



NITTO®

FULL-SIZED ADVENTURE

RIDGE GRAPPLER®

Learn more at **NittoTire.com**

©2020 Nitto Tire U.S.A. Inc.

EMISSIONS: THE OFFICIAL WORD FROM CARB & THE EPA

DIESEL WORLD

DIESELWORLDMAG.COM

**\$100K
2ND GEN**

IT'S THE DEFINITION
OF **PERFECTION!**

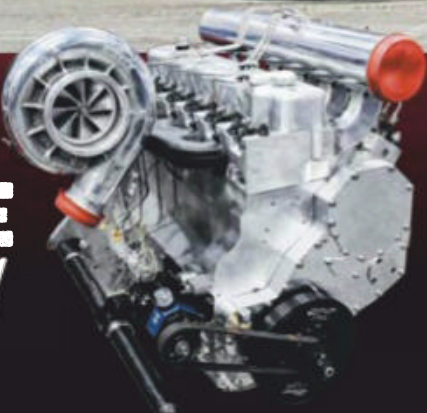
»» **HOW TO:**
DRAG
RACING 101

P-PUMP
TIMING

AND MORE...



»» **THE YEAR OF
THE BILLET ENGINE**
INSIDE THE PRI SHOW



MAY 2020 • VOLUME 15, NUMBER 5
\$6.99 USA • DISPLAY UNTIL 04/07/20

05

7 25274 01290 9

ENGAGED MEDIA, LLC

HOW TO ADD **98HP** TO YOUR **L5P DURAMAX**

+17HP



2017-19

MONSTER® EXHAUST

This is no ordinary 5" exhaust system—it's a zero-backpressure exhaust! Less pumping loss for the turbine means the compressor's job is easier. That means more boost with less energy needed to produce it. Tips have a patented design and come in chrome-plated polished stainless or high-temp matte black with a super tough Cerakote ceramic coating.

+20HP



2017-19

BANKS RAM-AIR®

Big ass filter element is the largest in its class. Out-flows and out-filters the competition. Available OILED or DRY.

banks

Note: Availability and features vary by year/make/model.

PRODUCTS AVAILABLE FOR:

CHEVY/GMC | FORD | RAM



+61HP

 **CARB**
emissionscompliant
'17-19 CARB EO D-161-120
2020 In Progress

2017-2020

BANKS DERRINGER®

The ONLY inline tuner with OBD-II connectivity, allowing it to tune in real-time, even accounting for altitude. And, it's the only tuner with AutoRate® and TransCommand® which keeps an eye on your engine and transmission. ActiveSafety® self-monitoring ensures you'll never be left on the side of the road.



2017-2020

BANKS iDASH®

Add the Banks iDash DataMonster® to read exclusive engine data you never even knew you could. It's the most sophisticated monitor, tuner control, data logger, diagnostic device, and horsepower calculator of its kind. No one else can offer you this level of power and control—why, because it's patented.

U.S. Patent #7,593,808 & 7,254,477



© 2020 Gale
Banks Engineering

Just point
iPhone to
shop, no
phone app
needed!



bankspower.com
Call or text: (800) 601-8072

CONTENTS

FEATURES

22 **EXTRAORDINARY EXCURSION**
DPS' 6-DOOR 6.7L CREATION

62 **THE SHOW-READY DAILY**
A SINGLE-TURBO'D, 650HP 6.4L
WITH A BIG FOOTPRINT

74 **\$100K SECOND-GEN**
A 750HP '02 DODGE COMMON-RAIL
THAT'S WORTH EVERY PENNY

88 **TIME-TESTED, FRESH LOOK**
INSIDE THE ANGRY FARMER
PRODUCTS SUPER STOCK FORD

TECH & HOW TO

50 **P-PUMP CUMMINS TIMING**
12 DEGREES OF TIMING TO 18
DEGREES--HOW MUCH WILL WE GAIN?

100 **DRAG RACING 101**
A BEGINNER'S GUIDE TO
COLLECTING THE QUICKEST
TIME SLIP POSSIBLE

EVENTS

36 **ENDLESS ADVANCEMENT**
THE DIESEL INDUSTRY TAKES A BIG
LEAP FORWARD AT THE 2019 PRI
TRADE SHOW

DEPARTMENTS

12 EDITOR'S NOTE
THE CLEAN AIR ACT AND YOU

16 DIESEL NEWS
THE LATEST FROM AROUND THE DIESEL WORLD

112 TRACTOR TALK
1942 INTERNATIONAL TD-18 CRAWLER

118 VINTAGE SMOKE
1963 STUDEBAKER 2-TON DIESEL TRACTOR



ON THE COVER:

Kenneth Donkersgoed's second gen is worth every penny of it's \$100k build cost
Main image by Mike McGlothlin

DIESEL WORLD

MAY 2020
VOLUME 15, Number 5

EDITORIAL
Adam Blattenberg Brand Manager

DESIGN
Kelly Lee Sr. Art Director

CONTRIBUTORS
Jim Allen, Jim Bigley
Mike McGlothlin, Jason Sands, Jacob White

ADVERTISING
Gabe Frimmel Ad Sales Director
(714) 200-1930
gfrimmel@engaged.media
Chris Crispell Senior Account Executive
(714) 200-1935
Becky Maas Account Executive
(714) 200-1959

Sebastian Tirkey Advertising Traffic Coordinator
Eric Gomez Advertising Traffic Coordinator

OPERATIONS
Manish Kumar Mishra Operations Manager
Surajpal Singh Bisht Prepress Manager
Chandan Pandey Production, Newsstand
& Circulation Analyst
Alex Mendoza Administrative Assistant

EDITORIAL, PRODUCTION & SALES OFFICE
17900 Sky Park Circle, Suite 220, Irvine, CA 92614
(714) 939-9991 • Fax: (800) 249-7761
www.dieselworldmag.com

DIESEL WORLD (ISSN 1559-8632) is published monthly, 12 times a year, by Engaged Media, LLC, 17900 Sky Park Circle, Suite 220, Irvine, CA 92614.

Periodical postage paid at Irvine, CA, and additional mailing offices.

POSTMASTER: Send address changes to *Diesel World* c/o

Engaged Media, LLC, Cenvo, 101 Workman Court, Eureka, MO 63025.

Canadian Post: Publications Mail Agreement PITNEY BOWES, INC.,
PO Box 25542, London, ON N6C 6B2

GST#855050365RT001

© 2020 by Engaged Media, LLC. All rights reserved. Reproduction of any material from this issue in whole or in part is strictly prohibited.

CUSTOMER SERVICE

Engaged Media, LLC

17900 Sky Park Circle, Suite 220, Irvine, CA 92614

Subscriptions, Address Changes, Renewals,
Missing or Damaged Copies

(800) 764-6278

(239) 653-0225 Foreign Inquiries

subscriptions@engagedmediainc.com

customerservice@engagedmediainc.com

Back Issues: www.engagedmediamags.com

Books, Merchandise, Reprints

(800) 764-6278 • Foreign (239) 653-0225

Letters to Editor, New Products, or to Contribute a Story or Photo

dw-editor@engagedmediainc.com

SUBSCRIPTION RATES

Single copy price is \$6.99. \$21.95/1 year, \$37.95/2 years.

Outside the U.S., \$61.95/1 year, \$117.95/2 year.

Please allow 6 to 8 weeks for new subscriptions to begin.

ENGAGED[®]

MEDIA, LLC

ENGAGED MEDIA, LLC

Scott Hall Chief Executive Officer

Pinaki Bhattacharya Managing Director & COO

William Ammerman Executive Vice President, Digital

Carrie Rubalcaba HR & Office Management

John Goodpasture Vice President, Sales

This magazine is purchased by the buyer with the understanding that information presented is from various sources from which there can be no warranty or responsibility by Engaged Media, LLC, as to the legality, completeness or technical accuracy.

THE ORIGINAL | 10 LUG WITH ADAPTERS

FORCE



American Force



20
TWENTY



THE LEADERS IN
FORGED
WHEELS





DODGE 3500 | JO2 THUNDER DRW



AVAILABLE SIZES - 20 | 22 | 24 | 26 | 28

JO2 THUNDER « DUALY W/ADAPTERS

GIVE YOUR DUAL-REAR-WHEEL TRUCK
THE POWERFUL LOOK AND STANCE THAT
IT DESERVES WITH OUR LINE OF 10 LUG
DUALY WHEELS WITH ADAPTERS.
WHETHER IT'S LIFTED OR SLAMMED,
FOR WORK OR FOR SHOW, OUR DUALY
WHEELS HAVE THE FITMENT,
STYLE & STRENGTH THAT YOUR
TRUCK DEMANDS.



POLISHED FINISH STANDARD | CUSTOM FINISHES AVAILABLE.



WWW.AMERICANFORCE.COM

More Wheel Designs Available Online | 1.888.367.1728

**AMERICAN
FORCE**®

TUFF

A.T.

www.tuffwheels.com

↪ TRUE DIRECTIONAL WHEELS ↩





TUFF

TACTICAL XTREME TX6R

BIG BRAKE KITS

**2014-Present
RAM 2500/3500**

Front and Rear Kits

- TX6R forged aluminum six piston calipers
- 16.00" diameter **Spec37** alloy slotted face rotors
- BP-20 compound *SmartPads*
- Calipers available in black or red powder coat and 22 additional color options
- Fully compatible with the OE master cylinder output, ABS and all electronic controls

Complete front and rear kits include hardware, DOT approved stainless steel flexlines and installation guide.

POWER. CONTROL. PRECISION.
805.388.1188 | wilwood.com
Designed, Tested, and Manufactured in the USA

DISC BRAKES
wilwood

GEAR UP AND GET OUT



If your goal over the weekend is to make it, and not break it or roll it, then you need the right gear. WARN winches and accessories are designed, engineered, and tested to make it in—and make it out. Go prepared.

BUMPERS • WINCHES • RIGGING ACCESSORIES • TRAIL GEAR

Go to warn.com to see our full line of products



THE CLEAN AIR ACT AND YOU

If you didn't know before, you know now, within the last year the EPA has started to heavily enforce the Clean Air Act. This means removing emissions systems, something that has always been federally illegal, is now being enforced harder than ever before. Doesn't matter what your local municipality says, whether they enforce it or not, removing emissions devices is and always has been federally illegal. We have gotten away from this old "smoke is power" or "smoke is cool" mentality, which has been great to see. So many guys are making gobs of power on the track with very little smoke. That's impressive. We need to continue this trend. Plus in the end, who really wants to have a massive sign pointing at you after you've left the stop light with a full head of steam? That's just asking for trouble. I'd personally rather hot rod around town without calling attention to myself.

This recent change is going to affect the diesel performance industry. I used to live in California. I had a heavily modified truck that was built before CA started to smog diesels. When that changed, I was turning wrenches at a truck shop, I saw the industry go through the change. We got used to it pretty quickly and the change just became part of normal life there. Going through that makes me extremely confident that we as an industry and enthusiast group as a whole, will get through this very quickly. It's not going to end diesel performance, not even close. Don't pay any attention to those who say otherwise. Gassers went through this in the late 70's and 80's, look at that industry today, we've got 840hp production cars. It'll be hard for many, that's for sure, but we as an industry and enthusiast group will get through this just fine I'm certain.

What I'm about to go into next will mostly be for diesel industry professionals, but we all can take some good info from it. Recently I was able to sit in on a seminar hosted by SEMA, with the topic being emissions compliance and how it affects the automotive performance industry as a whole. In that seminar we heard from several people the most important to this conversation being Evan Belser, the Associate Director of the Air Enforcement Division for the EPA and Jeremiah Bearden, the Vehicle Enforcement Section Manager for CARB (California Air Resource Board). The two discussed

separately what their divisions of the government do and they explained what they are currently looking for as far as emissions compliance enforcement goes. They shared some interesting statistics; 13% of all diesel vehicles originally equipped with DPF/EGR/etc are deleted; these deleted vehicles are equivalent to adding 9-million diesel trucks worth of emissions to the planet (their words); this recent bump in enforcement stemmed from individual states complaints; among other stats. What really interested me was what exactly they're looking for and why. It helped explain a lot of the scuttlebutt we've been hearing lately.

EPA

Mr. Belser's explanations for the EPA were fairly cut and dry, and there weren't too many things they were concerned with. He did state: all can be found in the Clean Air Act.

Closed course racing vehicles are exempt from the Clean Air Act, saying a vehicle is for off road use only does not make a vehicle exempt as off road or AG is still covered by emissions rules. However, the EPA is currently concentrating on emissions delete devices for on-road vehicles only. Belser did say that eventually that directive will change and emissions delete devices for other vehicles will be under the spotlight, when that would happen he did not say.

Vehicles with production dates prior to 1965 are exempt from the act.

The act applies to overseas companies selling to the US as well.

The EPA does not go after the end users, only the manufacturers and those selling the parts. Belser noted that this is somewhat based on numbers, meaning if you sold only a few then that could actually be for closed course racing vehicles, which is fine. But if you sold 500, well that's obviously not solely for closed course racing vehicles and the company would then be subject to fines, etc..

Overall modification is not illegal, but obtaining a "E.O. number" from the EPA is not something that currently exists. If you're concerned with getting in trouble for a part you manufacture in the future, get it tested by a third party. Make sure it's not emitting

more than the vehicle is allowed to. SEMA Garage can help here. In the end whether the part is in violation is decided by the agent.

CARB

The California Air Resource Board was a different story. CARB is going after just about anyone that sells devices without an Exemption Order given to them by the state. This covers just about anything that impacts emissions.

Currently, vehicles originally intended for on-road use can be turned into closed course racing vehicles. And any vehicle with a build date prior to 1976 is exempt (diesels prior to 1998 are exempt). Others are exempt as well, see CARB's website for more.

CARB recommends serializing parts that might violate CA laws. This way if you sold a non E.O. equipped part to someone out of CA, and the part makes its way into CA, you can prove that you did not in fact sell it in the state.

What an inspector tells you while you're being investigated might not be what ends up happening in the end. The Judge's ruling is the final word.

Final Say

All that being said, over the last year I have seen many things happen that go against what was said in this meeting. I've seen friend's companies get in trouble for selling things while another down the street was told they were ok to sell. I would assume everyone in the industry has seen this same thing. I can't currently say for sure why, but the more stories I hear, more of what I heard in that seminar makes sense. I think the grey area is going away and we can all move forward towards the future. In the end, don't roll coal, keep the emissions devices on (the technology is here, you can get a reliable 600 RWHP with a DPF, I promise), and just use common sense.



For over a decade we have been the

ONES TO TRUST

for all of your Powerstroke needs.
We manufacture & retail the best

**MADE IN THE USA
PARTS & ACCESSORIES**

for your

**1994-2007 7.3L & 6.0L POWERSTROKE
F SERIES, E SERIES & EXCURSIONS**

Not to mention OEM Ford Motor
Company and Motorcraft at dealer cost
price discount levels. Let us be your

ONE STOP SHOP

for all of your towing, daily driver,
racing, and work vehicle needs.



**RIFFRAFFDIESEL.COM
(541) 879-1052**



Diamond Eye Performance
Exhaust Systems
from **\$269⁹⁹**



Hamilton Cams Camshafts
from **\$548⁹⁹**



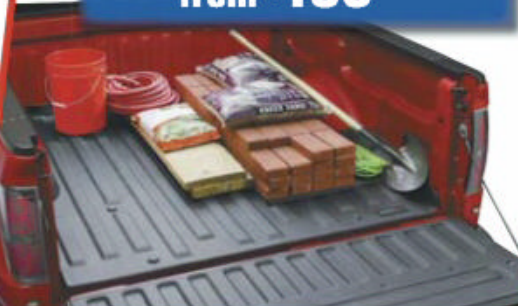
Optima Yellow Top H6 Batteries
from **\$289⁹⁹**



Fuel Off-Road D625 Hostage
Gloss Black Wheels
from **\$293⁰⁰**



WeatherTech TechLiner Bed Liners
from **\$189⁹⁵**



Kleinn Bolt-On Air Horn Kits
from **\$1,239⁹⁵**



LET'S BUILD IT TOGETHER



The Gear to Get You There



Reviva 6.0L Powerstroke
Long Block Supreme Crate Engines
from \$8,909⁹⁹

DuramaxTuner
SPADE Series LML Tuners
from \$1,453⁰⁰



Bilstein B8 5100 Series Shocks
from \$94⁰⁰



BD Diesel
Transmission Fluid Coolers with Fans
from \$276⁰⁰



Nitro Gear and Axle Ring and Pinion Gear Sets
from \$1,020⁰⁰



UNBEATABLE SERVICE, TECH ADVICE, SATISFACTION, AND SELECTION.



Call by 10 pm EST: In-Stock Parts Shipped That Day!

1.800.230.3030 • Int'l: 1.330.630.0230

SCode: 2005DW • Prices subject to change without notice. Please check SummitRacing.com for current pricing. Typographical, description, or photography errors are subject to correction. Some parts are not legal for use in California or other states with similar laws/regulations. Please check your state and/or local laws/regulations. © 2020 AUTOSALES, INC.

SUMMIT
RACING EQUIPMENT
FIND IT AT **SummitRacing.com**

DW NEWS



OEM NEWS

RAM SELLS RECORD NUMBER OF TRUCKS IN 2019

2019 proved record-breaking for the Ram Brand in terms of overall sales. Last year, Ram sold 190,655 vehicles in the fourth quarter alone, and a whopping 633,694 pickup trucks overall. This marked an 18-percent increase over 2018 sales figures and the highest level of sales since Ram became a stand-alone brand back in 2009. The redesigned Ram Heavy Duty played a key role in the sales increase, and Ram's Head of U.S. Sales, Reid Bigland, has praised dealers for their superb handling of the new Ram HD's introduction, along with meeting consumer demand.



OEM NEWS

2020 TREMOR PACKAGE ADDS INTEGRATED WINCH

For the first time in its history, a Super Duty can be ordered with an available integrated winch as part of the Tremor off-road package. The new Ford Performance Parts winch by Warn was specifically designed to meet the automaker's standards and comes with 12,000 pounds of winching power. It will be available, beginning in mid-2020, as a factory-orderable option or dealer-installed after-sale upgrade, and will retail for \$3,000. Ford's winch option was developed with utmost safety and capability in mind, with the winch being mounted behind the steel bumper, which Ford notes does not hinder airflow or clearance regardless of engine choice (the option is available for both gas and Power Stroke-equipped models).



OEM NEWS

GM SELLS MORE THAN 800,000 TRUCKS

The 2019 sales numbers are in for GM, too, and they're impressive. During the last calendar year, some 802,962 pickup trucks left dealer lots with either Bow Tie or GMC badging, while combined retail market share grew almost one full percentage point. Not surprisingly, three out of every four trucks sold were crew cabs. Light-duty crew cab sales were up 15.1-percent as compared to 2018, and heavy-duty crew cab sales were up 2.6-percent. This year, GM will increase its HD production capacity at the Flint Assembly plant by 40,000 units.

TURBO NEWS

2020 VS. 2019 POWER STROKE TURBOS, COMPARED

If you were wondering what the turbo bolted to the 2020 Power Stroke looks like, KC Turbos has performed all the leg work for you. In its dissection of its brand-new F-250 guinea pig, the guys at KC Turbos found a 54mm inducer compressor wheel (vs. 61mm on the '15-'19 units). Other findings included a smaller, 55mm exducer turbine wheel and a dual ball bearing center cartridge (vs. journal bearing). The upside of Ford's going to a smaller turbo means quicker spool up and more low-end torque. In fact, the new electronically actuated VGT makes 35 to 40 psi of boost right off the showroom floor. However, the smaller sized turbo also likely means that, when tuned, the '20 trucks won't have the 540 to 550-rwhp potential the '15-'19 trucks do, and reliability might be an issue if the charger is pushed much further beyond factory boost levels.

PROBLEM.

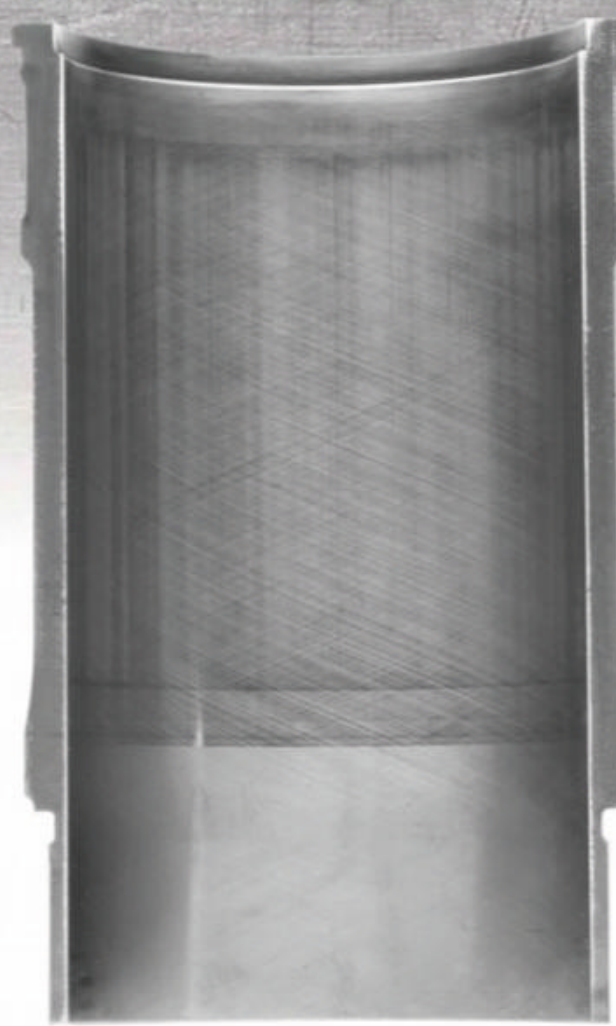
THEIR OIL



**Severely Scuffed Liner
After 44 Hours of Testing**

SOLUTION.

AMSOIL



**Non-Scuffed Liner
After 200 Hours of Testing**

Based on independent testing of AMSOIL Signature Series 5W-30 Synthetic Diesel Oil and a leading conventional 15W-40 diesel oil in the Detroit Diesel DD13 Scuffing Test for specification DFS 93K222.



Big diesel power can lead to major wear. AMSOIL delivers powerful protection for critical components so you can harness that diesel power with confidence. To demonstrate, an independent lab put AMSOIL synthetic diesel oil head-to-head against a leading competitor. AMSOIL provided long-lasting wear protection and kept cylinder liners looking like new. Get your diesel power the protection it deserves.

