, specifically 12- and 14-gauge high-yield US aluminized steel. Plastic tanks, on the other hand, are more susceptible to damage from external factors and can crack or rupture in harsh conditions.

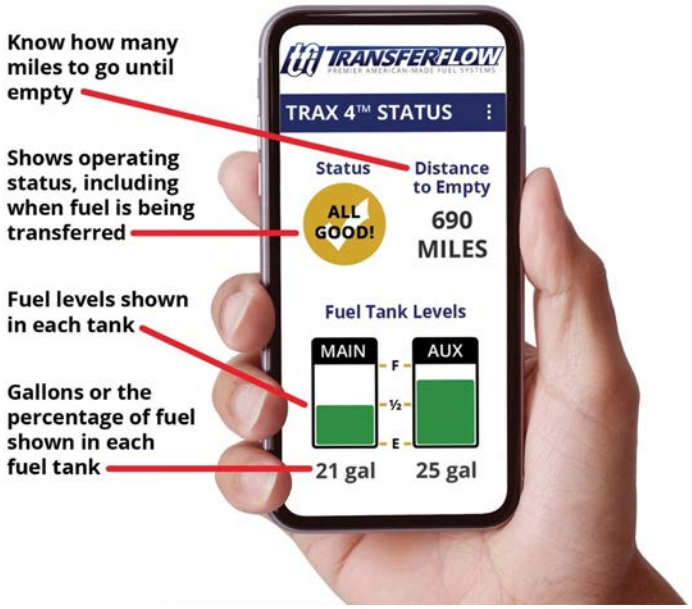
Metal fuel tanks have a proven track record of longevity. Transfer Flow has been utilizing aluminized steel for 40 years for both our aftermarket and OEM fuel tanks. Plastic tanks may deteriorate and weaken over time, leading to potential leaks and costly repairs.

Metal fuel tanks offer better protection against external forces and impacts compared to plastic tanks. Whether you encounter rough terrain or unexpected road hazards, their metal tanks provide an extra layer of security. Plastic tanks are more vulnerable to punctures and damage from your more robust travels.

Metal fuel tanks are better at withstanding extreme temperature fluctuations, ensuring your fuel remains stable regardless of the climate. Plastic tanks can be more prone to expansion and contraction, potentially leading to fuel leaks in extreme temperatures.

Transfer Flow Tank Operation/Control

The TRAX Operating System by Transfer Flow is the next generation in fuel management.



Transfer Flow TRAX-4

Designed for truck enthusiasts and professionals alike, this innovative system is here to revolutionize the way you monitor and manage your vehicle's fuel:

- Advanced Fuel Management : TRAX 4 is a computer-controlled system that efficiently manages the transfer of fuel from your Transfer Flow auxiliary tank to your truck's main fuel tank. This smart technology ensures optimal fuel levels for uninterrupted journeys.

- Real-Time Monitoring: With the TRAX 4 app, available for both Apple iOS and Android, you can easily keep track of your fuel status. This user-friendly app allows you to monitor the fuel capacity of both your main and auxiliary tanks in real-time, giving you complete control over your fuel resources.

- Customizable Display Options: Tailor the app to your preferences by choosing to display fuel levels in gallons or as a percentage. You'll always know exactly how much fuel you have at a glance.

- In-Cab Fuel Level Monitor: For those who prefer a more traditional approach, Transfer Flow also offers an optional in-cab fuel level monitor LCD. This easy-to-read display provides a bar graph showing the fuel level in your auxiliary tank, decreasing as fuel is transferred.