AMSOIL

The First in Synthetics®

Buy it at:
amsoil.com/dieselworld

Fast, Free Shipping*

*Some exclusions apply.
See www.amsoil.com for details.



Call or go online
for our **FREE**
Factory Direct
Retail Catalog
1-866-238-4226



OEM NEWS

BEST-IN-CLASS FRONT PLOW RATING

Ford's snow plow prep package for its 2020 Super Duty's includes a best-in-class 1,290-pound maximum snow plow rating for diesel models, which includes mounting hardware. Having the heaviest plow rating in the segment builds on Ford's goal to build the most capable heavy-duty pickups you can buy. The snow plow prep package will call for a heavier duty spring package (which is specific to each configuration) and a higher amp alternator to deal with heavy electrical loads. In the world of snow and ice management, Ford claims nearly 50-percent of the entire market.

RACING

WAGLER'S EARLY PREP FOR SDX 2020

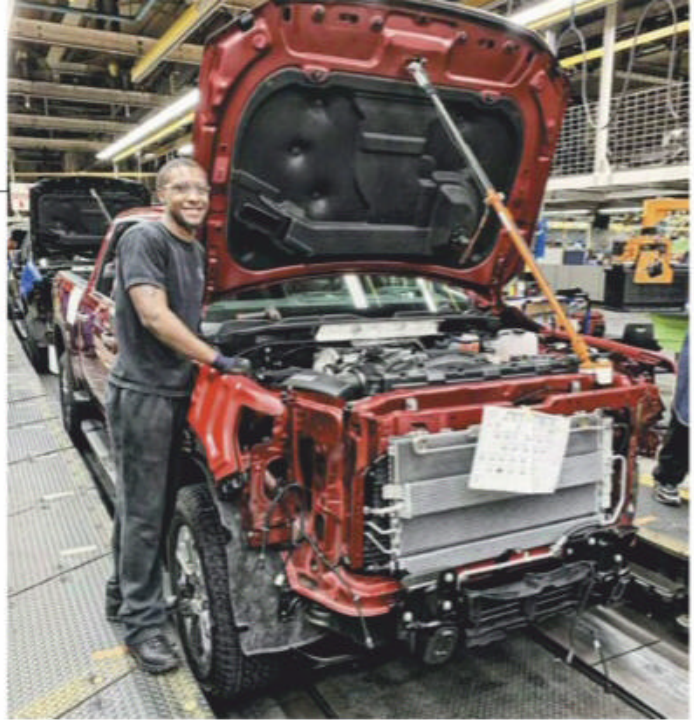


Gearing up for what should be the biggest event it's hosted to date, the folks at Wagler Competition Products are hard at work improving, upgrading, and expanding their facility to accommodate the relocated 2020 Scheid Diesel Extravaganza. In addition to hauling more dirt in for the 350-foot pulling track, Wagler Motorsports Park is being graced with more spectator seating, more campsites, and electric hookups this offseason. Drag racing will take place on Wagler's all-concrete, NHRA-member eighth-mile drag strip just a few steps from the pulling track. Attendance is expected to crest 8,000 when the Scheid Diesel Extravaganza rolls through Lyons, Indiana next August.

PARTS NEWS

CONVERTER PIONEERING

Ethan Patterson of Wilson Patterson Diesel will be testing a new style torque converter this season. Called a captive clutch reverse lockup converter, the 27-spline 48RE unit doesn't use balance oil, which means no drag occurs during the staging process—often one of the most grueling parts of getting a high-powered diesel off the line. Patterson has been knee-deep in torque converter (and transmission) technology for years, perhaps most notably as the transmission builder behind the 4x4 TH400 in Stainless Diesel's 2,500hp Pro Street Dodge. Should WP Diesel find success while campaigning this converter in its own drag truck, you can expect them to offer a complete valve body and converter package at some point in the future.



OEM NEWS

WAGES ON THE RISE AT GM

Wages, profit sharing, and benefits are all set to increase for more than 1,350 of GM's hourly employees. The good news stems from the automaker's workers transitioning from temporary to full-time employment during the first quarter of 2020. The 1,350 employees are scattered across 14 U.S. manufacturing plants based in Michigan, Indiana, Tennessee, Texas, New York, Missouri, Kansas, and Kentucky. According to Gerald Johnson, GM's executive vice president of Global Manufacturing: "We are excited to welcome these employees as regular, full-time team members, and today's announcement affirms GM's continuing commitment to a strong U.S. manufacturing base."



OEM NEWS

FORD SELLS NEARLY 1 MILLION TRUCKS

In 2019, Ford's F-series was once again crowned America's best-selling truck, this time for the 43rd straight year, not to mention it also marked the 38th consecutive year as America's best-selling vehicle. Total sales figures on Blue Oval trucks (which includes Ranger sales) totaled 986,097 units last year—an 8.4-percent increase over 2018. In the fourth quarter alone, Ford truck sales soared to 330,075 units, a strong finish for the year and an uptick of 15.9 percent. With 2020 Super Duty's beginning to populate dealer lots and an all-new F-150 and Bronco on the way, 2020 should be an even bigger year for the Dearborn-based automaker.

WANT TO KNOW MORE?

HEAD TO DIESELWORLD.MAG.COM/NEWS FOR THE LATEST DIESEL NEWS DEVELOPMENTS.

**7 BAND-AIDS.
3 LOST SOCKETS.
2 BUSTED KNUCKLES.**

A LIFETIME OF EXPERIENCE.

When you work on a truck, you understand your knuckles, and your tools, might take a beating. It's just part of the deal. But the experience you gain from completing the job, more than makes up for a few sore muscles and a couple lost sockets. At LMC Truck, we've built our business on helping those who love turning their own wrenches.



KEEP`EM ON THE ROAD®

Get your
FREE CATALOG
at LMCTruck.com

Chevy/GMC 1947-13
Ford 1948-16
Dodge 1972-15

LMCTruck.com
800.562.8782



**MOTO
METAL**



**M801 PHANTOM
GLOSS BLACK W/ GRAY TINT +
GLOSS BLACK MILLED
20x10 / 20x12 / 22x12
shown with spikes installed**

motometalwheels.com @motometalwheels



DPS' 6-DOOR 6.7L CREATION

BY JASON SANDS

DIESEL WORLD MAGAZINE

There are just some rides you can't walk past without doing a double, or even triple-take. Diesel Performance Specialties (DPS) has built just such a vehicle by seamlessly mating a 6.7L King Ranch truck and a Ford Excursion SUV. With an insane 20 inches of lift, six doors, and wild amounts of chrome and powder coating, this 2016 "Excursion" is a truck like no other. But the question remains, how did they build it? It all started with two bare cabs and an idea. Shop owner Trevor Lima and the team at DPS wanted to build a flagship of a shop truck, but they didn't want to build something cookie cutter. So the idea came about to build the SUV Ford didn't--a 2016 take on a Ford excursion.

Thus begun a project that was under the knife for over a full year.

Ford Excursions were built with 6.0L and 7.3L engines, neither of which were known to be powerhouses in stock form. Since DPS wanted to retain reliability and 100 percent emissions legality, they chose a newer '16 Ford with the 440 hp and 860 lb-ft 6.7L engine as a starting platform. From there, it was a complete custom build. Two frames were selected and then integrated into one, while also incorporating a drop frame that would allow for a huge lift. The body was also heavily modified (obviously) for the six-door setup, but the



EXTRAORDINARY EXCURSION





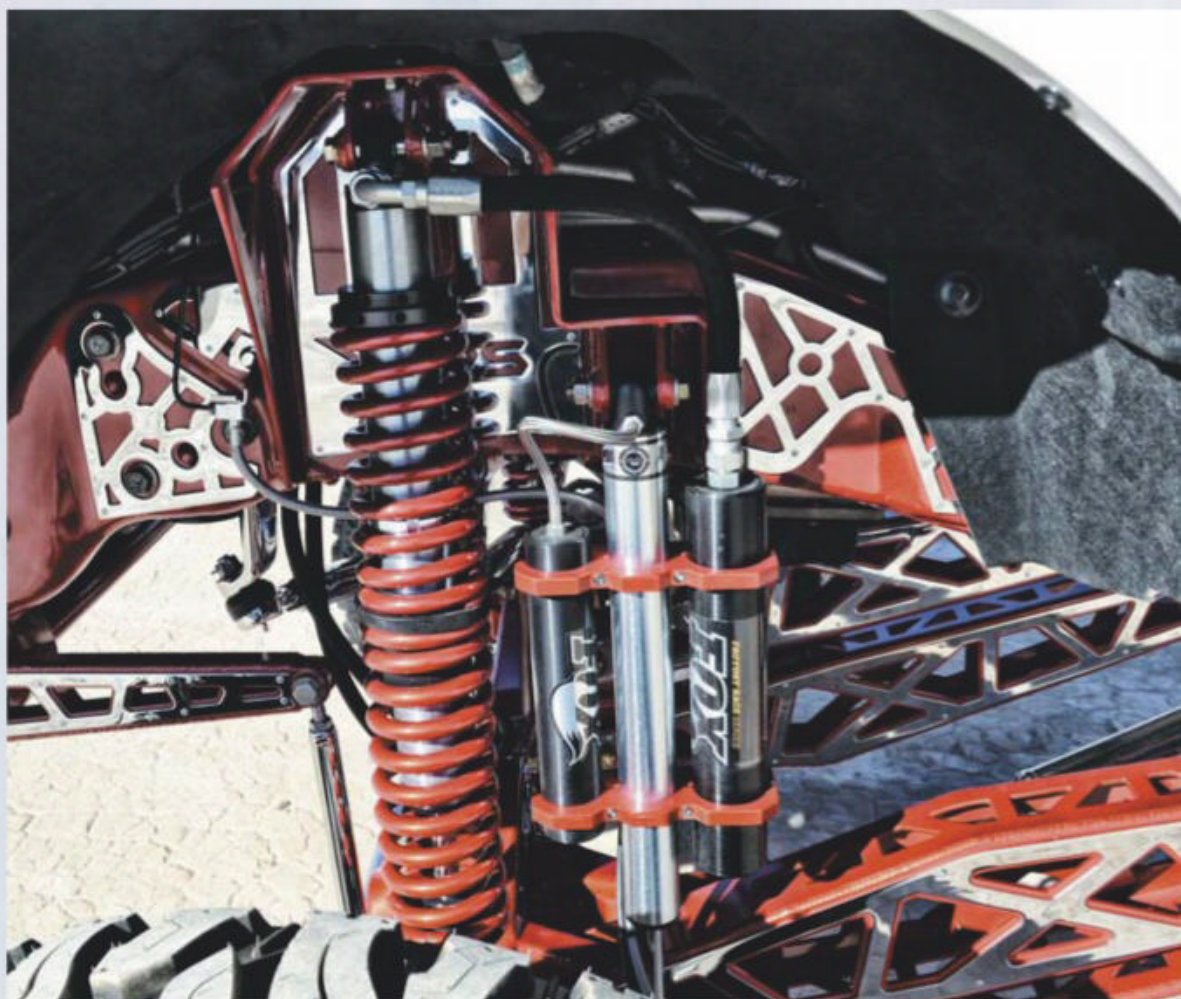
▲Other than an S&B intake, the 6.7L Ford engine is pretty much stock, and at 440 hp and 860 lb-ft, is nearly double the 250 hp that the Ford Excursion had when it was released.

EXTRAORDINARY EXCURSION

team also took the extra step of installing modern radiused rear fenders to compliment the setup up front. Virtually all of the bodywork was done in-house by DPS, including the fabrication of both front and rear bumpers.

Even with the skeleton of the truck finished (body and frame) there was still a ton of work left. Trevor was determined to have a drivable truck as well as a show truck, so they made lots of unseen changes, like re-gearing the front and rear axles with 4.88 gears, to help get the 11,000 pound ride moving. As the build went along, anything that wasn't already painted white was either powder coated or chromed, including the entire underside of the truck. This meant the frame, axles, and suspension links would all become works of art, in addition to the custom crossover steering with PSC hydraulic assist.

Other than the body modifications, the bulk of the work definitely went into creating the wild 20 inches of lift that firmly sets the truck into the sky. Gone are the factory leaf springs, and instead the Excursion rides on Fox Racing coil-over shocks all the way around, that have a mammoth 14 inches of travel. The front Dana 60 axle and rear Sterling 10.5 are both hung by wildly unique rectangular 4-link suspension arms, that are also powder coated and chrome-plated. AMP Research Powersteps were also added so that passengers could actually climb into the Ford, and



▲The front suspension is a one-off custom design courtesy of DPS. They built the truck with an estimated 20 inches of lift by using a set of monster King coil-over shocks with 14 inches of travel. There's no zip ties here, everything from the reservoirs to the brake lines have their own custom brackets.

WE KNOW DIESEL WE KNOW GAS WE KNOW TRUCK PERFORMANCE



Trust Your Business to the Experts at
Diesel Performance Parts Inc. - Competitive Guaranteed Wholesale Pricing,
Unsurpassed Knowledgeable Support, & the Industry's Best Manufacturers.



866.455.7788 | dieselperformanceparts.com
Diesel Performance Parts Inc. | 411 Allied Dr, Nashville, TN 37211



▲There's a lot going on in the front of the Excursion. The Dana 60 has been fitted with 4.88 gears and a Mag-Hytec differential cover. The truck also features a custom hydraulically assisted steering setup, because the length of the truck involves a lot of lock-to-lock steering.



▲A complete suspension substructure was integrated into the factory frame(s), and provides a mounting point for the suspension links. Like everything else on the truck, the under-frame section received full powder coat and chrome, along with a "Diesel Performance Specialties" etching.

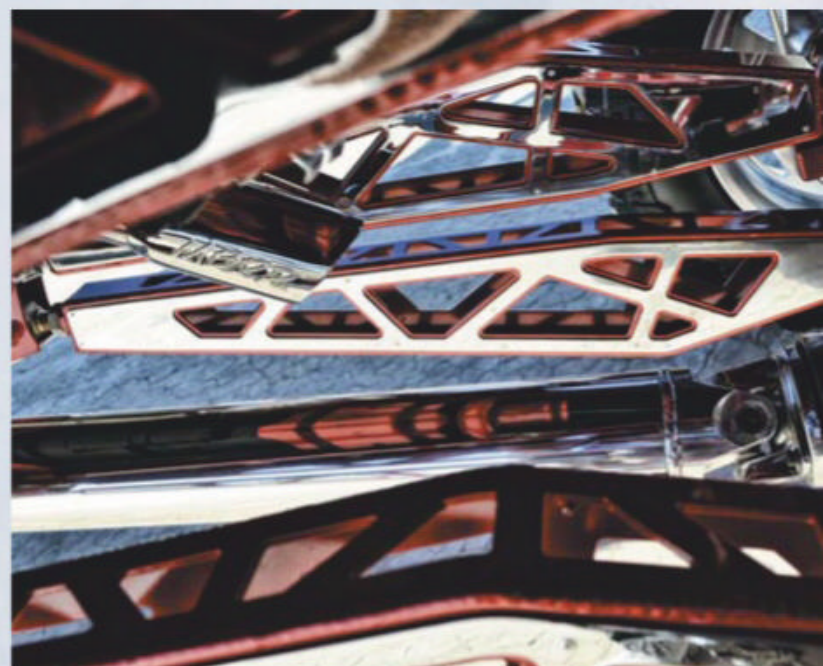


▲A stock Excursion uses leaf springs on the rear, but that wasn't an option at the lift levels that DPS wanted. Again the company turned to Fox Racing, and they built a rear suspension setup that matched the front, along with the huge Fox coil-over shocks.

EXTRAORDINARY EXCURSION

braided stainless brake lines were used because of the suspension's immense travel.

After working hard on the Excursion for more than a year, it was finally finished. Is it an over-the-top show truck? Yes, but it's also functional, and can seat a whole baseball team. Its stance is also something that's immediately noticed, as the lift is nearly double the height that's available in the regular aftermarket. For Trevor and DPS (who now builds show trucks out of Weatherford, Texas) it's the perfect calling card, and quite a statement. **DW**



▲Driveshafts that would work with the monstrous lift also had to be made, and an MBRP exhaust was added for a little bit of extra flair.



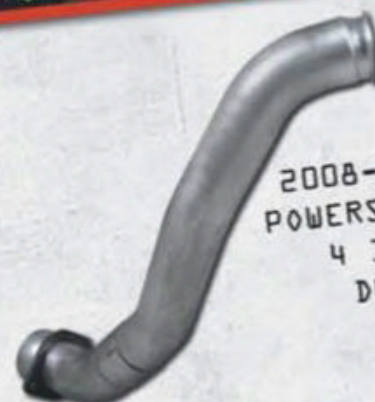
K5131A

2007-2010 Chevy/GMC 6.6L
DURAMAX 2500/3500
5 INCH DPF BACK SINGLE
W/TDP & STAINLESS TIP



K4119A

1994-1997 FORD 7.3L
POWERSTROKE F250/F350
3 INCH ALUMINIZED DOWN PIPE



K5244A

2008-2010 FORD 6.4L
POWERSTROKE F250/350
4 INCH ALUMINIZED
DPF DOWNPIPE KIT

MADE IN THE
USA



K4214A

2004.5-2007 DODGE 5.9L CUMMINS
5 INCH ALUMINIZED CATBACK SINGLE
STAINLESS AVAILABLE



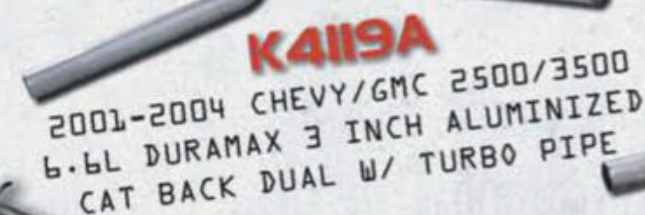
K3620A

2007-2017 JEEP JK
2.5 ALUMINIZED AXEL BACK
HI-TUCK DUAL EXIT



K3626A

2018-2019 JEEP JL 4D 2L
3 INCH ALUMINIZED CAT BACK
STAINLESS AVAILABLE



K4214A

1998-2002 DODGE
24V CUMMINS 2500/3500
4 INCH ALUMINIZED TURBO BACK DUAL

WWW.DIAMONDEYE PERFORMANCE.COM
f i y t 800-635-9950

**DIAMOND
EYE** *Manufacturing*

WORLD'S TOUGHEST
DIESEL AND GAS EXHAUST

EXTRAORDINARY EXCURSION



▲Unique front and rear bumpers were built by DPS just for the Ford. Extra lighting is supplied by a light bar and cube lights from Firewire, and tow hooks are supplied by Royal Hooks.



▲On Point retrofit headlights were installed on the Ford, and the headlight assemblies were highlighted with red to match the grille.



▲There's a King Ranch interior on the inside of the Excursion to keep everyone comfortable. Looking a lot like an airplane, there are four rows of seats including a rear bench seat, which means a room for about a dozen people!



HARBOR FREIGHT

QUALITY TOOLS AT RIDICULOUSLY LOW PRICES

1,000+ Stores Nationwide • HarborFreight.com

U.S. GENERAL **SUPER COUPON**

30", 4 DRAWER TECH CARTS

- 12,600 cu. in. of storage
- 580 lb. capacity

Customer Rating



SAVE \$740

COMPARE TO
Snap-on
BLUE-POINT
\$880
MODEL: KRBC10TBPC

YOUR CHOICE
OF 6 COLORS
\$139⁹⁹

\$179⁹⁹



Side tray sold separately.

Item 56387, 64096, 56386, 56392, 56393, 56394

72876196

LIMIT 1 - Coupon valid through 5/3/20*

BRAUN **SUPER COUPON**

390 LUMEN MAGNETIC SLIM BAR LED WORK LIGHT

Customer Rating **★★★★★**

NOW \$24⁹⁹
\$39⁹⁹
13-1/2"

COMPARE TO
ASTRO
MODEL: 40SL
SAVE 54%
\$55¹²

ITEM 56248/56329/63958 shown

72876341

LIMIT 3 - Coupon valid through 5/3/20*

EARTHQUAKE XT **SUPER COUPON**

20V LITHIUM-ION EXTREME TORQUE IMPACT WRENCH KITS

Customer Rating **★★★★★**

NOW \$229⁹⁹
\$269⁹⁹
YOUR CHOICE

A. 1/2" ITEM 63537/64195 63852 shown
B. WITH 2" ANVIL ITEM 64349 1200 TORQUE

COMPARE TO
INGERSOLL RAND
\$534⁴⁵
MODEL: W7250-K2
SAVE \$304

ITEM 64349

72877330

LIMIT 1 - Coupon valid through 5/3/20*

HaulMaster **SUPER COUPON**

TRIPLE BALL TRAILER HITCH

Customer Rating **★★★★★**

NOW \$19⁹⁹
\$31⁹⁹
COMPARE TO REESE TOWPOWER \$59⁹⁹

MODEL: 101179799 **SAVE 66%**

ITEM 64311/64286 shown

72879905

LIMIT 4 - Coupon valid through 5/3/20*

PITTSBURGH **SUPER COUPON**

RAPID PUMP® 1.5 TON LIGHTWEIGHT ALUMINUM FLOOR JACK

Customer Rating **★★★★★**

• Weighs 33 lbs.

NOW \$59⁹⁹
\$79⁹⁹
SAVE \$91

COMPARE TO K TOOL \$151⁴²

MODEL: KT163094

ITEM 64552/64832/64980/64545 shown

72880638

LIMIT 1 - Coupon valid through 5/3/20*

HARDY **SUPER COUPON**

POWDER-FREE NITRILE GLOVES PACK OF 100

Customer Rating **★★★★★**

• 5 mil thickness

SAVE 59%
NOW \$5⁹⁹
\$7⁹⁹
COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

MODEL: VEN4145

ITEM 37050, 64417, 61363, 68496, 68497, 61360, 61359, 68498, 64418 shown

72881038

LIMIT 5 - Coupon valid through 5/3/20*

12¢ PER PAIR

COMPARE TO VENOM \$14⁹⁷

EXTRAORDINARY EXCURSION



▲The wheels on the Excursion are big, and tires even bigger. Rolling stock consists of 24x14-inch American Truxx Forged AT-1910 Kronos wheels, and 42x15.50 Atturo Trail Blade tires.



PROUDLY MADE IN FLORIDA



ALL NEW

INTRODUCING THE

PUSHER 6.7L POWERSTROKE LINE

Deliver max air, lower EGTs, increase power capability and unlock better fuel mileage - all while knowing you have the strength and support of Pusher parts under your hood. Designed and built to last the lifetime of your truck.