Joe Donnelly
TDR Writer

Contact information:
Transfer Flow
1444 Fortress Street
Chico, CA 95973
www.transferflow.com
800-442-0056

TDRELEASE

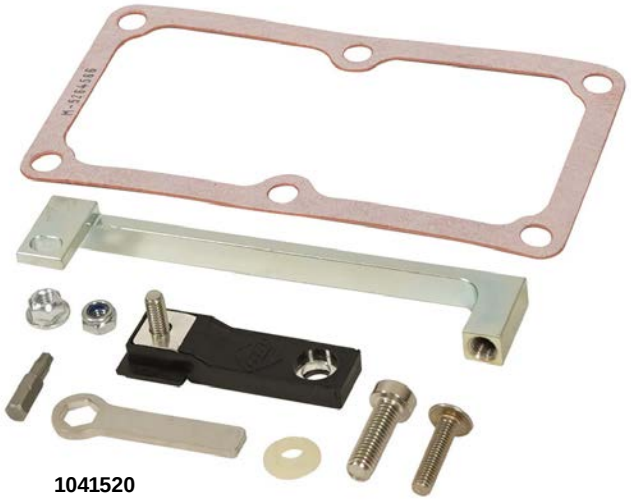
Press Releases from Turbo Diesel Vendors.

KILLER GRID HEATER UPGRADE FROM BD

BD Diesel performance is pleased to introduce a grid heater upgrade kit for the 2007-2024 Cummins 6.7-liter engines. The kit features include:

- Eliminates the problematic grid heater bolt and nut that could lead to engine damage
- Self-locking threads built into the lower busbar which will prevent the connection from backing out and compromising the electrical connection
- Kit includes replacement hardware and gaskets, along with special tools required for the job
- Allows for full heat output with the stock intake grid heater
- Easy installation with no modifications or tuning required
- Is fully emissions compliant

The price of the kit (1041520) is $195.95.



1041520

Contact information
BD Diesel Performance
33541 Maclure Road
Abbotsford, BC, Canada V257W2
800-887-5030
us.bdpower.com
us.bddiesel.com

FASS DROP-IN FUEL SYSTEM FOR RAM 2010-2018

The FASS Drop-In Fuel System (DIFSRAM1001) was engineered to be the most effective filtration solution for the 2010-2018 Ram Turbo Diesel.

Without proper fuel filtration, modern diesel injection systems are prone to excessive wear. By removing over 99% of the water from your diesel fuel, along with entrained air and debris down to 2 microns, the FASS Drop-In system protects the injection system from premature failure. Additionally, by eliminating the contaminants mentioned above, our Drop-In system for the 6.7L Cummins optimizes MPG (results will vary), restores horsepower, and sharpens throttle response.

And if reliability, optimized MPG, restored horsepower and a sharper throttle response isn't enough, this system can be installed in an hour or less! This is a true plug-and-play system, requiring no cutting, wiring, or additional modifications.

Our industry-leading water removal capabilities (3rd-party proven to exceed 99%) are reinforced by the unique design of our Extreme Water Separator (XWS). If our XWS reaches capacity, it acts as a dam, shutting down your truck and preventing major destruction of fuel system components.

DIFSRAM1001

Contact information:
Diesel Performance Products (FASS)
16234 Hwy 0
Marthasville, MO 63357
866-769-3747
www.fassride.com

1994-2009 RAM PERFORMANCE TRANSMISSION COOLER

Control your transmission temperatures and tow with confidence with the latest improvement for your 1994-2009 Ram from Fleece Performance. This transmission cooler was engineered to provide you with the highest performing replacement transmission cooler on the market. It gives you a massive 2X increase in heat rejection versus stock. Combined with all new heavy-duty transmission lines and AN fittings, our kit is the most complete option available to keep your rig running cool!

Features:

- Drop-in replacement for the factory transmission cooler with no cutting or splicing of OE lines
- 20% increase in face area of the heat exchanger
- Massive 2X increase in heat rejection and efficiency
- New heavy duty transmission lines and AN fittings for a leak-free installation
- 100% pressure and leak tested

Contact:
Fleece Performance
www.fleeceperformance.com
2400 Commerce Way
Pittsboro, IN 46167

HEATER CORE REPLACEMENT HOSE AND FITTING FOR 2003-2024 RAM

Heater core maintenance is one of the most time consuming and difficult jobs known to service technicians and DIY mechanics. If this is a job you have to do, do it once and do it with the best replacement parts. Fleece Performance's hose and fitting kit will eliminate the troublesome and leaky quick disconnect heater core line on your 2003-2024 truck. This stainless-steel riser and silicone hose kit are a direct replacement for the problematic stock hose and riser, giving you a reliable solution to fix heater core/plumbing leaks. Permatex thread sealant and two new hose clamps are included with the kit.

The kit (FPE-CUMM-HCL-0324) is a direct replacement for the following part numbers:

- MY 2003-2007: Gates 19168
- MY 2007.5-2010: Gates 18774, Mopar 55056711AC
- MY 2010-2012: Mopar 55056966AA
- MY 2013-2018: Gates 23957
- MY 2013-2024: Mopar 52014739AG

Contact:
Fleece Performance
www.fleeceperformance.com
2400 Commerce Way
Pittsboro, IN 46167

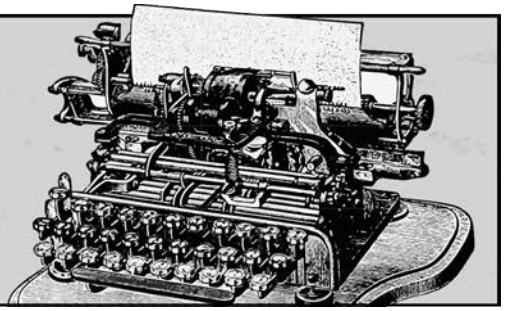
ELECTRONIC LOCKING DIFFERENTIAL BY AUBURN GEAR.

Looking for an American-made, electronic, open-to-lock differential for 2001 to 2019 Ram, Chevrolet, or GMC trucks? Auburn Gear has the answer: The Select-A-Loc. With a simple flip of a switch (no air compressor and hoses required), the rear 11.5" AAM, 30-spline axles are instantly locked to the differential housing. When locked, 100% of the torque is transferred directly from the differential case. The extra traction helps you meet the toughest daily demands that single and dual-wheel trucks face in areas such as construction, mining, and transportation.

For more information contact:
Greg Milentis
Auburn Gear
260-920-1339
gzmilentis@auberngear.com

EXHAUST NOTE

GUEST WRITER: JACK BARUTH



Thought Provoking Discussions
with Automotive Journalist Jack Baruth

"HEROES AND VILLAINS"
(Today's Publishing Business)

Motorcycles and Trucks

Question for today: What kind of crossover do we have between TDR readers and motorcycle riders? It's gotta be pretty substantial, judging by the number of motorcycle-brand stickers – and just plain *motorcycles* – I see on Turbo Diesels. It's my understanding that several TDR staffers ride, as well. As for me? The last time I checked I had four pickups and nine motorcycles strewn around the place.

Next question: If you ride, or if you're thinking about riding, where do you fo to get motorcycle news, reviews, that sort of thing? Back in 1994, when I got my first Ninja, everybody had the same answer to that. We read Cycle World for sure, maybe Motorcyclist if we had an extra three bucks that month. Later on, when British magazines like Bike and Fast Bikes started showing up on newsstands, we read those, as well. In today's magazine landscape, good luck finding anything but the occasional British mag at your local Barnes & Noble. Cycle World is digital-only, and the rest of the great motorcycling publications from the 70s, 80s, and 90s are out of business.

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Moto-Journalism

Which isn't to say there isn't a "big dog" in motorcycle journalism. There is. It's called RevZilla Common Tread (www.revzilla.com). Weird name, right? Revzilla is one of the biggest online motorcycle accessory dealers in the world. They sell everything from gaskets to helmets. Ten and a half years ago, they decided to start reviewing motorcycles and telling motorcycle stories, too. Their CEO appeared in a lot of the videos, saying "One of the ways RevZilla differentiates is that we provide content that we as riders enjoy. If you love motorcycles, you should have lots of reasons to come visit us, not just when you need to buy a new helmet."