**LEARN WHICH CONFIGURATION IS RIGHT FOR YOU:
VISIT PUSHERINTAKES.COM or CALL 772.589.8385**



pusherintakes.com



772.589.8385



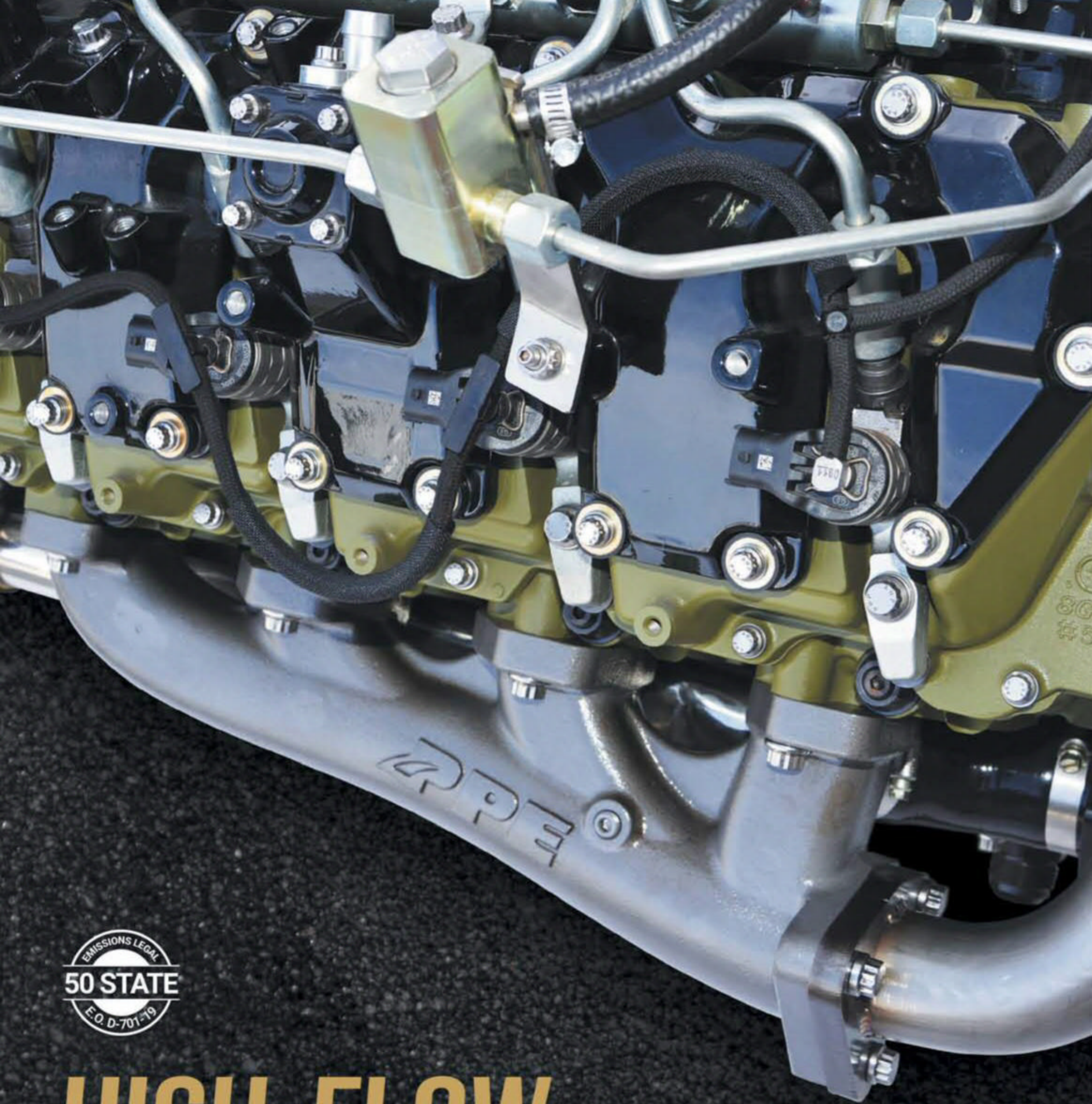
Proudly made in Florida



/ [pusherintakes](https://www.facebook.com/pusherintakes)

Pusher Intakes does not manufacture and/or offer for sale any licensed products and is not affiliated, sponsored, or licensed by Ford Motor Company, GM, Chrysler, or any other major auto manufacturer.





HIGH-FLOW **MANIFOLDS AND UP-PIPES KITS**

Maximize
Power and Flow

Lower Exhaust
Gas Temperatures

Accelerate
Turbo Spool-Up

Increased Fuel
Economy

MORE FLOW. MORE POWER.

Open it up! Your Duramax needs to breathe. Diesels perform better when they have higher exhaust flow. PPE's Manifolds and Up-Pipes Kits are the solution to restrictive factory hardware.

You wouldn't run a marathon, trying to breathe through a drinking straw. Your Duramax doesn't want to either.

Give your diesel what it needs.



Kit shown above with raw finish Manifolds.

NEW!

PPE High-Flow Manifolds are now available with optional Silver or Matte Black Ceramic Coating.



Optional Silver Ceramic Coating



Optional Matte Black Ceramic Coating

PPE Manifolds and Up-Pipes Kits include multi-layered 304 stainless steel High-Performance Gaskets which allow for extreme changes in temperature, ensuring a leak-free seal.

PPE

PPEdiesel.com
714. 985. 4825

Invest in the best - PPE
Innovations in performance.

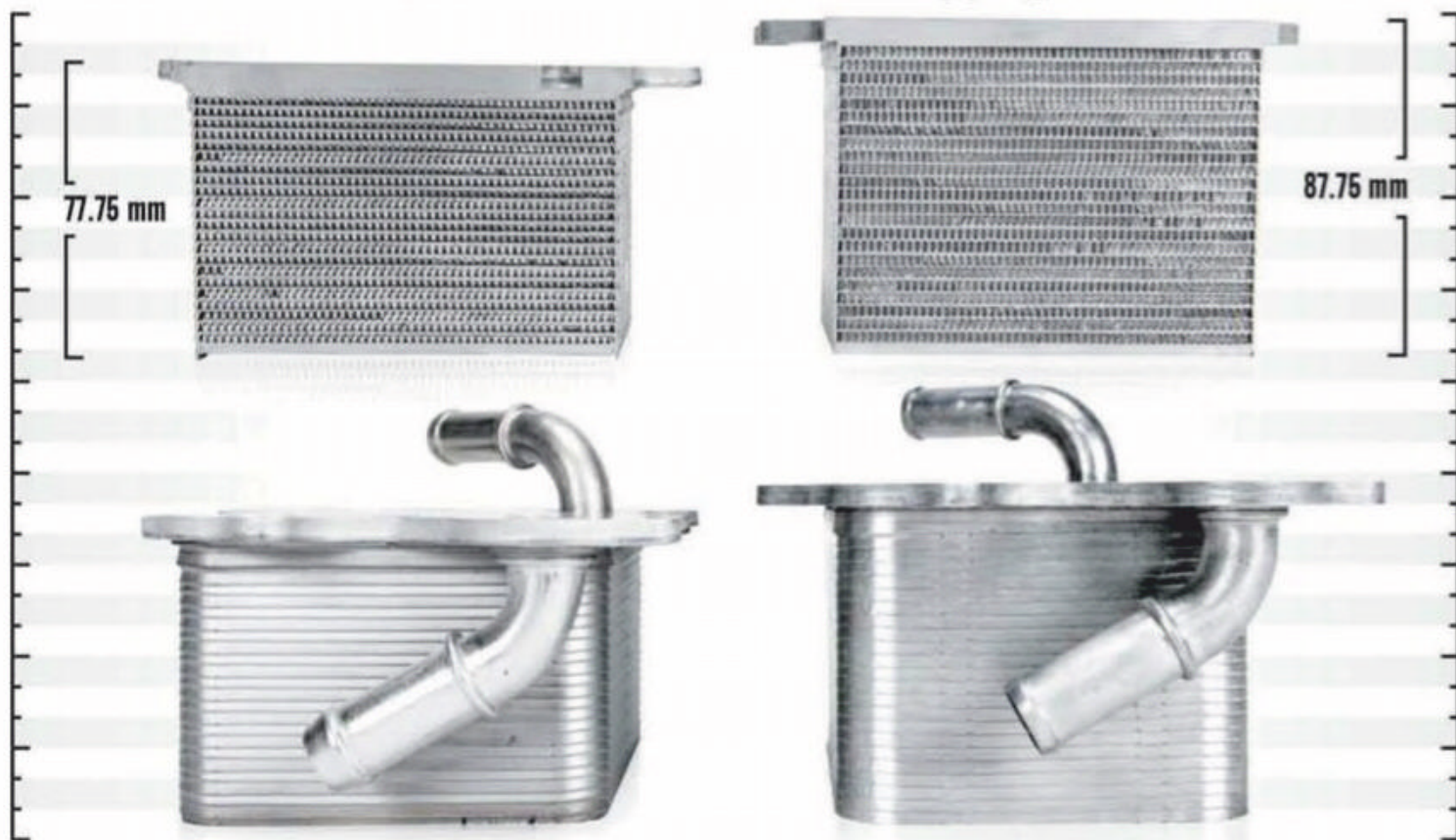
Support for the

6.7L POWER STROKE

THE INDUSTRY'S ONLY HD OIL COOLER OPTION FOR ALL 6.7L FORD VARIANTS

\$249.95!

Gaskets Included + Free Shipping!



- OE FORD 6.7L OIL COOLER

- BULLETPROOF 6.7L FORD OIL COOLER

Enhanced heat transfer capability!

Larger coolant pathways, more surface area, and additional stacked heat exchange layers.

Quick, easy installation with hand tools.

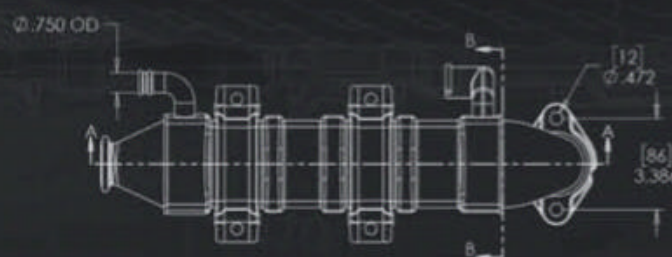
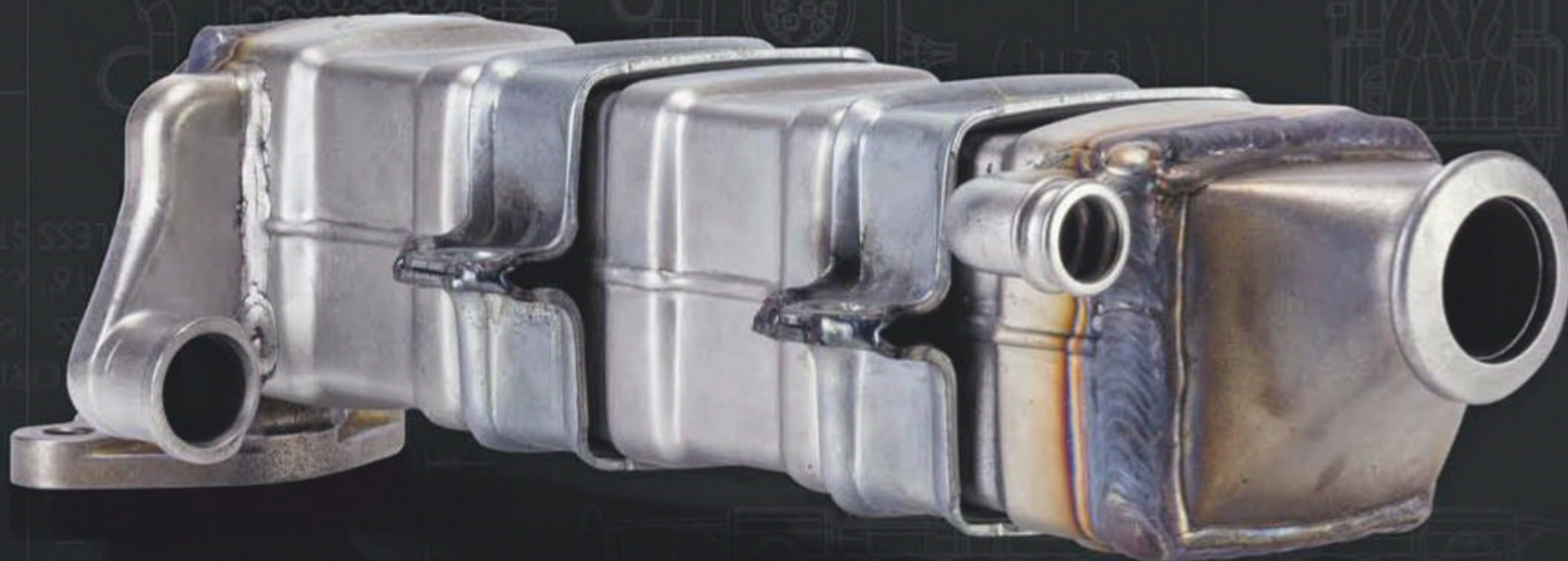
480.247.2331 • 888.967.6653 • bulletproofdiesel.com



Support for the

6.7L CUMMINS

THE BULLETPROOF EGR COOLER - A DIRECT FIT.



- Patented, exclusive H-Core™ technology resists failure conditions.
- Available for both pickup and chassis-cab trucks.
- Install it and forget about EGR cooler problems!

@BULLETPROOFDESL

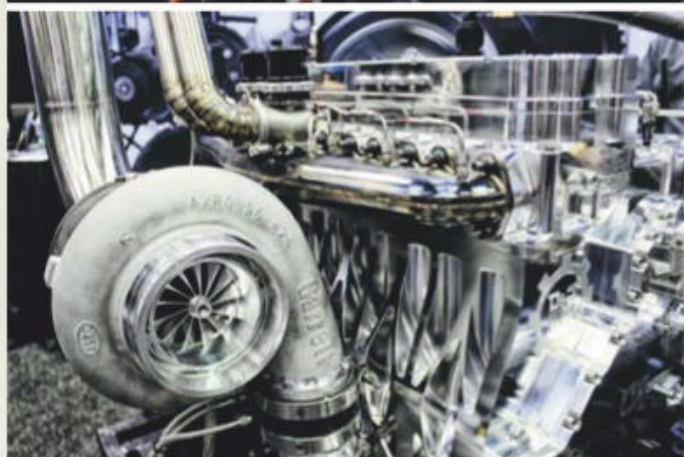


480.247.2331 • 888.967.6653 • bulletproofdiesel.com



ENDLESS ADVANCEMENT

**THE DIESEL
INDUSTRY TAKES
A BIG LEAP
FORWARD AT THE
2019 PRI TRADE
SHOW**



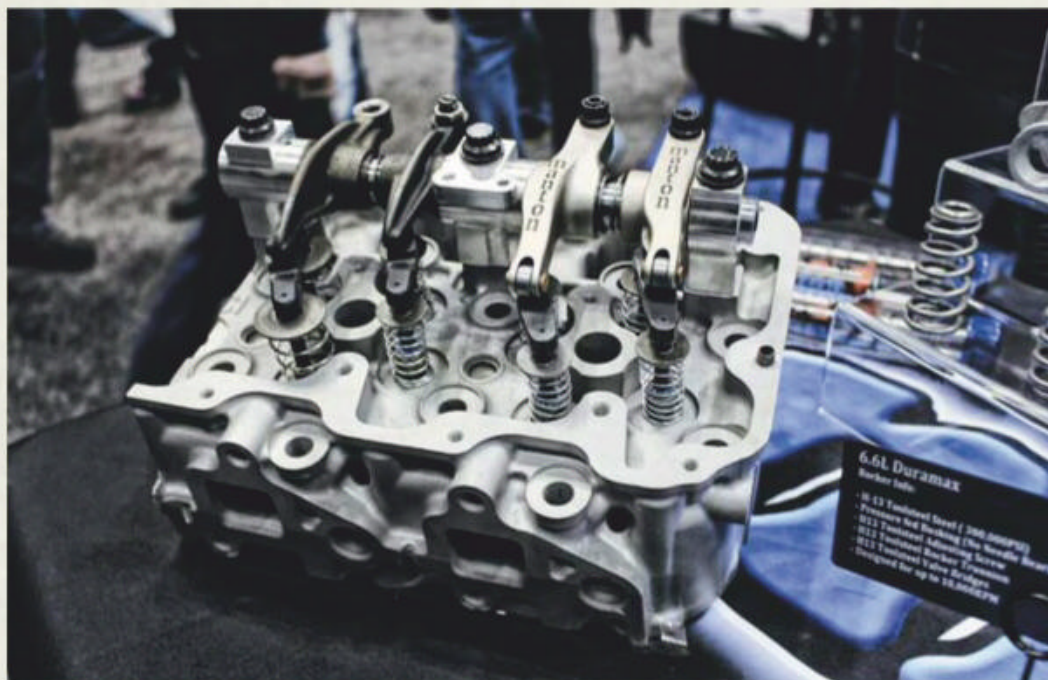
Nothing puts an exclamation point on the end of the year quite like the Performance Racing Industry trade show in Indianapolis. December 12-14, the 32nd annual PRI Show was held in the Indiana Convention Center, where it once again became the epicenter of new racing technology. Thanks to the more than 3,300 manufacturer booths, the exhibit halls were overflowing with championship-caliber vehicles, 3,000-plus horsepower engines, cutting-edge parts, and enthusiastic people. Luckily for us, the diesel performance side of the racing industry continues to be well-represented at PRI, and the general consensus at this year's show was that 2020 is going to be big.

At the Wagler Competition Products booth, its P-pumped Duramax-based DX460 monstrosity was the focal point. One look at this mechanical masterpiece and you'll see why Wagler is serious about obliterating the 3,000hp wall with this Duramax. Over in ARP's neck of the woods, Haisley Machine seemed to have switched to a 24-valve version of its deck-plate, Super B Cummins for the Super Stock truck class. And as the guys from D&J Precision Machine counted down the days to their return to the engine dyno, their billet-aluminum block and head Cummins was available for everyone to see in the Fluidampr booth.



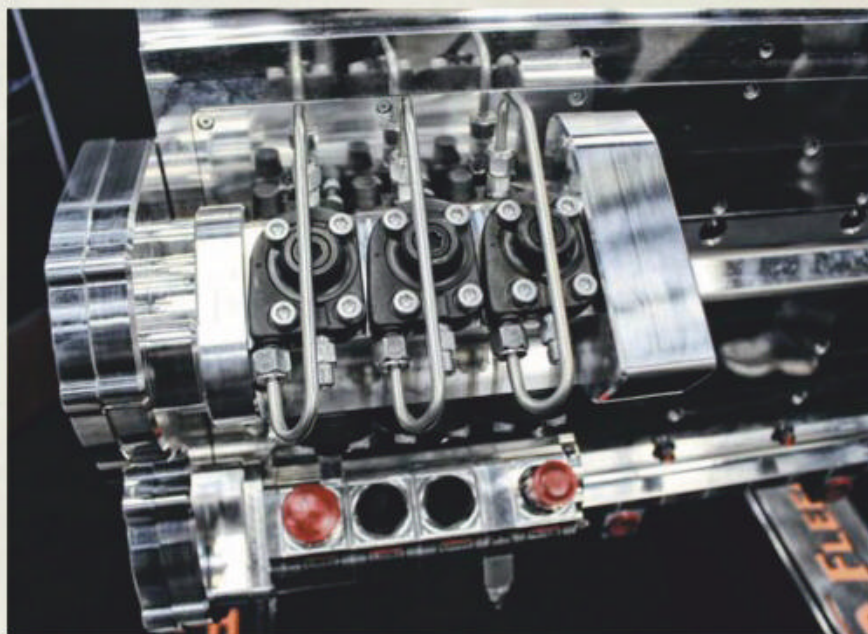
▲ Meet the engine that will power the Firepunk Diesel/Save the Racks S10 Pro Mod in 2020. D&J Precision Machine's Executioner series Cummins is comprised of a billet-aluminum block with a bed plate and 6-bolt mains, X-beam rods, forged steel ring pistons, and a billet-aluminum 24-valve cylinder head with dual exhaust ports and an individual runner exhaust manifold to match it. The goal of D&J's Executioner series program was to build an engine capable of making more than 3,000 hp while simultaneously ensuring utmost durability. Immediately following the PRI Show, the guys at D&J loaded up and headed straight to the engine dyno, where the Executioner cleared more than 3,200 hp!

ENDLESS ADVANCEMENT

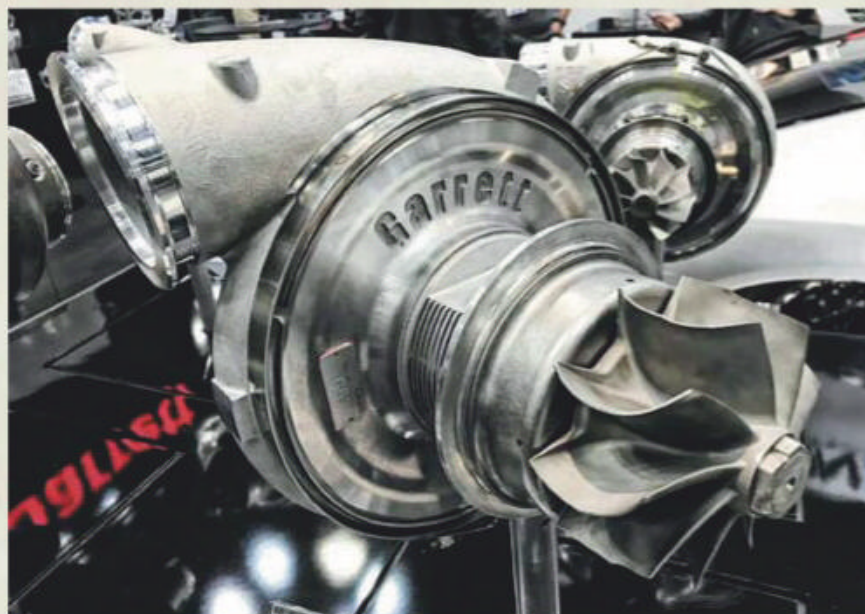


Representing the Outlaw Diesel Super Series, the world's fastest Power Stroke from the Rudy's camp, PPEI and NGM Diesel's brand-new Duramax-powered Corvette, and Logan Yelton's 5.90 Index first-gen all received designated parking spots. Key fuel system, turbocharger and valvetrain advancements came in the form of the latest gear-driven lift pump, which couples directly to CP3's, hubless compressor and turbine wheel technology, and rocker arm and rocker shaft improvements for the Duramax. Take a walk with us down the aisles of PRI in the pages that follow. **DW**

▲ Manton Pushrods H-13 tool steel (300,000 psi) roller rockers might just be the ultimate solution to high-rpm issues associated with the Duramax. They feature a pressure-fed bushing (i.e. no needle bearing), an H13 tool steel adjusting screw and rocker trunnion, and were designed to handle as much as 10,000 rpm. Manton's rockers will find a home in Tony Rizzi's No-Prep Duramax, a short-stroke engine that sees 7,800 rpm on a regular basis. It's also worth noting that Manton's rockers are direct replacements for the stock units, which means if you have an issue with one at the track you can simply swap in an OEM version and keep racing.