Fast forward to 2024, and RevZilla Common Tread is the foremost and #1 motorcycle media site in America. Their reviews are trusted, and their moto-journalists are universally loved. Why? Because you can trust them. Why can you trust them? Because they're in the business of selling helmets, *not* motorcycles. Keep that in mind, that's important.

Today's Journalism Landscape

Traditional car and bike magazines, on the other hand, are in the business of selling new cars and bikes. This is sad and embarrassing to admit, but about halfway through my career at Road&Track, our budgets got so tight that we couldn't do stories unless the manufacturers "helped us out" a bit. Not necessarily with raw cash, but with travel, accommodations, use of extra vehicles, and so on. So, everything we did had to have *some* amount of new-car sales pitch in it.

That disease has spread everywhere. Into the bike magazines. Into the truck magazines. Nobody can sell enough advertising nowadays to keep the lights on. So, you gotta get the manufacturers to step up and help out. Which throws your independence, your integrity, and your freedom in the trash bin. Pretty much everything you read or watch nowadays has a little "helping hand" behind it, even if it's just a first-class trip overseas to drive a new car that will be available in America next week. Trust me, after you spend three days at a five-star resort in Italy or Spain, you're not gonna trash the car or truck you just drove. Even if it deserves trashing.

RevZilla doesn't need to play ball with manufacturers. They're profitable on their own. Their data proves that people will come to their site, read a new-motorcycle review, then buy a helmet or set of gloves as long as they are there. One metric I saw said that the average reader of Rideapart.com (a traditional manufacturer-dependent website), reads the site for about 48 seconds before going somewhere else. The average RevZilla reader? Almost four minutes. That's the power of trust.

If you're like me, you might have had some heroes in motoring journalism when you were younger. For me, it was Patrick Bedard and Gordon Baxter. Other people were fans of Brock Yates, Kevin Cameron, Nick Lenatsch, or many other great writers. All of them did their best work when the tobacco and liquor manufacturers would bid the price of a back page ad in *Car and Driver* through the roof. Those days are over. The old hero journalists have been replaced by villains – people who will write or say anything for a luxury trip or the loan of a Suburban for a ski season.

They're the heroes of the modern motorcycle Web.

Similarly, the people at RevZilla might have seemed like villains ten years ago. "They're just trying to sell helmets!" Yeah, they were and still are. And because they're in the helmet business, people know they can be honest about motorcycles, rider-oriented legislation, trips and opportunities, race results, and so on. They're the heroes of the modern motorcycle web.

Sound Familiar?

Does all of this sound familiar? It should. You're reading the TDR, which, now-a-days, wouldn't be able to publish a single issue if it had to rely on subscription and membership fees. The ownership of TDR also owns a little place called Geno's Garage, which will sell you everything from tools to T-shirts. I've talked to Robert about it. Today, August 2024, it is an interesting mix.

"Yeah, we'd sure like TDR readers to buy from us," he laughed. "I'm not gonna tell you different." Sounds like a bit of a villain to me – but if you've been reading the TDR for a while, you know that it tells a kind of unvarnished, no-fear truth about both the good *and* the bad parts of owning a Turbo Diesel. When I worked for the car magazines, we used to dread getting a call from Porsche or General Motors, telling us we were "in trouble" with them and wouldn't be receiving help with our next article. Robert and the TDR crew don't worry about getting that call. In a world of villains, they can afford to be heroes.

Stacking Rocks at the Beach?

Now here's the funny part. If you go back to the 1950s, you'll see that a lot of the early car and truck magazines were mostly sponsored by parts makers or gas stations or other non-manufacturer sources. So RevZilla Common Tread and the TDR aren't doing the "latest thing." It's actually the oldest thing, the original thing. Which doesn't mean it's easy. Building a reputation for ethical reporting is like stacking rocks at the beach. It takes forever to do, and one mistake can knock the whole thing down.