▲ As proof that there is never any shortage of innovation going on at Fleece Performance Engineering, they used PRI to introduce the "Uber Pumper." It mates three Denso HP4 high-pressure pumps together in-line, driven off of one common shaft courtesy of the accommodating billet front cover. And what better way to debut its radical triple-pump design than by hanging it off of the company's billet-aluminum Cummins block?



▲ Every year it seems Garrett pushes the bar higher on large-frame turbochargers. 2019 was no different thanks to the unveiling of its G57, a charger offered with your choice of an 88mm, 94mm, 98mm, 102mm, or 106mm compressor wheel (inducer). The G57 incorporates a groundbreaking one-piece aluminum center housing and backplate to save weight, and the new 118mm Inconel turbine wheel hanging off the other end of the shaft flows 19-percent more than the wheel used in its GTX Gen II equivalent.



▲ Wagler Competition Products knocked it out of the park this year with its all-billet, mechanically-injected, and Pro Stock turbocharged DX460. From top to bottom, the menacing V8 is a true work of art. Working with Wimer Fuel Injection & Turbo, a 16mm plunger billet inline pump lives in the valley and a Pro Stock tractor turbo with an estimated 6-inch inducer sits up top. The floating water-to-air intercooler core out front is designed to solve several performance-related issues in the engine's truck-pulling application.



▲ The second DX460 on display in the Wagler booth was a common-rail sporting triple 14mm CP3's from S&S Diesel Motorsport. Also graced with S&S's massive, Ordnance LE injectors, this 3,000hp-capable Duramax is destined for Randy Overton's Super Stock pulling truck. Also notice the top CP3, which had been fitted with S&S's new bolt-on mechanical lift pump.

THE ONLY!

**XXL Replacement Fuel Tank
Tough Enough to be;**

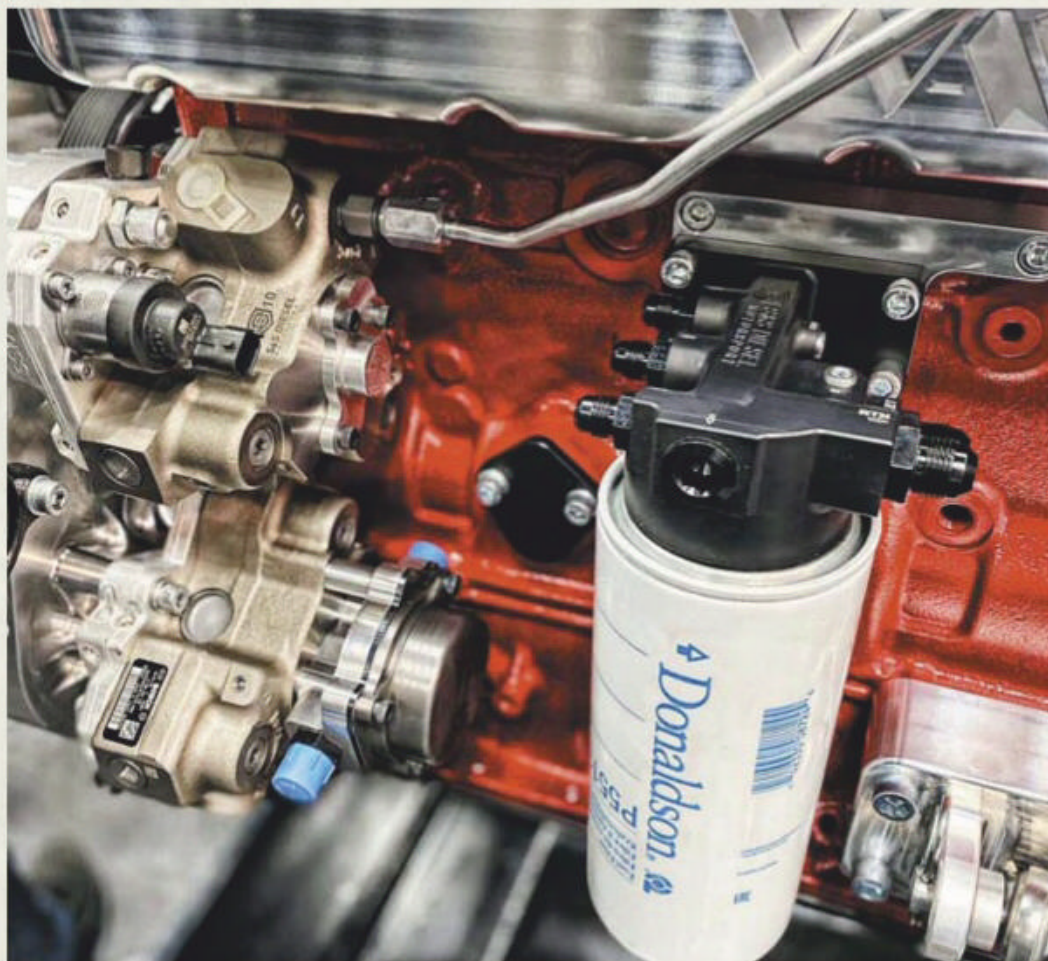
Made in the U.S.A. and

Backed by a Lifetime Warranty!



**TITAN™**
FUEL TANKS
titanfueltanks.com

ENDLESS ADVANCEMENT



▲ Thanks to its simple design and the weight savings it will provide competitors, S&S Diesel Motorsport's new CP3-coupled lift pump should prove to be a major breakthrough for high-end common-rail engines. Capable of flowing 3,000-lph, its gear-driven pump will have no problem supporting as many CP3's as you want to run. Here, S&S's pump is shown as part of its fuel delivery system bolted to one of Wagler's Streetfighter series Cummins engines. In addition to the fuel pump, S&S's soon-to-be-released kit features a filter head that can feed up to three CP3's and that utilizes a Donaldson filter.



▲ Inside the confines of the ARP booth, passersby were treated to one of the most tried and true Super Stock engines in the industry: a Haisley Machine Super B. Surprising to some, the 3,000-plus horsepower Cummins was sporting a 24-valve cylinder head rather than a done-up 12-valve piece. A sleeved, filled, and deck-plated, 6.7L cast-iron based block is still part of the Haisley forte, but his particular engine flaunted a billet 18mm inline pump from Wimer Fuel Injection & Turbo, along with three massive Wimer turbos.



▲ Is this the Pro Mod to beat in 2020? A lot of folks seem to think so. Thanks to the Jerry Bickel chassis, sub-2,700-pound curb weight, and 4.3-second eighth-miles without even locking the converter, it's definitely a step ahead of other ODSS Pro Mods. The PPEI/NGM Diesel Racing Engines C7 Corvette sports a billet 408ci Duramax with Wagler heads, Industrial Injection fueling, Bullseye air, a Rossler transmission, a Nitrous Express system, and is completely Motec-controlled. At Rudy's Fall Truck Jam, the car put up a 1.02-second 60-foot, a 2.88 330-foot, and the aforementioned 4.3-second blast through the '660.

► Located in the Scheid Diesel booth, it only made sense that a Scheid spec'd Cummins was parked under the hood of Logan Yelton's 5.90 first-gen. The mechanical 12-valve boasts one of Scheid's ported heads and its valvetrain, a Lightning 13mm P-pump, 5x.035 injectors, an individual runner intake manifold, a water-to-air intercooler, and a Pro Mod 88mm turbo from Precision. The Cummins is backed up by a Loganbuilt non-lockup 48RE that employs a Goerend converter and a transbrake valvebody.



▲ Logan Yelton's first-gen will be the freshest face in the ODSS 5.90 Index class in 2020. Yelton's '93 W250 will bring four-wheel drive to the table, along with a tubed back-half, front and rear four-link, a front Dana 60, and a fabricated chromoly 9-inch from Advanced Chassis in the rear. The flawless body work was handled by Yelton's Body Shop and Bucky's Ltd Auto Body (the truck is all-steel), with Optic Armor Performance side and rear windows.



FUSION BUMPERS

CALL
888-779-3377



PREMIUM HEAVY DUTY BUMPERS FOR FULL SIZE DODGE, FORD & GM TRUCKS

CAD DESIGNED & LASER CUT AMERICAN STEEL GIVE OUR BUMPERS THE BEST FIT

FACTORY FOG LIGHT MOUNTS *STANDARD FEATURE - MOST APPLICATIONS

1/4" FACE PLATE WITH UP TO 8 GUSSETS PROVIDE SUPERIOR STRENGTH

AIR VENTS PROVIDE OPTIMUM AIRFLOW TO INTERCOOLER & RADIATOR



Fusion Bumpers



fusionbumpers



BUMPERS ARE MADE TO ORDER WITH MANY OPTIONS!

WWW.FUSIONBUMPERS.COM

ENDLESS ADVANCEMENT



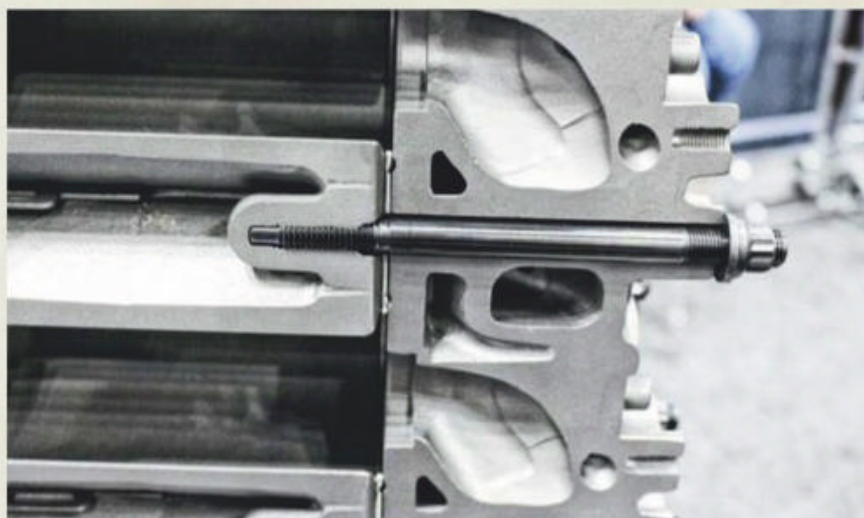
▲ Over at the APEX Turbo booth, its mild-to-wild turbocharger line was reeling in all kinds of forced induction fans. The company's groundbreaking hubless compressor and turbine wheels provide increased surface area by doing away with a conventional through-shaft and nut design. Instead, the turbine shaft is threaded into the wheel, which comes to a point, and which allows for a 15-percent bigger bite of air. APEX also told us that, thanks to not having to machine a hole for the shaft to protrude through, its hubless wheels are significantly stronger than traditional designs.



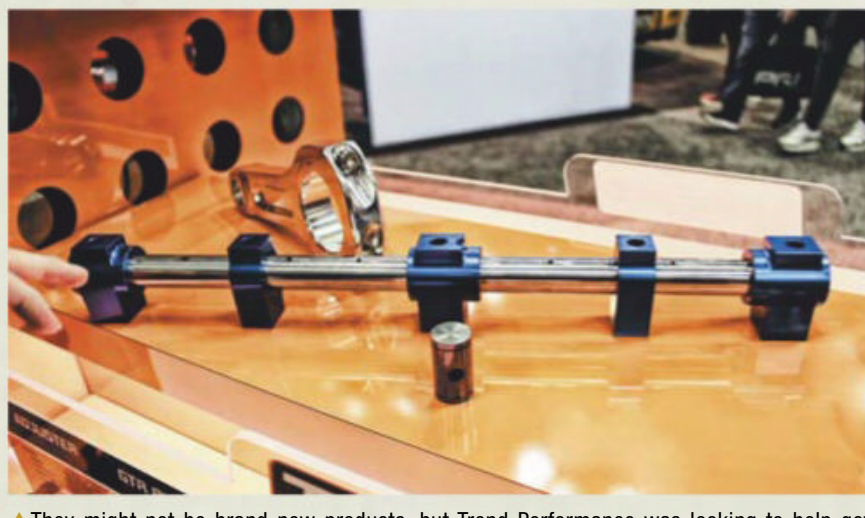
▲ Though diesel performance's welcomed infiltration into the PRI show has continued to grow over the last decade, the 2019 event brought even more diversity to the table. Thanks to Salenbier Performance and Brandon Hunt, Hunt's 8,000-pound Super Stock tractor coined Livin' A Dream was on display, and swiveling heads all weekend. Novices to the sport were in awe of this machine's two-stage, triple-turbo arrangement, its ability to produce (and live) at 300-psi of boost, and that the 540ci IH inline-six produced 7,000 lb-ft of torque on the engine dyno.



▲ XDP hauled its Cummins-powered monster truck to PRI in bodiless form to give show-goers an insider's view of what goes into their state-of-the-art machine. From the Patrick Enterprises chassis to the D&J Enforcer series compound turbocharged Cummins, and the air-shifted Lenco to the Pettibone and Rockwell axles, there was plenty to gawk at. As a bonus, driver Dave Radziczewski was also hanging out in the booth.



▲ After blasting into the convention center with its six-turbo Cummins test-mule in 2018, Opti-Torque Fasteners made the trek back to Indy this year. This time the Cummins monstrosity was left at home, but the folks at OptiTorque filled us in on its high-strength Cummins head studs as well as its latest release: an OEM exhaust manifold stud upgrade kit for the 6.7L Cummins.



▲ They might not be brand-new products, but Trend Performance was looking to help get the word out about its Duramax rocker shafts and stanchions at the PRI Show. For its shafts being made from 4130 chromoly, straightened at five points for exacting valvetrain geometry, and featuring engineered oiling slots for improved lubrication, they certainly garnered our attention. Its stanchions are machined from rigid 6061 aluminum and are specifically designed to prevent flexing under extreme operating conditions.

UNIQUE AUTOMOTIVE LIGHTING COMPONENTS



RECON

UNIQUE AUTOMOTIVE LIGHTING COMPONENTS

GoRECON.COM • 877.377.3266

ORDER ONLINE GET 10% OFF
USE PROMO CODE: DW19

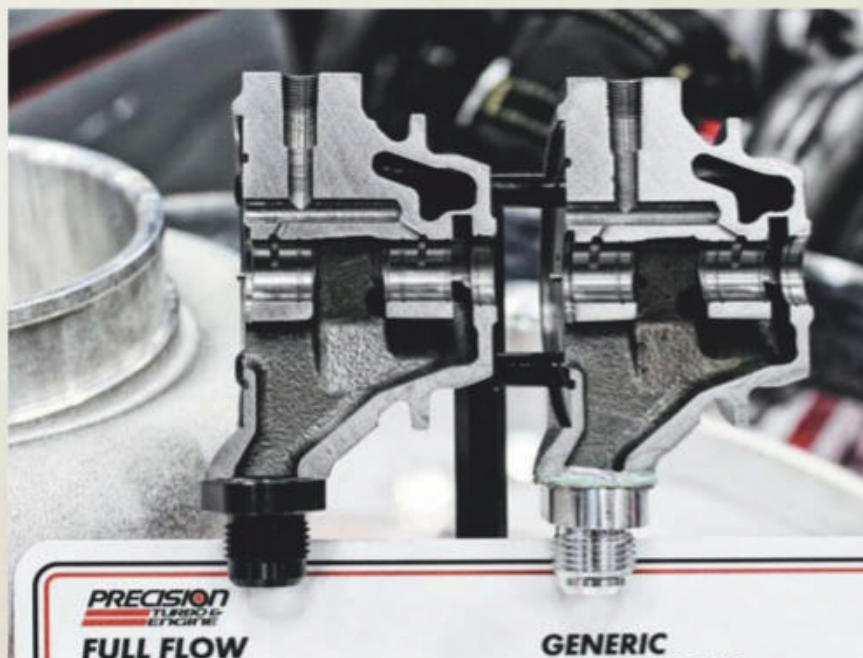
ENDLESS ADVANCEMENT



▲ Although there were a lot of things to see at the Meyer Distributing booth, the first thing we noticed was the rotating D&J Enforcer series Cummins that was on display. Thanks to their proven durability and horsepower potential, D&J Precision Machine's common-rail engines have become extremely popular in recent years. Firepunk Diesel's campaigning of these near-bulletproof mills in its record-breaking trucks has certainly helped matters.



▲ Turbos are cool, but we all know they can be expensive. For half the cost of an off-the-shelf turbo, you can add the gas form equivalent thanks to Nitrous Express's diesel stacker systems. The company's complete, bolt-on kits can add anywhere from 50 to 500 hp to your winning combination while reducing smoke and dropping EGT significantly.



▲ In the age of massive turbochargers, it's important to remember that proper oil supply and return is vital to any turbo's lifespan. Precision's turbo oil drain cutaway comparison was eye opening for many show-goers. While both drains utilize a -10 AN male fitting, Precision's incorporates an O-ring seal rather than a paper gasket with globs of sealant, and features a port area of 0.283-inch² (vs. 0.144-in² in most generic drains).



▲ Bully Dog's Performance DPF isn't exactly new, but we expect to see more of these infiltrating the diesel market in the coming years. Bully Dog's unit provides a 17-percent increase in exhaust flow which drops EGT as much as 12-percent and back pressure by as much as 44-percent. Primarily designed to slow soot accumulation, the high-flow DPF is also fully serviceable. At the present time, Bully Dog offers a Performance DPF for '08-'10 6.4L Power Strokes and '07.5-'12 6.7L Cummins-powered Rams.



1-888-DIESEL4

DIESEL

ARP HEAD STUD KITS

ARP Head Studs are rated at 220,000 psi tensile strength and provide the clamping force required to keep your diesel cylinder heads from lifting due to higher combustion pressures. ARP Bolts are manufactured from proprietary ARP 2000 material, with threads rolled after heat-treating to provide optimum fatigue strength. They are centerless ground to assure perfect concentricity. Also included in each kit are heat-treated, chrome-moly steel 12-point nuts and parallel-ground washers, with a black oxide finish for extra durability.

ARP
automotive racing products

FEATURES:

- » Rated at 220,000 psi tensile strength
- » Threads rolled after heat-treat
- » Chrome-moly steel 12-point nuts
- » Black oxide finished for extra durability
- » Ford, Dodge and GM applications



FROM
\$425⁰⁰



RELATED ITEM

ULTRA-TORQUE ASSEMBLY LUBRICANT

ARP Ultra-Torque Fastener Assembly Lubricant has been specifically designed to reduce tension preload scatter and eliminate the need to cycle high performance engine fasteners before final installation.

BOTTLES STARTING AT \$16.99



EDGE INSIGHT CTS2 MONITOR & EAS SOTF ACCESSORY



- » 5" full color, high-resolution monitor
- » Monitor parameters with multiple gauge layouts
- » One-touch easy menu navigation
- » Expandable with EAS accessories

» Change existing custom tunes on-the-fly through Insight CTS2

EDGE FROM
\$434⁹⁵



ONLY
\$129⁹⁵



ARP BALANCER BOLT KITS

ARP Balancer Bolt Kits are optimized for enhanced reliability and increased strength. Each kit includes Pro Series balancer bolts that are rated at 200,000 psi tensile strength. ARP bolts are cold forged to ensure molecular integrity, heat treated prior to thread rolling and machining and designed to exceed the OEM fasteners in strength and durability. Optimum design, enhanced reliability and increased strength are the main attributes of ARP's Pro Series balancer bolt kits.

FEATURES:

- » Increased strength
- » Increased Reliability
- » 200,000 PSI Tensile Strength

ARP
automotive racing products

FROM
\$22⁹⁹



\$5 PRICE BEAT GUARANTEE - FREE SHIPPING OVER \$50

MISHIMOTO DIESEL INTERCOOLERS

Mishimoto intercoolers will support substantial boost pressure in your stock or highly modified truck. High intake and exhaust gas temperatures can reduce performance and potentially cause engine damage. Mishimoto intercoolers are precision engineered with durable cast aluminum end tanks and an efficient bar-and-plate core, all designed for improved airflow, lower intake temperatures, and improved EGTs.

FEATURES:

- » Direct fit for your make and model
- » All-aluminum TIG-welded construction
- » Reduce air intake temperatures
- » Increase core volume

MISHIMOTO



FROM
\$917⁹⁵

MBRP

- » Maximum flow
- » Lower Exhaust Gas Temperatures
- » Utilizes OEM Hangers
- » Increased Horsepower and Torque
- » Easy Bolt-on Kits, "Everything you need"
- » Aluminized - 3 Year Warranty
- » T304 & T409 - Lifetime Warranty



MBRP SERIES LINEUP



XDP X-TRA COOL RADIATORS

XDP's X-TRA Cool Radiators may look like a factory replacement, but are far from it. Built for increased durability, X-TRA Cool Radiators are built using techniques borrowed from the HD and semi-truck industry to maximize cooling efficiency and strength while still giving you the best value. X-TRA Cool Radiators use a high efficiency core to maximize cooling potential. With more fins per inch and heavy-duty tubes, the X-TRA Cool Radiators increase cooling efficiency over your stock radiator.

FEATURES:

- » Direct-fit replacement
- » Upgraded design for increased durability
- » High-efficiency core to maximize cooling
- » 1-Year Warranty

XDP
STARTING AT
\$208⁹⁵



MBRP 5" EXHAUST SYSTEMS

Select MBRP 5" Exhaust Systems now include an exhaust tip. Built from heavy duty materials, MBRP's performance exhaust systems offer a value price without compromising on the quality built into every component. Give your truck more pulling power and much improved throttle response with an MBRP 5" diesel exhaust system.

FEATURES:

- » 5" Stainless Steel or Aluminized Construction
- » Installs with common hand tools
- » Rich, Mellow Exhaust Note
- » Minimize Backpressure

STARTING AT
\$199⁹⁹



5" EXHAUST TIP
NOW INCLUDED

10% OFF CODE: DW2018

SAVE ON YOUR ORDER OF \$100 OR MORE

VALID NOW - 12/31/20 RESTRICTIONS APPLY. SEE OUR COMPANY POLICY FOR EXCLUSIONS.



YOUR ONE-STOP-SHOP FOR POWER & PERFORMANCE
XTREMEDIESEL.COM

OFFICIAL PARTS
SUPPLIER OF

WELDERUP

SOURCE CODE
DW0520

* Not legal for sale or use in California on pollution controlled motor vehicles. Not responsible for typographical errors. Pricing subject to change without notice. *See website for restrictions

ENDLESS ADVANCEMENT



◀ We would be remiss if we failed to highlight how instrumental HP Tuners was in unlocking the L5P Duramax ECM, which made for a very eventful 2019. By facilitating the path into the '17-plus computer, keyboard wizards were able to summon another 200hp from GM's latest 6.6L V-8 without upgrading injectors, the high-pressure fuel pump, or even the factory VGT.



◀ To illustrate the effectiveness of its fuel supply systems in real time, Fass set up its functionality demonstration displays, including the exhibit that showcases its superior water separating capabilities over its biggest competitor. The Fass reps were also quick to point out that Fass filters will cross reference with more than 30 others on the market, and that the company sees less than a 2-percent failure rate.



▲ As a reminder that piston coatings matter, Swain Tech had this little exhibit front and center at its booth in Green Hall. Beyond its thermal barrier offerings for pistons, the New York-based company was promoting its White Lightning exhaust coatings. A true ceramic coating that's applied more thickly than most, it offers superior insulating and radiant heat reduction. This means that components like up-pipes and headers don't shed the heat they need to drive a turbocharger as effectively as possible.



▲ For an up close and personal look at the quickest (and fastest) eighth-mile Power Stroke in the world, attendees were encouraged to stop by the Hot Shot's Secret booth and catch a glimpse of the Rudy's Performance Parts Super Duty. Driver Rawlings Barnes piloted the Pro Mod F-250 to a Second Place points finish in the ODSS Pro Mod category in 2019, and then turned in his new personal best of 4.51 at 156 mph at the PDRA World Finals during an exhibition run shortly thereafter. The new, record-setting pass also included a 1.1-second 60-foot and the truck's first time hitting the 330-foot mark in under 2 seconds (2.98).



▲ Fit's well known that RevMax Converters builds one of the toughest 68RFE automatics you can buy, but now its customers can keep their six-speeds even happier with this extra capacity transmission pan. The high-temp, black powder coated aluminum pan holds four more quarts of ATF than stock, features internal gussets for increased rigidity, comes with 1/8-inch NPT temperature ports, and ships with stainless steel mounting hardware.



STEALTH[®]
PERFORMANCE PRODUCTS

DISCOVER YOUR TRUCK'S POTENTIAL

INTRODUCING THE WORKING CLASS SOLUTION FOR SAFE, EFFICIENT,
AND EMISSIONS FRIENDLY POWER IN DIESEL PICKUPS.



MORE POWER

MORE TORQUE

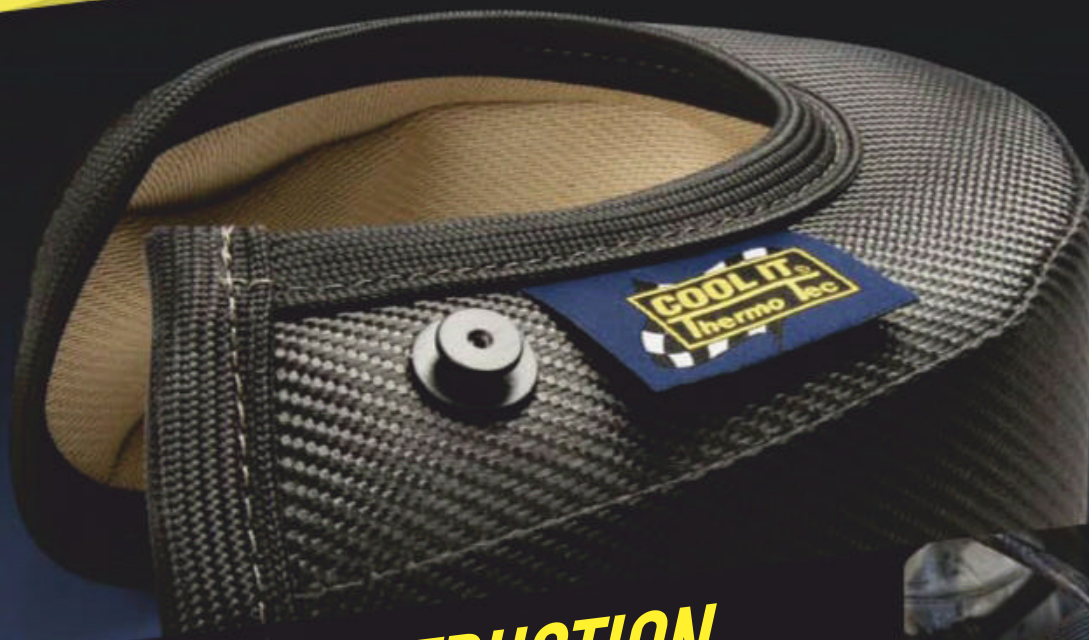


“...The stealth has taken the turbo lag almost completely out of the truck.
The mpg has increased. I could not be happier. Dont think twice, get yourself one.”

PLUG AND PLAY NO FOOTPRINT LEFT BEHIND EASY INSTALLATION RAM, FORD, CHEVY/GM

☎ 888-613-4304 🌐 STEALTHMODULES.COM

**EASY FIT
TURBO COVER**



USED BY [HOONIGAN]

**DUAL-LAYER CONSTRUCTION.
IMPROVES HORSEPOWER**

(800) 274-8437 www.ThermoTec.com

Enter code **DW20** to receive 20% off your order at ThermoTec.com

Available at:



Get One Issue FREE!
+
SAVE 78% on Annual Subscription

SUBSCRIBE NOW

To Your Favorite Diesel World Digital Magazine

Just log on to

ENGAGEDMEDIAMAGS.COM/EEM-5031

OR

SCAN QR CODE BELOW



Available on app stores below



***12 issues for only \$19.99**

Single issues are also available at **\$5.99**.

For questions on downloading the magazine apps contact 800-764-6278.
For a full listing of our digital titles, visit www.engagedmediamags.com/digital today!

**THE PERFECT
FIT FOR
THE ROAD
AHEAD**

THE CHOICE IS YOURS

THROTTLE RESPONSE CONTROL FOR WHEREVER THE ROAD TAKES YOU



OFF-ROAD

During extreme off-roading the accelerator pedal can bounce and move suddenly. Increasing the throttle sensitivity would cause a very dynamic power delivery and could be dangerous and destructive. The purpose of the REACT OFF-ROAD is to improve drivability, and we accomplished this by developing the REACT CRAWL mode. CRAWL mode increases throttle response during normal driving and smooths out the jerkiness of a bouncy accelerator pedal.



PERFORMANCE

The REACT installs in a matter of minutes and allows you to adjust your throttle response on-the-fly. Tap the knob to swap between each setting, and rotate the knob for more or less response. The REACT's intelligence also remembers your settings per mode as you swap around, so once you have it dialed in it's even easier to use. From wild performance on the TRACK setting, all the way down to the money saving ECONOMY setting you can dial in the power delivery in seconds.



TOW

Towing heavy loads can be stressful when you have to max out your accelerator pedal just to get going from a stop, accelerate up to speed on an on-ramp, or to hold speed on the highway. By using the REACT to dial in your throttle response you can actually make towing much more stress-free. From the extra low-end boost of the HEAVY TOW setting, to the smooth take-off built into the WET/ICE setting, you're ready for any load or driving condition.



Features & Benefits

- On-the-fly adjustments • LED setting indicators
- Multiple levels of safety protection • Custom tuning software
- Automatic setup sequence (no disassembly required)
- Internet updateable • Doesn't void factory warranty

Over 5000 React Applications!

Available for select Chrysler/Dodge/Fiat/Ford/GM/Infiniti/Jep
Lexus/Lincoln/Nissan/Ram/Scion/Toyota...*Plus Others!*



The REACT installs easily with the supplied A/C vent mount (shown) or optional pedestal swivel mount (sold separately)

HYPERTECH

The World Leader In High-Performance Engine Tuning



hypertech.com

PLUG IT UP. POWER IT UP. LIVE IT UP!

* Application specific - See website for details.

P-PUMP CUMMINS TIMING

12 DEGREES OF TIMING TO 18 DEGREES—
HOW MUCH WILL WE GAIN?

@CALIOFFROAD



9110

SUMMIT

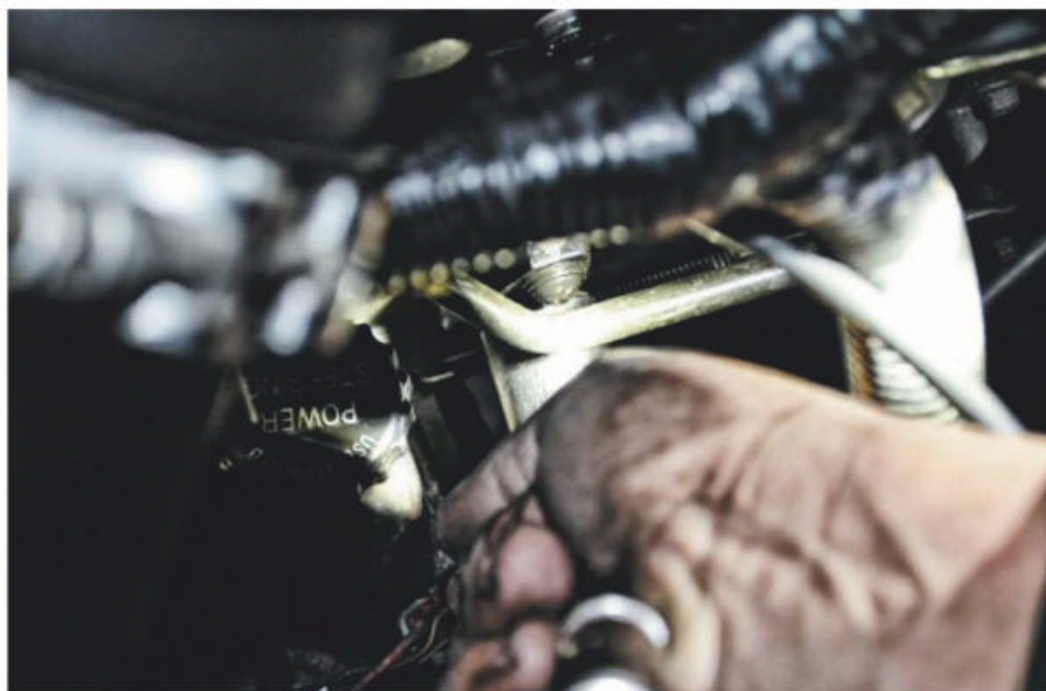
GLOSS BLACK W/ MILLED SPOKES • POLISHED • BRUSHED & CLEAR COATED

20x9 | 20x10 | 20x12 | 22x12 | 24x14

Cali Off-Road Wheels pushes boundaries and takes you places no one would dare go before. Pristine styling and radical sizing with the chops to handle everything from blacktop to backwoods and beyond.

CALIOFFROAD.COM





▲ Our first step of our timing change involved removing a 24mm cap and removing a small plastic “bullet” that is used to pin the pump so it won’t move. A small amount of oil will come out which is ok, since it will be replenished as soon as the truck is restarted.



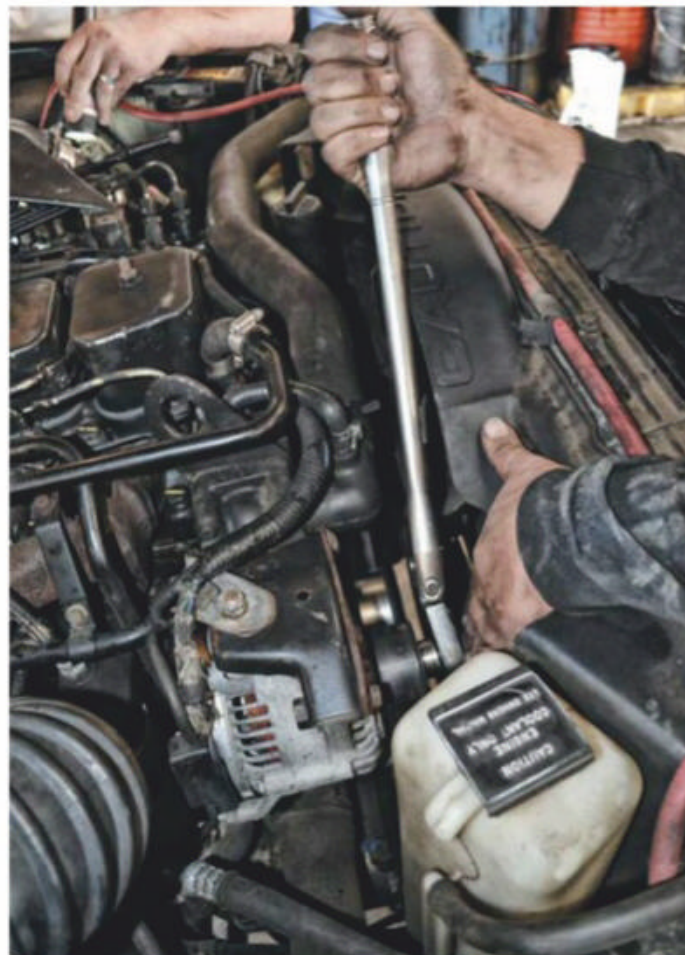
◀ The timing pin is removed, and will be reinstalled backwards later in order to hold the pump at a set timing. But for now we just needed to remove it. If you’re worried about breaking the small plastic pin (which can happen if you’re not careful) metal ones are available from various vendors.



▲ Moving up to the top of the engine, we loosened the #1 injection line from the clamps and bent it slightly in order to clear the pump’s delivery valve. If you don’t feel like bending the line you can always just remove it.

We hear it all the time, timing makes power. But how much power? Well, there are a number of variables but it was a question we decided to try and answer with our pretty much stock 12v P-Pump Cummins project Green Monster. In our last installment we had put in a set of Scheid Diesel 5x0.018-inch injectors and gained a whopping 117 horsepower on the dyno. Since we were driving the turbo harder, boost also went from 19 pounds to 38 pounds which was part of our vast increase in power. To make the most of these new injectors though, we needed to add timing.

Injection timing in a diesel works very similar to the timing curve that you would find in a gasoline engine. One of the main differences however is that you can run a lot more tim-



▲ Next we removed the back #6 valve cover so we could see the rocker arms and then turned the engine backwards by the alternator to get close to TDC. With the valves on #6 on overlap (the rockers are crossing each other rising and falling) #1 should be close to Top Dead Center (TDC) on the compression stroke, which is where we’ll need it to check timing.



▲ Next we used a specialty delivery valve tool to remove the delivery valve from the pump, which will come out in a number of pieces. Don’t lose any of these! Or get them dirty.

LOW PROFILE. HIGH QUALITY.

These bumpers are low profile and held to the highest standards of quality. Our Low Pro series offers Hammerhead's signature American-made strength coupled with a sleek design built to take a beating. Visit hammerheadarmor.com and hit the road with a Low Pro today.



LOW PROFILE
PRE-RUNNER FRONT BUMPER



LOW PROFILE
FORMED GUARD FRONT BUMPER



LOW PROFILE
NO BRUSHGUARD FRONT BUMPER



1-855-HHTOUGH

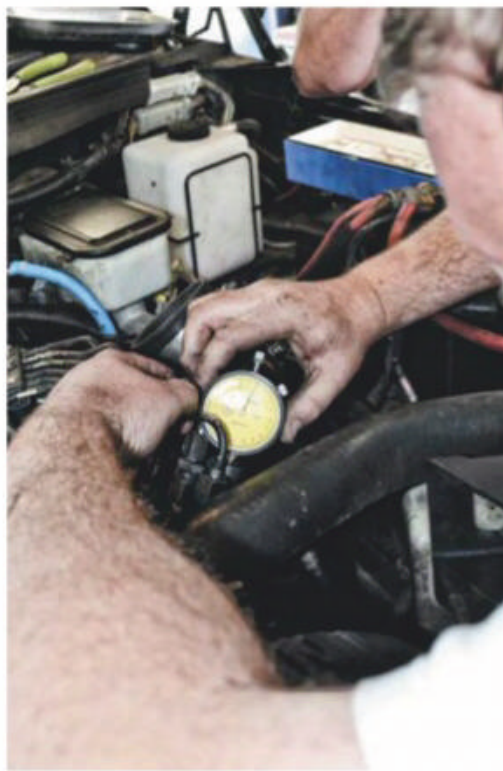
CHECK OUT THE REST OF OUR PRODUCTS ONLINE
WWW.HAMMERHEADARMOR.COM

HH **HAMMERHEAD**
PREMIUM AFTERMARKET BUMPERS & ACCESSORIES

ing with boost in a diesel engine thanks to their direct injection and robust nature. The factory sets timing at 12 degrees, which is fine for cold startups noise concerns and overall power, but we wanted to tell the balance a bit towards the power part of the equation. This meant ramping up the timing well above our 12-degree starting point.

One of the main considerations when it came to setting timing is that we were still on the stock 270,000-mile head gasket with factory re-tightened headbolts. We have run up to 30 degrees on trucks with ARP 625 head studs and fire ringed head gaskets but we would be limited (for now) by our factory parts. Many hot street trucks or folks that tow and want a little better mileage ought to go just a few degrees over stock which is what we did. We felt that a 5 to 7 degree bump would be adequate, and in the end we decided to go from 12 degrees up to 18 degrees of timing.

We had the folks at Brown's Diesel help us in setting timing the "correct way" which is to use a dial gauge on the delivery valve holder. You'll need the specifications of your pump (160hp, 180hp, or 215hp) but as long as you have that you should be good to go. The actual process didn't take that long, but it was good to have two people on the truck. We also marked one side of the crank position sensor to see how far it moved for those who may not have a dial indicator. The rumor was that moving the engine from one side of the crank sensor



▲ Technician Erick Brown mounted a dial indicator on the pump that extended down into the pump and measures pump camshaft lift. This will be used to determine timing.



▲ When we got close to TDC, we took the valve cover off the number 6 cylinder and had one mechanic go under the truck and turn the engine slowly by the flywheel teeth until the rockers crossed over. This meant cylinder number one would be on the top of the compression stroke. Other popular methods of finding tdc are pushing on the timing pin right below the injection pump, or using a dial indicator set to the piston on the number 1 injector hole.



▲ We marked TDC on the balancer on either side of the crank sensor with a screwdriver for future reference, and to see how much the damper would turn when our pump was re-timed.



▲ After we found TDC, the oil filler was taken off, which gave us access to the large timing pump gear nut.



▲ Back up on the top of the pump, we put the dial indicator at a high number and rotated the engine backwards until the pointer stopped dropping. This meant the dial indicator is at the back of the pump cam lobe. From there, we zeroed out the dial indicator at 0.0 to find timing via plunger lift.



▲ From 0.0 lift, we rotated the engine forward until it reached TDC, which was measured at 5.6mm of lift, or about 12 degrees. Since factory timing was listed at 12.5 deg on our truck, we knew we were very close to TDC.



PULSAR *INSIGHT*

REDEFINING L5P TUNING

MONITORING / THROTTLE RESPONSE / CALIBRATION / ON-THE-FLY POWER

- Up to 90 HP and 156 lb-ft torque
- Change 5 power levels on-the-fly using +/- cruise control buttons or the Insight CTS2
- Easily connects directly to ECU in engine compartment providing instant power
- Built-in throttle sensitivity control for improved throttle response
- EGT backdown (On/Off ranges 1000-2000 level specific)
- High-idle user settings to adjust RPM during idle (range 700-1100 rpm)
- Transmission slip backdown (On/Off level specific)
- Cold engine protection backdown (On/Off)
- Gear change backdown (On/Off level specific)
- Provides the ability to recalibrate the speedometer for wheel/tire changes (range 29"-50")
- Turbo timer settings (On/Off set by EGT (250-700 degrees) and/or time up to 15 min.)
- Axle gear ratio adjustments (3-7 ratio adjustments)
- TPMS pressure adjustments (1-100 PSI levels)
- Transmission relearn feature for new power levels
- Display injector balance rates on the Insight CTS2
- Updates for the Pulsar are managed directly through the Insight CTS2 module

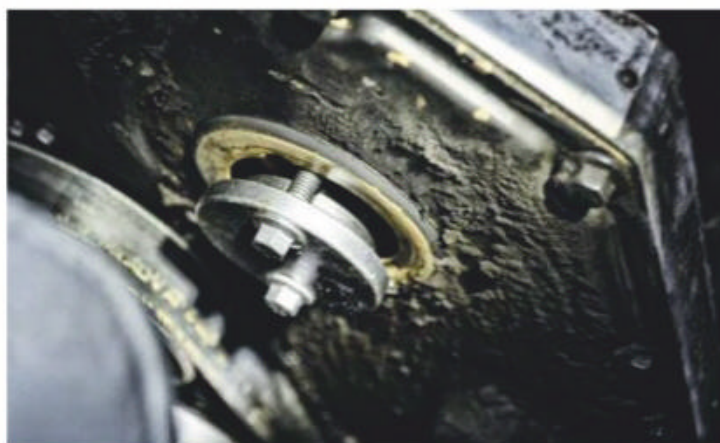
EDGE

For vehicle applications and product availability call (801) 476-EDGE or visit www.edgeproducts.com

pickup to the other with the pump gear off was worth about 10 degrees, as it turned out, the Internet was close, and it actually turned out to be closer to 12 degrees.

Once on the dyno the truck was a little louder, but nothing that bad, and cold start and other driving aspects of the truck remained unchanged. It should be noted that we did have to adjust the idle up which was performed at the back of the pump with a 19 mm wrench. On the dyno, we were quite pleased with the power game, as we picked up an additional 30 horsepower over what we had made with just the injectors alone. The additional timing also actually made the boost drop from 38psi to 35psi so in an apples to apples comparison the extra six degrees of timing may have been worth even more than 30 horsepower. With 400 in sight, our next move will be to install a lift pump from Power Driven Diesel to see if we can break the 400whp mark. As for now, we learned that even six degrees will make quite a difference in power, and in our case was worth almost 10 percent! **DW**

SOURCE
BROWN'S DIESEL
559.867.1111
BROWNSDIESEL.COM



▶ We continued moving the pump to 6.8mm of lift, or approximately 18 degrees before pinning the pump (with the plastic pin shown in the third photo) and then pulling the injection pump gear with a gear puller. A barring tool was used to secure the engine in place so the timing pin wouldn't break when the gear was broken loose.