Still, when a family member of mine recently expressed interest in the new Kawasaki Ninja 500, I didn't even waste a moment's time getting reviews from the magazines, the influencers, or the YouTubers. I went to RevZilla Common Tread, looked through the review, then forwarded it. Now she's going shopping for just the right color. Similarly, when my friends are thinking about getting a 3/4-ton or heavier Turbo Diesel truck, I point them right to the TDR.

Question for today: Is there a "TDR," a "RevZilla," for regular cars? Right now, I'm afraid not. A couple groups of people have put real effort and money into building independent voices, only to fold like the Three Little Pigs' straw house when the manufacturers come calling. I was around for one of those situations, and it was pretty ugly. Which doesn't mean I'd turn down the chance to try again. However, the chances of Geno's Garage or RevZilla diversifying to sports-car stuff are pretty minimal. Perhaps I should pin my hopes on the "Little Trees" people. You know, the air fresheners. I can see it now: "Welcome to Black Ice Media, where we test all the supercars to 250mph and beyond… but after a run like that, you're going to need a Little Tree to hang on that rearview mirror. Maybe three." So far they haven't responded to my emails, but just like Bonnie Tyler sang back in 1984, when Cycle World and Car and Driver ruled the newsstands, I'm… holding out for a hero!

Jack Baruth
TDR Writer

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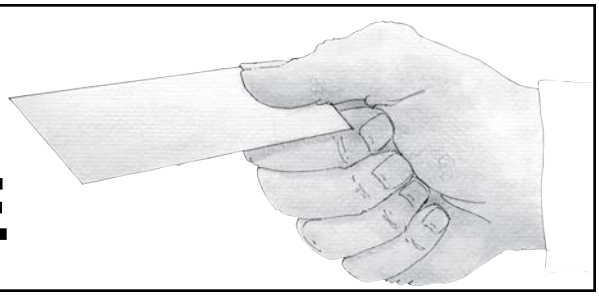

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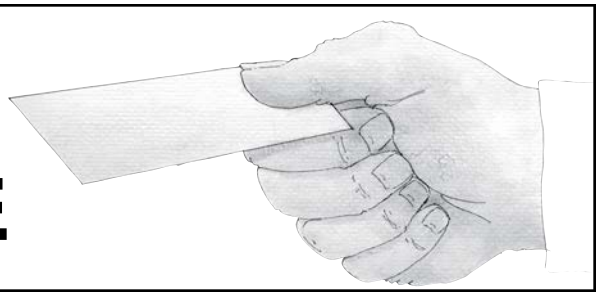

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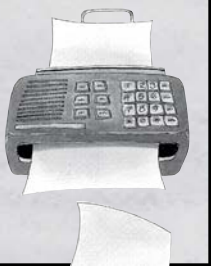

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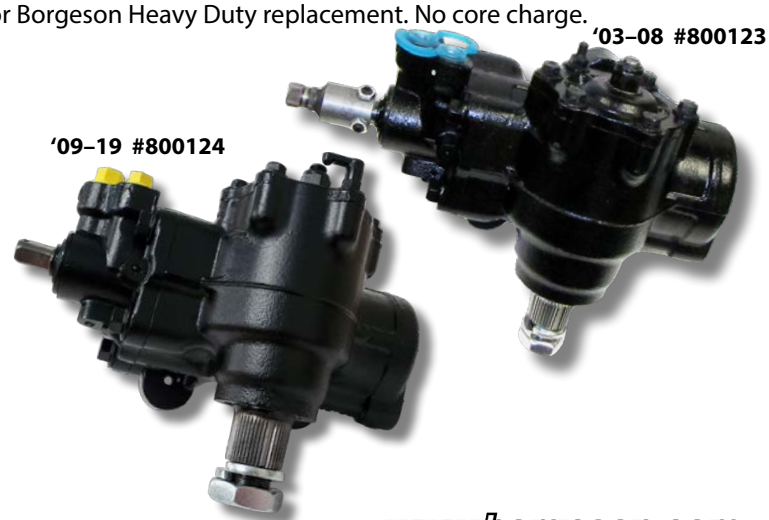

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