▶ After pinning the pump, we turned the engine back to our TDC marks, so that the pump would now be timed at 18 degrees of timing.



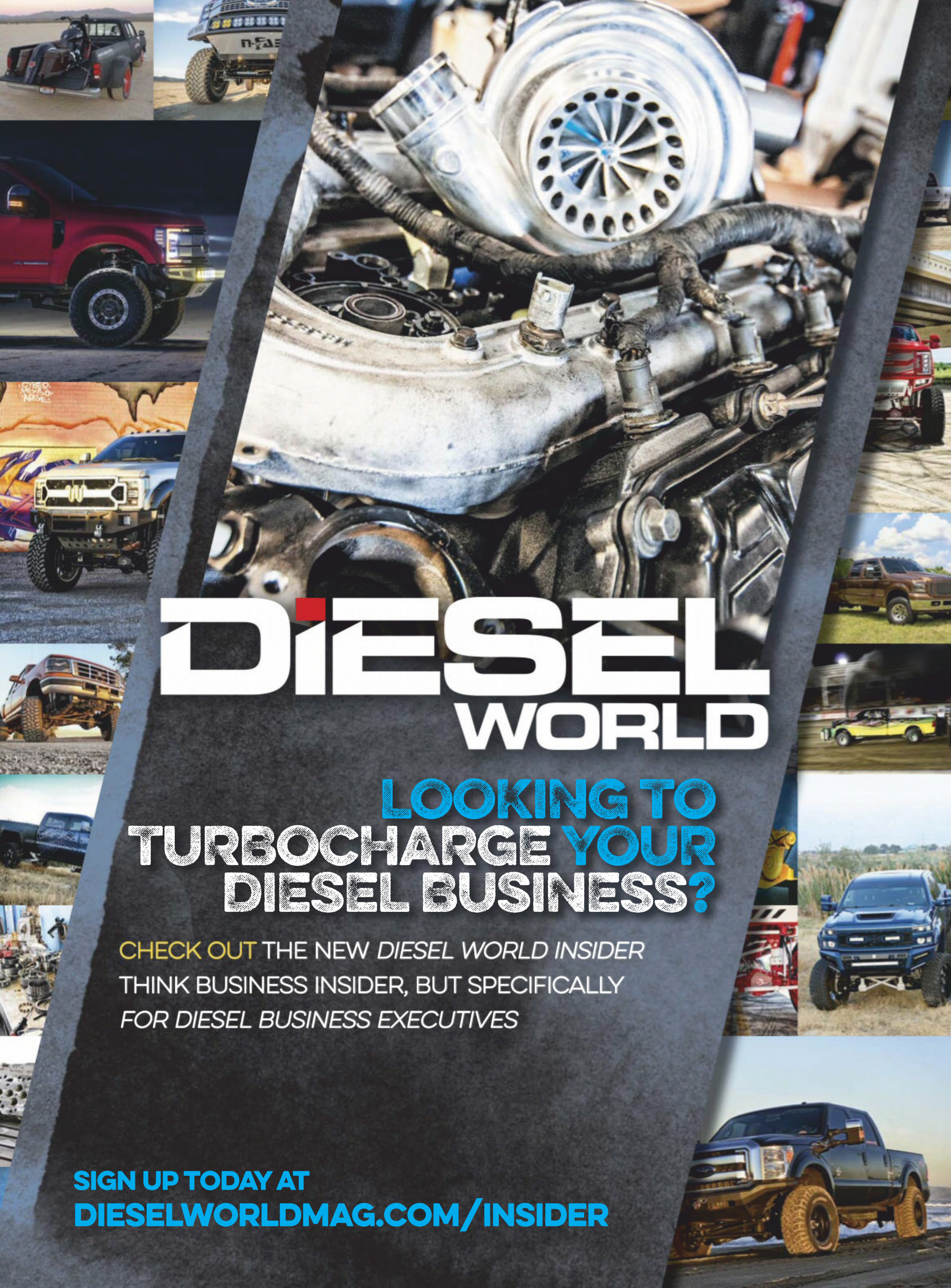
▶ With the pump now advanced six degrees, we tightened the gear back down to 20 lb-ft to seat the gear, then pulled the timing pin, held the engine with the barring tool, and tightened it to a final torque of 144 lb-ft.



▶ After the pump gear was installed, we removed the dial indicator, and reattached the injection pump line and engine intake.



▶ Since we hadn't installed gauges yet, we installed a couple makeshift ones for fuel pressure and boost so we could gather some accurate data.

A collage of images featuring various diesel trucks and a large central image of a turbocharger. The central image is a close-up of a turbocharger with a silver turbine housing and a black compressor housing. Surrounding this are several smaller images of trucks: a black pickup truck with a motorcycle in the bed, a white truck with a large tire, a red pickup truck, a blue pickup truck, a white pickup truck, a red pickup truck, a blue pickup truck, and a white pickup truck.

DIESEL WORLD

LOOKING TO
TURBOCHARGE YOUR
DIESEL BUSINESS?

CHECK OUT THE NEW *DIESEL WORLD INSIDER*
THINK BUSINESS INSIDER, BUT SPECIFICALLY
FOR DIESEL BUSINESS EXECUTIVES

SIGN UP TODAY AT
DIESELWORLDMAG.COM/INSIDER

PLUNGER LIFT (MM) AT TDC

CAUTION USE THE CORRECT LIFT SPEC FOR YOUR ENGINE CPL!

STATIC TIMING (DEGREES BTDC)	49 STATE 160/175HP(A)	CPL 1863	CPL 1968	CPL 2022 2174	CPL 2175 2023	(C)	(D)	(E)
		160HP	CA AUTO 160HP	180HP (B)	215HP			
9.5	5.15	NA	NA	NA	NA	5.65	5.6	6.05
10.0	5.25	NA	NA	NA	NA	5.75	5.7	6.15
10.5	5.35	NA	NA	NA	NA	5.85	5.8	6.25
11.0	5.45	NA	4.00	4.00	NA	5.95	5.9	6.35
11.5	5.55	4.0	4.05	4.05	4.70	6.05	6.0	6.4
12.0	5.65	4.1	4.15	4.15	4.80	6.15	6.05	6.5
12.5	5.7	4.2	4.2	4.29	4.89	6.25	6.15	6.6
13.0	5.8	4.2	4.28	4.37	4.98	6.35	6.25	6.7
13.5	5.9	4.4	4.36	4.45	5.07	6.45	6.35	6.8
14.0	6.0	4.5	4.44	4.53	5.16	NA	NA	NA
14.5	6.1	4.6	4.52	4.61	5.25	NA	NA	NA
15.0	6.2	4.7	4.7	4.7	5.35	NA	NA	NA
15.5	6.3	4.8	4.8	4.8	5.45	NA	NA	NA
16.0	6.4	4.9	4.9	4.9	5.6*	NA	NA	NA

* posted by from Piers on the TDR forum

(a) 49 state CPL's include: **1549, 1550, 1815, 1816, 1959** for 175 and 160 hp engines with manual and auto transmissions. Also included in this group are non-Ram CPL's 1551, 1552, 1553, 1839, 1914, 1915, 1916, 1959, 1839

(b) CPL group 2022, 2174, also includes non-Ram CPL's 1968, 2265, 2268, 2308

(c) Non-Ram applications - CPL's 1563, 1566, 1569, 1658, 1812, 1905, 1917, 1918, 1920, 1922, 1923, 1949, 1950, 1972, 2034, 2101, 2103, 2104, 2106, 2107, 2108, 2150

(d) Non-Ram applications - CPL's 1564, 1919, 2011, 2102, 2105, 2158, 2169, 2191

(e) Non-Ram applications - CPL's 987, 1261, 1262, 1263, 1406, 1422, 1582, 1618, 1850, 2118, 2196

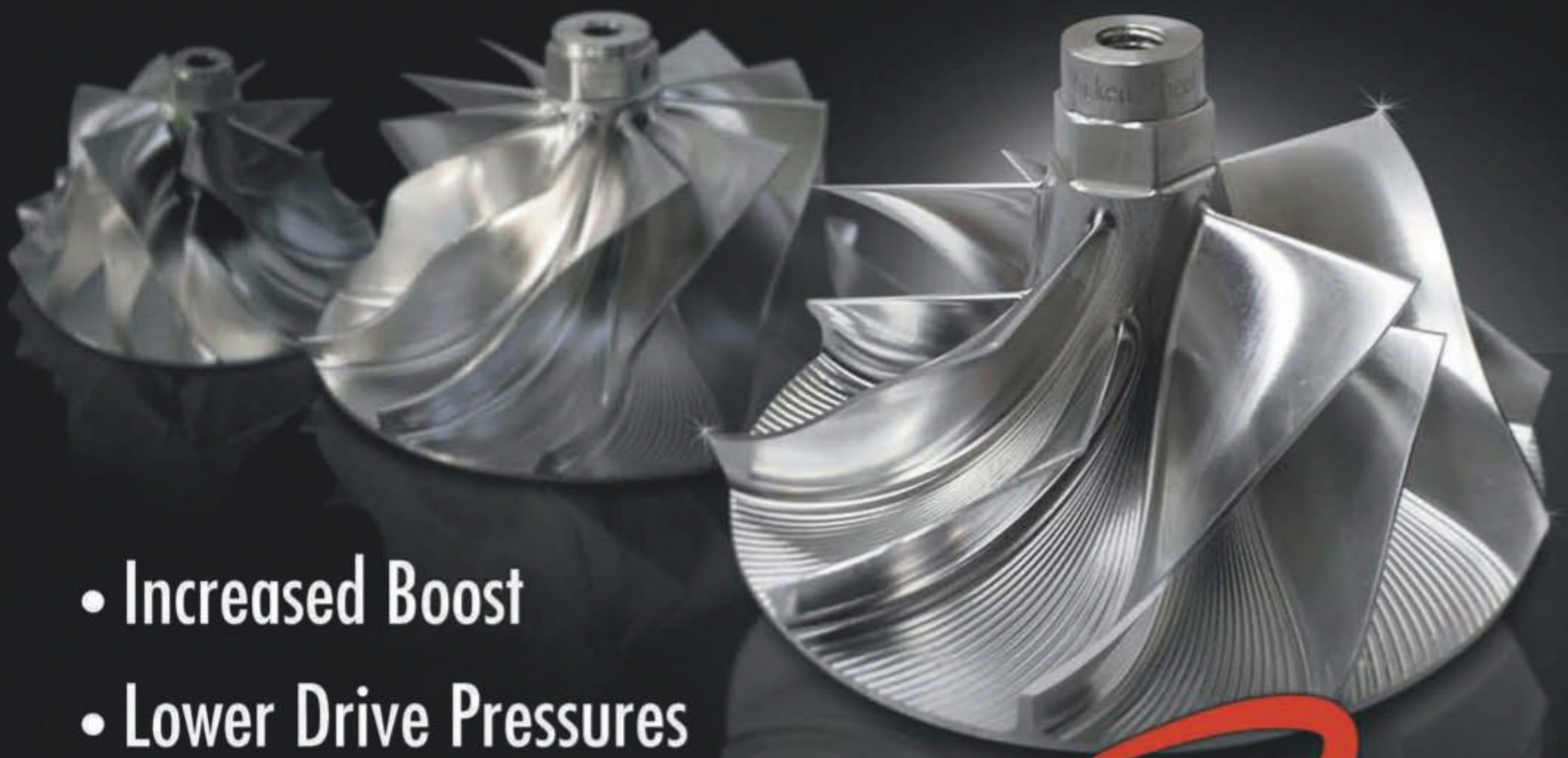
CPL 2175, 2023, 2022, 2174, 1863: Green box is the recommended setting from TSB 18-11-96

- CPL 2022 engines should be stamped CPL 2174 and 14.0 deg BTDC
- CPL 2023 engines should be stamped CPL 2175 and 13.5 deg BTDC

The allowable tolerance range for timing is ± 0.1 mm.



▲ Our six-degree bump didn't cause the stock turbo to spool much slower, but the engine definitely had more top end, peaking at 378rwhp, a clean 30rwhp up from our last reading. Plus now we finally had an answer-- does timing add power? Yes it does!



- Increased Boost
- Lower Drive Pressures
- Machined Billet Aluminum
- Lower Exhaust Gas Temps
- Faster Low End Spool
- Improved Power and Performance
- NOT just a Billet copy of the original Wicked Wheel®!

**WICKED
WHEEL®**
COMPRESSOR
WHEELS

DEALER INQUIRIES WELCOME

888.414.3457

VISIT US AT WWW.DIESELSITE.COM
FOR MORE GREAT PRODUCTS!

DieselSite®

Wicked Wheel® is a registered trademark of DIESEL SITE, INC. and Bob Riley.

ACCEPT NO IMITATIONS.

2009-2019

SINISTER DIESEL

10 YEARS

A DECADE OF PERFORMANCE



SINISTER® FILTRATION

Available for both oil and coolant! Both filter blocks on this Powerstroke engine are fully machined in-house to the highest specs and are fitted with your choice of a CAT or WIX filter and Amsoil extra fine 2 micron oil filter. Removing casting sand and oil sludge are critical and achieved with our top performing kits.

SINISTER® BOOST

PitBull Series Turbos have a larger billet compressor wheel and upgraded turbine profile. This reduces backpressure, increasing flow and power. Get lower EGTs and turnbuckle boost control for easy tuning at elevation and in race situations.

SINISTER® AIRFLOW (HOT)

The custom decreased bend design of our hot side intercooler pipe creates less turbulence and more dense cooler air immediately from the turbo. Masterfully back-purged TIG welded aluminum construction keeps air cooler than stock steel.

SINISTER® ELECTRICAL

We offer 200 - 320 amp Sinister Alternators for almost every truck. This 6.0L option has our custom machined billet housing design made in California. Built with upgraded high output regulator and high-temp bearings.

SINISTER® INTAKE SYSTEMS

Provide quicker turbo spool-up and throttle response. This is especially helpful when racing or towing heavy loads. This Cold Air Intake is CNC mandrel bent 4" diameter aluminum tubing with an oversized re-usable cotton fiber Sinister Filter (pat. pending.) Engineered and fabricated in-house.

LIVE TECHS (888) 995-7833

PROUDLY DISTRIBUTED BY

TURN14
DISTRIBUTION

STAY CONNECTED WITH US EVERYDAY FOR THE LATEST!

@SINISTERDIESEL

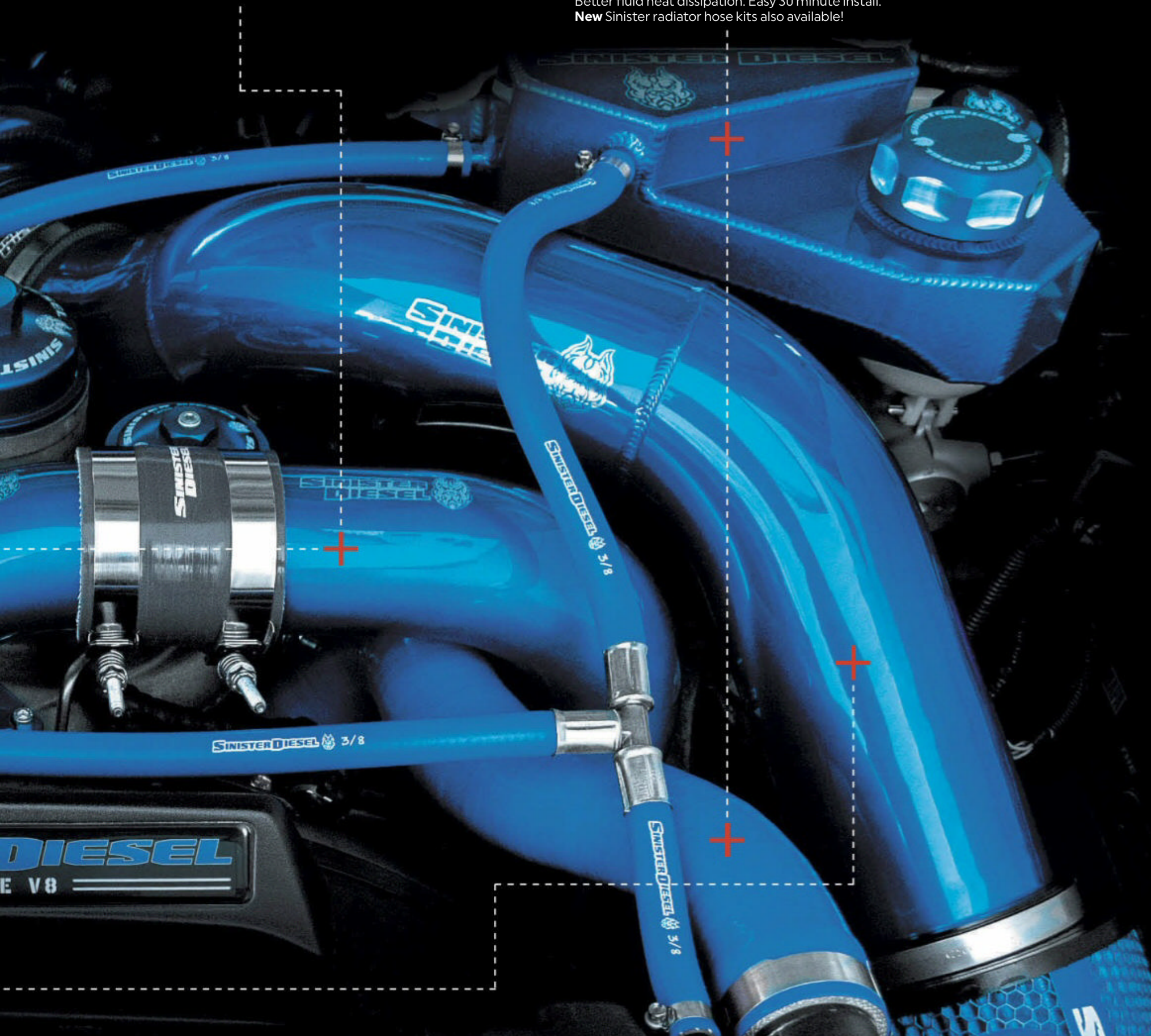


SINISTER® AIRFLOW (COLD)

As the other half of Sinister's air cooling induction system this cold side charge pipe connects strong with extra durable 4-ply silicone boots and is precision TIG welded aluminum. It has a minimized bend design and fits perfectly in between the exit side of the intercooler and our Sinister Intake Elbow.

SINISTER® COOLANT SYSTEM

Our custom 6.0L Coolant Reservoir (pat. pending) is TIG welded aluminum for greater longevity than stock. Better fluid heat dissipation. Easy 30 minute install. **New** Sinister radiator hose kits also available!



MAKE YOUR
POWERSTROKE A
SINISTER DIESEL®

SINISTERDIESEL.COM



FEATURE

2007 RAM 3500

ORANGE CRUSH

A 1,200-HP PULLER BUILT TO DOMINATE

BY JASON SANDS | PHOTOS BY JASON SANDS AND HEATHER READ







▲ Mitch Meinhart took great pains to ensure that his 5.9L would perform extremely well, and also look the part. Although it's never been on a dyno, Mitch estimates horsepower at about 1,200 hp.

ORANGE CRUSH

Mitch Meinhart is a diesel guy, there's no doubt about it. While he doesn't own his own diesel shop, he still decided to do a little sled pulling. Then he started to do a lot. Eventually, Mitch knew he needed a purpose-built truck in order to compete, so he retired his 80,000-mile Ram and bought a high-mileage '07 Ram 3500.

CUMMINS POWER

Horsepower is on a puller's short list, and here Mitch started with a fresh 5.9L Cummins in order to make sure there were no surprises that would leave him stranded. After having the block machined and cam bushings installed, Mitch did the assembly himself, adding Carrillo connecting rods, flycut and coated cast pistons, and a 14mm main girdle from Industrial Injection with ARP studs. A steel 207/220 camshaft from Hamilton Cams was added (for high-rpm safety and airflow) along with Maxspool pushrods, springs, and retainers. A set of 12mm head studs from Extreme Studs ties everything together.

Where Mitch really got serious, was in the airflow and fuel departments on the upper end. The head was fully ported and polished by Harry's Heads in Sioux City, Iowa, and fitted with inconel exhaust and intake valves for heat protection. The big oxygen generator on the truck is a S400-based 2.6 turbo, from JEB Modern Machine. Mitch and buddy Dan Bergman performed most of the fabrication work themselves, including designing piping to twin Frozenboost intercoolers, and building a custom intake. The fuel system on Mitch's Ram is equally serious and starts off in a unique way with an Aviaid oil pump that's used to push fuel. The high pressure system consists of a stock Cp3 with an Arson kit, and T&C Diesel 11.2 CP3 mounted up top. The final step to an estimated 1,200 horsepower is a



▲ One area where Mitch departed from the norm was the lift pump. Instead of running a traditional electric pump, Mitch runs a belt driven Aviaid pump that he uses as a lift pump. The system is set up at 17 psi, and has worked flawlessly so far.



BEAN MACHINE



New and improved Multi-Function Sump for your Diesel trucks. Can also be used for other applications.



Bean Machine Gridlock Girdle for your Cummins Common Rail Motors. Coming Soon: 12V Girdles.



Now offering flat top covers only weighing 8lbs! Customize your cover with your own logo.



FOR MORE INFORMATION CALL OR VISIT 615.563.7800 BDPSHOP.COM



▲ From the camshaft on up, Mitch did all he could to improve airflow throughout the engine. One of the most time-consuming but worthwhile steps was building the side-draft intake for the 5.9L engine.

ORANGE CRUSH

set of 350-percent-over injectors from Exergy Engineering, and tuning from Firepunk Diesel.

POWER TRANSMISSION

While Mitch went fairly mainstream with the engine build, the transmission was a different matter. “Most people think I have a manual...but I don’t,” smiles Mitch. On tricky Iowa tracks, Mitch relies on a 48RE automatic built by Chris Schmitt entirely with Goerend Transmission parts. The unique slushbox has Overdrive locked out and a full-manual valvebody, along with aftermarket input, intermediate and output shafts, and a triple disc 2,800-stall converter—all from Goerend. When pulling Mitch stalls the truck up and leaves in 3rd Gear, and doesn’t shift when headed downtrack. This allows for a more controllable launch, and added converter multiplication at the start of the run.

CHASSIS

While the engine and transmission was being built, so was the chassis and drivetrain. Mitch built a ladder structure around the rear frame, and added 4.88 gears front and rear, along with a rear Yukon spool, front E-locker from ARB, and 38-spline rear axles. The rear end was also fitted with a 1480-style rear driveshaft, and a pinion brake, which helps the truck spool at the line without pushing through the brakes. Mitch also spent his late nights sanding the truck down, before it was sprayed a House of Kolor Angelo Pearl by Jessie Thompson.

With all his hard work, it comes as no surprise that Mitch started doing quite well. With more than 40 hooks under his belt, Mitch’s Ram was enough to take the Eastern/Central Iowa 2.6 points championship. Even after his win, Mitch still isn’t slacking off. He’s got a new RTC 3.0 smooth bore turbo for next year, has built a new stronger rear frame structure, changed rear axles, and extended the wheelbase up to the 158-inch class maximum. Mitch says he can’t wait to get the new changes dialed in, and we say that if you’re in Iowa, watch out for this tough unconventional automatic-equipped puller. **DW**



▲ Mitch wasn’t taking any chances and performed a full rebuild on the Cummins, including a set of ultra-tough head studs from Extreme Studs.



▲ Twin Frozenboost intercooler cores were welded together to make one single large unit. The pumps to circulate the water (as well as the fuel tank) are located in the weight box.

scheiddiesel

Service Co.



“ ANYTHING DIESEL ”

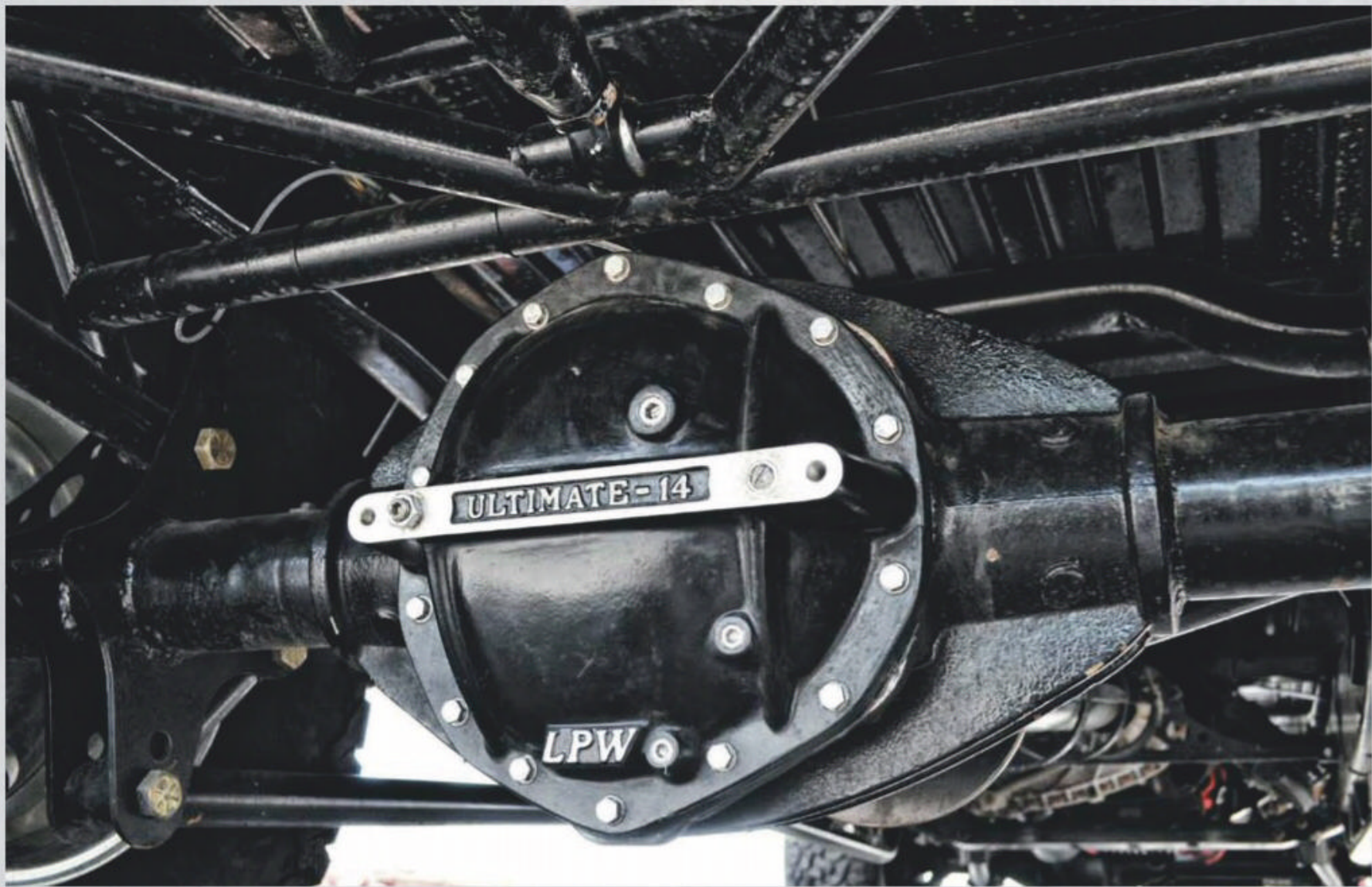
800-669-1593

Complete Diesel Repair Shop

Terre Haute * Lafayette * Effingham

www.scheiddiesel.com





▲ Mitch put a lot of time and money into strengthening and modifying the rear axle of the truck, from the reinforced differential cover, to the 38 spline axles, to the pinion brake which you can see peeking out on the bottom right corner.



▲ It's hard to know what transmission is there under the RCI safety blanket. It's actually a 48RE-based automatic built by Chris Schmitt using parts exclusively from Goerend Transmission Inc.



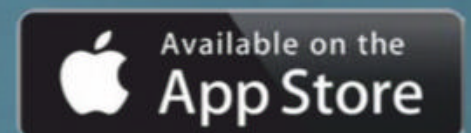
▲ There's no angle-iron job here, Mitch put some thought into reinforcing the frame on the truck, both with materials and aesthetics.



The logo for EZ LYNK, featuring the letters 'EZ' in a stylized, blue, blocky font.The logo for LYNK, featuring the letters 'LYNK' in a white, bold, sans-serif font.

STAY CONNECTED
TO YOUR CAR AND
YOUR TECHNICIAN

The AutoAgent App
lays out vehicle data in
a very simple and
easy-to-understand
format. The EZ LYNK
system helps users
and technicians resolve
issues as efficiently as
possible.

The logo for AutoAgent 2, featuring the text 'AUTOAGENT™ 2' in a blue, sans-serif font.

ORANGE CRUSH



▲ Mitch kept a lot of the factory interior from the high mileage Ram, but lost all the seats save for the driver's seat.



▲ So there's no mix-ups, Mitch relies on a B&M Stealth shifter for the correct gear, and also for lock-up, which is activated with a button on the side.



▲ Under the bright orange paint up front are 35x12.50 BFGoodrich All-Terrain tires, which are mounted on 17x9-inch Fuel Throttle wheels.



FUSION BUMPERS

CALL
888-779-3377



PREMIUM HEAVY DUTY BUMPERS FOR FULL SIZE DODGE, FORD & GM TRUCKS

CAD DESIGNED & LASER CUT AMERICAN STEEL GIVE OUR BUMPERS THE BEST FIT

FACTORY FOG LIGHT MOUNTS *STANDARD FEATURE - MOST APPLICATIONS

1/4" FACE PLATE WITH UP TO 8 GUSSETS PROVIDE SUPERIOR STRENGTH

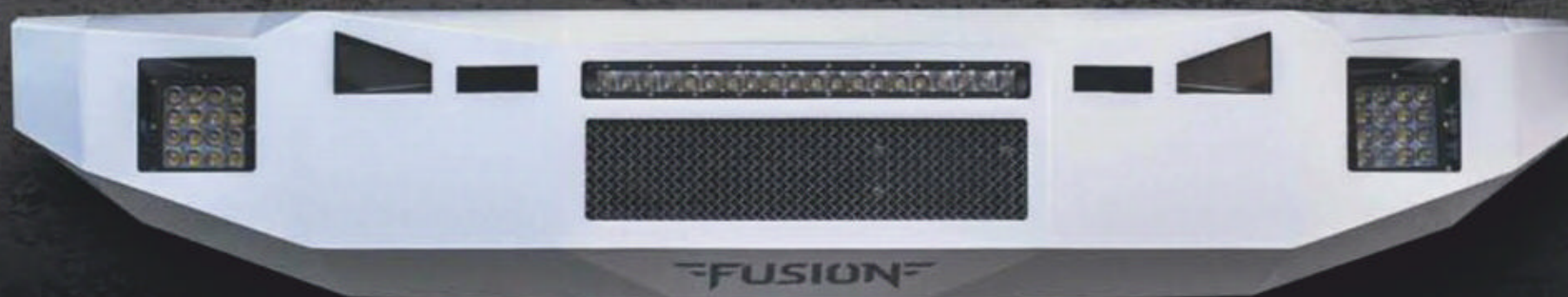
AIR VENTS PROVIDE OPTIMUM AIRFLOW TO INTERCOOLER & RADIATOR



Fusion Bumpers



fusionbumpers



BUMPERS ARE MADE TO ORDER WITH MANY OPTIONS!

WWW.FUSIONBUMPERS.COM



The new Siege from Fuel Off-Road comes in 5, 6 & 8 - lug fitments with 3 finishes offered - gloss black w/ brushed gloss ddt, platinum and matte black. Offered initially in 20x10 the Siege is perfect for your lifted Cummins, Duramax, and Powerstroke diesel full size trucks. With our deep concave profile, and premium finish options our truck will stand out in the sea of modified trucks. For more information visit: fueloffroad.com



FUEL
OFF-ROAD®



\$100K SEO



COND-GEN

**A 750HP '02 DODGE
COMMON-RAIL THAT'S
WORTH EVERY PENNY**



\$100K SECOND-GEN



▲ Leaving his VP44 and P-pump knowledge in the past, Kenneth Donkersgoed had Freedom Racing Engines piece together a stout 6.7L Cummins common-rail for his '02 Dodge. The balanced and blueprinted power plant is graced with 9/16-inch main studs, Carrillo rods, Freedom's fire-ringed Performance series head, 14mm head studs, and was topped off with the '03-'05 marine valve cover that's visible here. Along with overseeing the entirety of the truck's build, Fleece Performance Engineering's Jake Richards executed the common-rail swap to perfection.



▲ Ironically enough, dropping a common-rail Cummins into the old Dodge required Kenneth to run one of Fleece's second-gen turbo swap kits to achieve the kind of power he was after. The charger spec'd out for his build is an S400 with a 63mm compressor wheel, an 83mm turbine wheel, and a .90 A/R exhaust housing. The S400 breathes through Fleece's 5-inch ManTake cold air system and is efficiently driven thanks to a T4 exhaust manifold from Steed Speed.



▲ Making use of some of the most proven fuel system parts in the industry, a Fleece PowerFlo 750 CP3 supports a set of 100-percent over injectors from S&S Diesel Motorsport. While the single 10mm CP3 stands no chance of supporting an all-out effort from the 100-percent over injectors, by running an injector that's larger than what's needed, stock-like injector duration can be commanded. This means the truck's 750-800hp is achieved without the engine having to endure excessive EGT or stress to make it happen.

BY MIKE MCGLATHLIN

DIESEL WORLD MAGAZINE

When you're a second-gen connoisseur, chances are pretty good you'll own a few of them. As for Kenneth Donkersgoed, he's held the title of more than a dozen '94-'02 Dodges in his time—but none of them have been like this. After obtaining a straight bodied '02 Quad Cab as a roller from Jake Schlosser of SlossFab, Kenneth did something most second-gen owners never do: he treated his pride and joy to a show-quality, \$20,000 paintjob. Then he broke the mold again, this time in ditching all thoughts of a P-pumped 24-valve for a common-rail

6.7L. "I wanted to have the nicest second-gen out there," he told us. "Something that you can't just go buy." After a year of being under the knife at Fleece Performance Engineering, Kenneth's \$100,000 common-rail second-gen is alive—and it's unlike any other '94-'02 Cummins you'll come across.

6.8L CUMMINS

With the truck being purchased as a roller, there was no 5.9L to pull. However, a new power plant had to be sourced. Turning things over to Freedom Racing Engines, a Stage 2 6.7L-based Cummins was put together. The bored, honed, decked, and

blue-printed block is furnished with a factory crankshaft, 9/16-inch main studs, Carrillo connecting rods, and Mahle replacement pistons. Freedom's fire-ringed performance series 6.7L cylinder head, fitted with oversized valve seats, Manley Performance stainless steel valves and 103-lb Hamilton valve springs, anchors to the block via 14mm ARP head studs.

STROKER CP3 & 100-PERCENT OVER STICKS

To make the truck fun to drive, Fleece and S&S Diesel Motorsport teamed up on the fuel system.

6.7L TRANSMISSION RUNNING

HOT?

'11-'16 6.7L TRANS COOLER



AVAILABLE NOW!



WE CAN

COOL IT OFF!



Strictly
DIESEL

CALL 623.582.4404

OR VISIT US ONLINE STRICTLYDIESEL.COM

FOLLOW US :





\$100K SECOND-GEN

Things get started with a PowerFlo lift pump in the factory tank, with one of Fleece's auxiliary fuel filter and line kits mounted between the lift pump and a single PowerFlo 750 CP3. To take advantage of their quick injection rate and also to provide room for future horsepower growth, a set of 5.9L-derived, 100-percent over injectors were obtained from S&S. Fine-tuning of the engine is made possible through the use of a 5.9L ECM.

SECOND-GEN TURBO SWAP

With the finished product destined to live in Kenneth's native Wyoming, adequate airflow without sacrificing drivability was a key stipulation in the build. Sizing a turbocharger for a single turbo application that needs to be responsive at 7,500-feet of elevation but that can also support more than 700-rwhp can be a tall order. However, Fleece met Kenneth's needs with an S463 that makes use of an 83mm turbine wheel and a non-wastegated .90 A/R exhaust housing. Accommodating the BorgWarner charger is Fleece's popular second-gen turbo swap system, which (in addition to facilitating the use of an S400 on a 6.7L common-rail) includes a T4 Steed Speed exhaust manifold, 4-inch stainless downpipe, and the company's

▲ If you thought the engine was overkill, Kenneth's transmission of choice will seem downright bombproof. The 48RE pieced together at Fleece boasts a laundry list of top-of-the-line parts from Sun Coast—including the infamous OM3GA input shaft. Accommodating the larger input shaft is a 27-spline triple-disc Sun Coast converter with a billet stator and 2,200-rpm stall speed, and larger diameter intermediate and output shafts are also present. The bigger output shaft called for sourcing an NP271 transfer case.



▲ Full control over the built 48RE's shift points is available courtesy of a Sun Coast manual valve body and this Kwik-Shifter I shifter from Precision Performance Products. Fleece whipped up the shifter mount and handled the clean installation.



▲ Use of an Edge Insight CTS2 monitor and its corresponding add-ons allows Kenneth to keep an eye on EGT, boost, rail pressure, and anything else the ECM sees. Speaking of the ECM, it's off of a 5.9L common-rail, chosen for calibration purposes.

▲ The truck's exterior might've been treated to the works, but inside the cab you'll find a completely untouched original interior, aside from the aforementioned manual shifter install. Only on a low-mile, garage-kept second-gen will you see an interior this immaculate. The fact that the Laramie trim leather driver seat has just 88,250 miles on it has certainly helped in its preservation.

Keep Your Engine Running

Protect your engine with Alliant Power®
parts and fuel treatments



Engine components and accessories ▶ Fuel system components
Turbochargers ▶ Exhaust gas aftertreatment ▶ Electronics
Repair kits ▶ Fuel treatments



▲A Dana 80 resides in the rear, and it's been beefed up courtesy of Yukon 35-spline axle shafts and a spool. Both the Dana 80 and front Dana 60 are equipped with a 3.73 ring and pinion from Yukon as well.



◀Polished, 20x10 Fuel Forged FF29's set the truck's appearance off in a subtle way, while 305/55R20 Toyo Open Country A/T's work to find traction. Also notice that the factory unit bearing setup has been ditched in favor of a Dynatrac free-spin hub conversion, complete with Dynoloc manual locking hubs.



\$100K SECOND-GEN

5-inch ManTake.

MANUAL VALVEBODY 48RE

The 48RE that's forced to absorb the common-rail's abuse is always up to the challenge thanks to being prepped with the baddest Sun Coast parts you can find. The top-shelf components list includes the infamous 1-3/16-inch diameter OM3GA input shaft, larger 300M intermediate and output shafts (along with an NP271 transfer case), a 27-spline, billet stator 2,200-rpm stall converter, and a manual valve body. Shifts are handled by way of a Precision Performance Products shifter. Downwind of the lively Cummins and the full-billet four-speed sits the front Dana 60 with Dynatrac Free-Spin hubs and a rear Dana 80 with 35-spline axleshafts and a spool to ensure all power makes it to the ground.

ONE OF A KIND COMMON-RAIL

As a pipeline welder by trade, Kenneth is around hundred-thousand dollar trucks on a daily basis. However, his diesel addiction begins and ends with second-gens. He may have sunk a six-digit figure into his '02, but between its perfect body panels, metallic red paint, and the common-rail Cummins under the hood it's one of the cleanest and rarest second-gens you'll ever see. For most old-school Dodges, the words drivability and 750hp don't belong in the same sentence. For Kenneth's seven-red special, it's all in a day's work. **DW**

2002 DODGE RAM 2500

OWNER: Kenneth Donkersgoed

HOMETOWN: Pinedale, Wyoming

ODOMETER: 88,250 miles

ENGINE: Freedom Racing Engines Stage 2 Cummins

SHORT-BLOCK: 6.7L crankshaft, 9/16-inch main studs, Carrillo rods, Mahle stock compression cast-aluminum pistons

HEAD & VALVETRAIN: Freedom Racing Engines Performance Series fire-ringed 6.7L head with Manley Performance stainless steel valves, hardened and oversized valve seats, Hamilton Cams 103-lb valve springs with tool steel retainers, 14mm ARP head studs, OEM camshaft, Trend Performance tappets and Stage 2 pushrods, '03-'05 marine valve cover

FUEL: S&S Diesel Motorsport 100-percent over 5.9L injectors, Fleece Performance Engineering PowerFlo 750 (10mm) CP3, PowerFlo in-tank lift pump, auxiliary fuel filter and line kit

AIR: Fleece Performance Engineering 2nd Gen Swap Kit with T4 S463, ManTake 5-inch cold air intake, GDP intake elbow

EXHAUST: Steed Speed T4 second-gen manifold, 4-inch stainless steel downpipe, 5-inch stainless steel Flo-Pro system with muffler

COOLING: Fleece Performance Engineering coolant bypass system, Flex-a-Lite dual electric fans, On 3 Performance intercooler, Derafe Performance stack plate transmission cooler

ELECTRONICS: 5.9L ECM, Edge Insight CTS2 monitor

TRANSMISSION: 48RE with Sun Coast 1-3/16-inch OM3GA billet input shaft, custom pump gears, stator support, billet stator and 2,200-rpm stall speed converter, larger 300M intermediate and output shafts, Sun Coast manual valvebody, GPZ clutches, NP271 transfer case

HORSEPOWER: 750-800-rwhp (est.)

TORQUE: 1,500 lb-ft (est.)

TIRES: 305/55R20 Toyo Open Country A/T

WHEELS: 20x10 Fuel Forged FF29

AXLES: Dana 60 (front) with Dynatrac Free-Spin hubs, Dana 80 (rear) with Yukon spool and 35-spline axleshafts, 3.73 Yukon gears

SUSPENSION: Factory with Bilstein 5100 series shocks

INDUSTRIAL
INJECTION
DEUCE JUICE

MAXMPG

DIESEL FUEL ADDITIVE



BOOSTS
CETANE LEVELS



INCREASES
FUEL ECONOMY
UP TO 10%



DECREASES
SOOT EMISSIONS
BY UP TO 66%



DECREASES
DPF REGENS
& DEF USAGE

ALL SEASON

- ▶ Boosts Cetane Up To 7 Points
- ▶ Maintains Clean Injectors
- ▶ Increases Fuel Economy, Improves Power & Performance
- ▶ Prevents Rust & Corrosion
- ▶ Neutralizes Acids & Disperses Moisture

WINTER BLEND

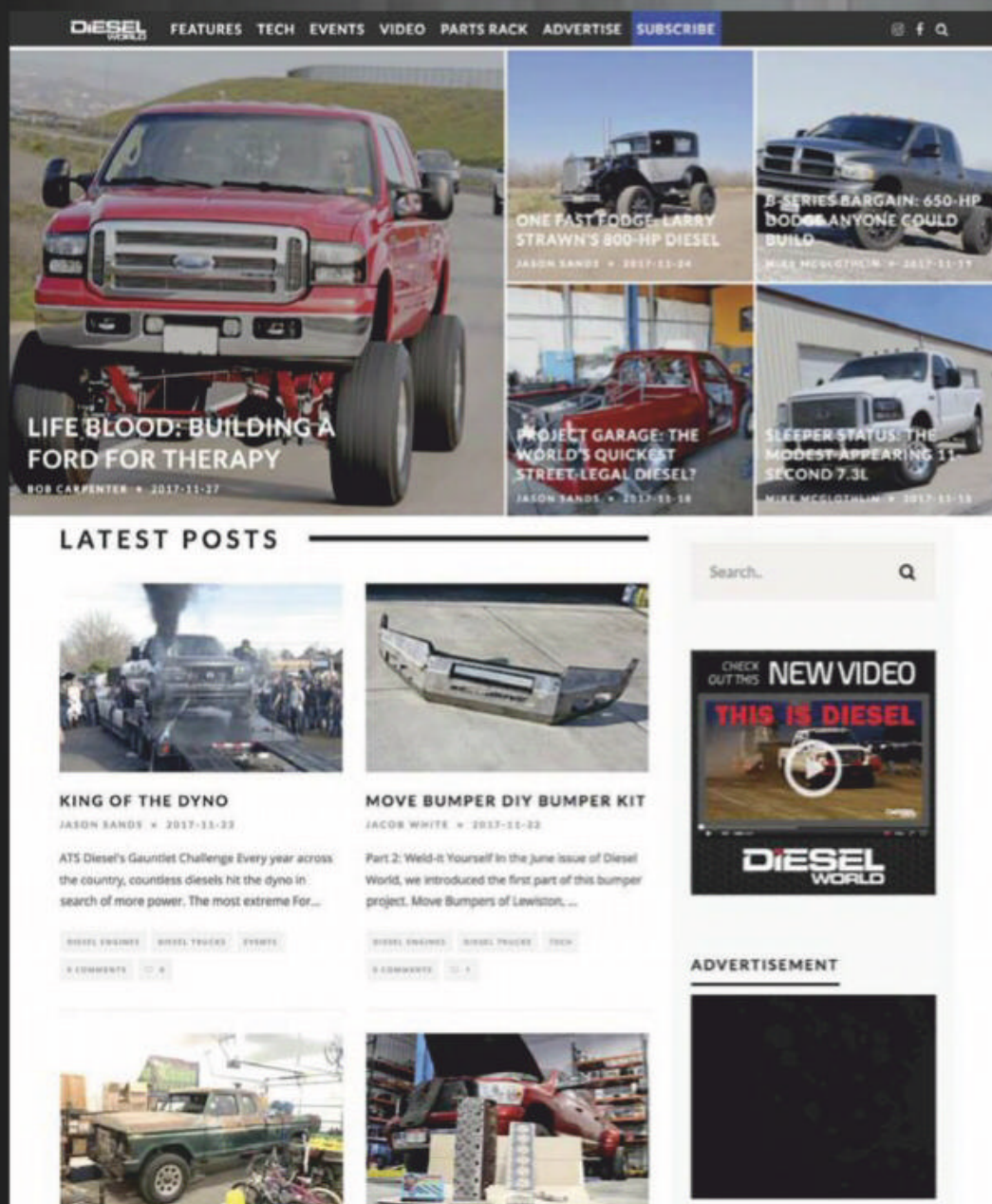
- ▶ Reduces Fuel Line Freeze Ups Down To 40°
- ▶ Lowers Pour Point To -65° F
- ▶ Boosts Cetane Up To 4 Points
- ▶ Maintains Clean Injectors
- ▶ Increases Fuel Economy, Improves Power & Performance
- ▶ Prevents Rust & Corrosion
- ▶ Neutralizes Acids & Disperses Moisture

SAVE 15% ON YOUR FIRST ORDER
PROMO CODE: MAX20

 iimaxmpg.com



DIESEL WORLD



The screenshot shows the Diesel World website interface. At the top is a navigation bar with links: FEATURES, TECH, EVENTS, VIDEO, PARTS RACK, ADVERTISE, and SUBSCRIBE. Below this is a grid of featured articles. The main article is 'LIFE BLOOD: BUILDING A FORD FOR THERAPY' by Bob Carpenter, dated 2017-11-27, featuring a red Ford truck. Other articles include 'ONE FAST FODGE: LARRY STRAWN'S 800-HP DIESEL' by Jason Sands (2017-11-24), 'B-SERIES BARGAIN: 650-HP BOD... ANYONE COULD BUILD' by Mike McGlothlin (2017-11-27), 'PROJECT GARAGE: THE WORLD'S QUICKEST STREET-LEGAL DIESEL?' by Jason Sands (2017-11-18), and 'SLEEPER STATUS: THE MODEST-APPEARING 11-SECOND 7.3L' by Mike McGlothlin (2017-11-18). Below the grid is a 'LATEST POSTS' section with two articles: 'KING OF THE DYNO' by Jason Sands (2017-11-22) and 'MOVE BUMPER DIY BUMPER KIT' by Jacob White (2017-11-22). To the right of these is a search bar and a video player for 'THIS IS DIESEL'. Below the video is an 'ADVERTISEMENT' placeholder. The website is surrounded by various images of diesel trucks and engines.

LATEST POSTS

KING OF THE DYNO
JASON SANDS • 2017-11-22
ATS Diesel's Gauntlet Challenge Every year across the country, countless diesels hit the dyno in search of more power. The most extreme For...

MOVE BUMPER DIY BUMPER KIT
JACOB WHITE • 2017-11-22
Part 2: Weld-It Yourself In the June issue of Diesel World, we introduced the first part of this bumper project. Move Bumpers of Lewiston, ...

ADVERTISMENT

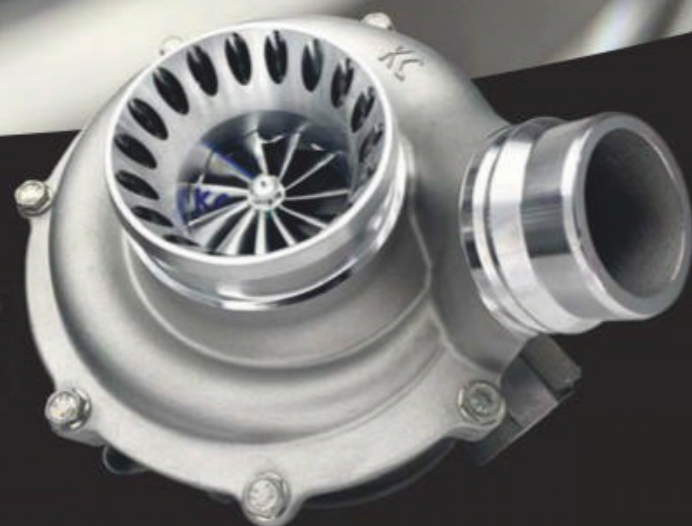
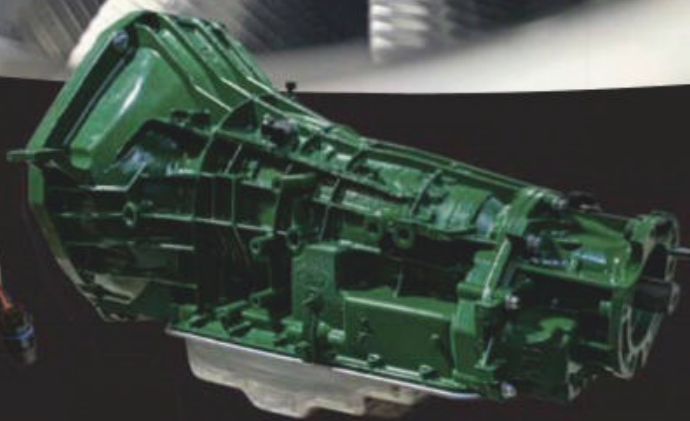
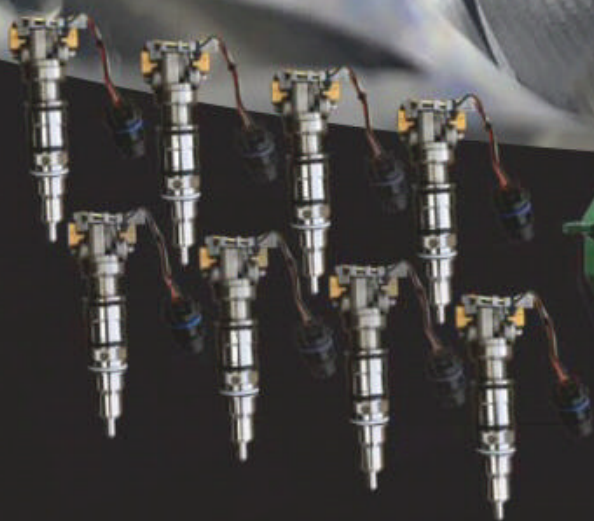
STAY INFORMED WITH THE
LATEST FEATURE ARTICLES, PICS, VIDEOS,
TECH NEWS, AND MORE!

ONLINE

VISIT US AT

www.dieselworldmag.com

KCTURBOS



**DOMINATING
POWER STROKE
PRODUCTS**

kcturbos.com
480-688-7160

FOLLOW US:



For 5% off your order Use Code: DW19

Get One Issue FREE!



SAVE 78% on Annual Subscription



SUBSCRIBE NOW

To Your Favorite Diesel World
Digital Magazine

Just log on to

ENGAGEDMEDIAMAGS.COM/EEM-5031

OR

SCAN QR CODE BELOW



***12 issues for only \$19.99**

Available on app stores below



Online
(Win/Mac)

Single issues are also available at **\$5.99**.

For questions on downloading the magazine apps contact 800-764-6278.
For a full listing of our digital titles, visit **www.engagedmediamags.com/digital** today!

FAST FREE SHIPPING on All Orders Over \$50*



BF Goodrich
Mud-Terrain
T/A KM3

BRIDGESTONE
Dueler A/T Revo 3

Continental
TerrainContact A/T

COOPER TIRES
Discoverer AT3 4S

Dick CEPEK
Extreme Country

FALKEN
Wildpeak A/T Trail



Firestone
Destination X/T

GENERAL TIRE
Grabber X3

GOODYEAR
Wrangler TrailRunner AT

MICHELIN
LTX A/T 2

PIRELLI
Scorpion All
Terrain Plus

YOKOHAMA
Geolandar M/T
G003

XKD
KMC

NEW
XD850 Cage
20 22

NEW
XD847 Outbreak
20 22



AMERICAN FORCE

Am. Force **Independence SS**
20 22 24

Am. Force **Trax SS**
20 22 24

American Racing

Am. Racing **AR172 Baja**
15 16 17

NEW

ULTRA MOTORSPORTS

Ultra **Butcher 8-Lug**
18 20

Ultra **Carnivore 8-Lug**
20 22

ULTRA

Ultra Xtreme **X111**
17 20

G

Granite Alloy® **GA643**
16 17 20



FUEL

Fuel Off-Road **Assault**
17 18 20

Fuel Off-Road **Triton**
17 18 20 22

Fuel Off-Road **Vector**
16 17 18 20

NEW

MOTO METAL

MM **MO998 Kraken**
20 22

NEW

METHOD RACE WHEELS

Method **MR704**
15 16 17

NEW

METHOD

Method **MR701HD**
18

NEW

GRID

GRID **GD15**
17 20

BRAKES

dba USA

STOPOTECH
HIGH PERFORMANCE BRAKE SYSTEMS®

brembo

AKBONO

HAWK

SUSPENSION

READYLIFT
SUSPENSIONS

Eibach

FOX

BILSTEIN

TUNING

HYPERTECH

LIGHTING

HELLA

PHILIPS

PIAA

PIAA

VEHICLE BUILD:

RAMULE

2018 Ram 3500 • Cummins 6.7L • G56 Manual Trans

Performance



Throttle Sensitivity Booster



Cold Air Intake



Juice with Attitude CTS2



Dual Disc Organic



Head Stud Kit

Driveline



Twin Air Compressor



Prosteer HD Ball Joints



Heavy-Duty Steering Gear Box



4.30 Gears

Differential Cover

Tires and Wheels



Trail Grapplers

37X11.50R20



Grenade Dually Gloss Black Milled

Lighting



XL80 (Pair with Harness)



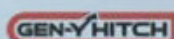
Hood Mount Light Brackets



FOR COMPLETE LIST OF PRODUCTS:

WWW.DIESELPowerPRODUCTS.COM/RAMULE

Exterior Accessories



9" Drop Hitch



Bedstep

Power Steps

Interior Accessories



DigitalFit Floor Mats

Suspension



6" Radius Arm Lift Kit

U-Bolt Kit

Glide-Ride Leaf Springs

6-Bolt Indexing Ring

HD Adjustable Trackbar

Recoil Traction Bars

Carrier Bearing Drop Kit



2.0 Series Single Steering Stabilizer



Big Wig Air Bags



AMERICA'S DIESEL PODCAST™

Listen Now On



Follow



americasdieselpodcast



dieselpowerproducts

TIME-TESTED, FRESH LOOK



INSIDE THE ANGRY FARMER PRODUCTS SUPER STOCK FORD

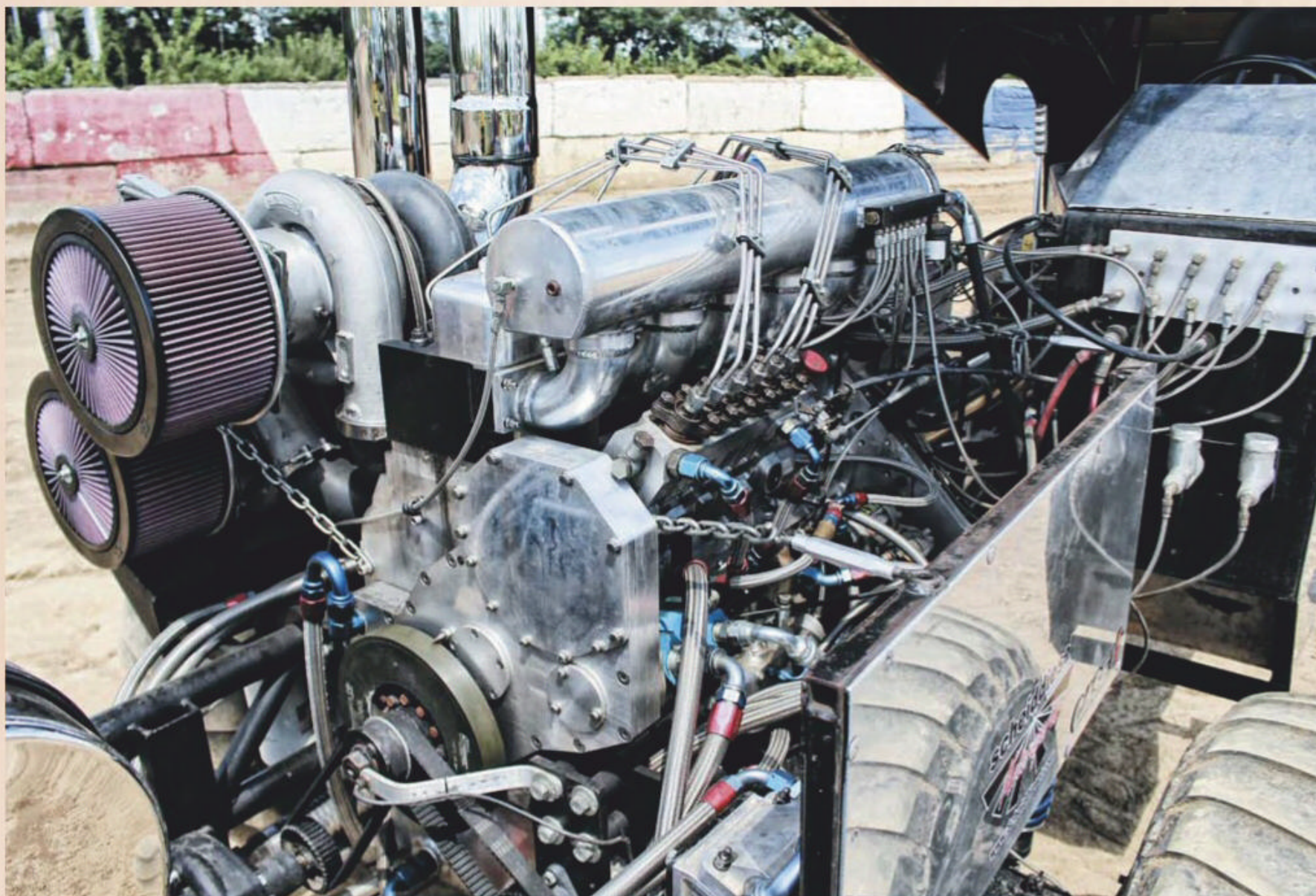
BY MIKE MCGLOTHLIN

DIESEL WORLD MAGAZINE

If you're in the business of producing automotive products, you know that advertising in motorsports serves as one of the best ways to build name recognition. Things get even better when your mobile billboard finishes in the winner's circle. As the owner of Angry Farmer Products, Todd Dugan chose to promote his company's

new penetrating spray by campaigning a truck in the Super Stock class. Already the driver of a blown-alcohol puller, he was well aware of the diesel class's immense popularity in his native Ohio State Tractor Pullers Association (OSTPA), but what sealed the deal for him was the ability to compete across sanctioning body lines. Being able to compete for PPL, NTPA, and OSTPA points in the same truck meant a Super Stock rig would likely offer the best return on his advertising investment. But how did Todd plan to infiltrate and then be competitive in the premier class in diesel motorsports?





▲ Pieced together right next to the engine dyno at Scheid Diesel, nothing but the best made it into Todd Dugan's Super Stock Cummins. A billet-aluminum block—fitted with cylinder liners and cut for fire-rings—houses a 6.7L Cummins crankshaft, which is the only OEM Cummins component in the engine. Beefy, 9/16-inch ARP main studs, billet-steel rods attached to billet, 12:1 compression Diamond Racing pistons, and one of Scheid's billet-steel roller camshafts sum up the short block components. It's a parts recipe that's proven capable of handling north of 3,000 hp on a repeatable, night-after-night basis.

TIME-TESTED, FRESH LOOK

TURN-KEY, CHAMPIONSHIP-CALIBER TRUCK

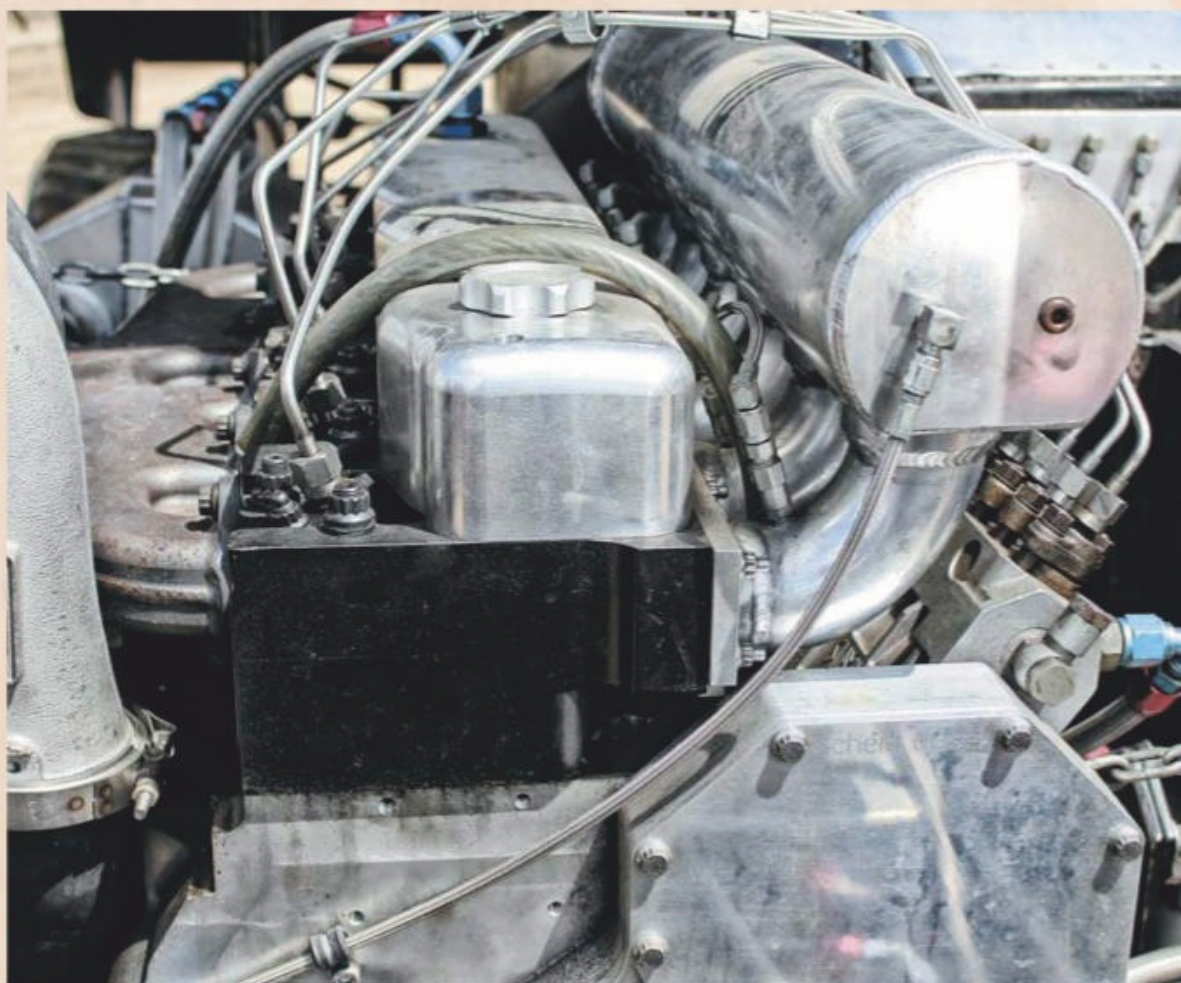
It started with the acquisition of Carl Atley's Cummins-powered, Ford-bodied, tube chassis puller, a proven performer that'd been for sale for some time—and that had given Carl two PPL championships and one NTPA points title in recent years. During the transfer of ownership, Carl proved invaluable in showing Todd the ropes, and even piloted the truck several times in 2019. "I thank Carl for making the transfer of the truck as simple as possible," Todd told us. "I've learned more from this man in one year than all my years pulling the blown-alcohol truck. He truly knows this truck like the back of his hand."

TUBE CHASSIS, UNBREAKABLE DRIVETRAIN

But what makes Todd's truck such a tried and true piece of machinery? It starts with the Barker Machine and Fab chassis, constructed of 2-inch diameter chromoly tubing. For optimum weight savings and ultimate durability, an SQHD axle dwells in the rear, complete with a spool and gun-drilled axle shafts, while an F106 graced with a locker, military steering knuckles, and a PSC hydraulic steering system sits up front. A four-disc clutch from Crower and the familiar Profab Machine reverser transmission and quick change transfer case distribute power to the burly axles.

ALL BILLET CUMMINS

With the truck in the care of Scheid Diesel's pulling division for the past five years, it only made sense that it would



▲ Turning its new machining division loose on a billet of steel, the folks at Scheid Diesel CNC-machined a competition-killing cylinder head, which fastens to the aluminum block via 14mm ARP head studs. A 12-valve piece, the solid steel head sports massive ports, oversize valves, and roller rockers. Scheid's billet-aluminum one-piece valve cover tops things off while an individual runner intake manifold provides an unobstructed path for airflow to enter the head.

NEW FORD CATEGORY REBUILD KITS WHICH CATEGORY DRIVES YOU?



CATEGORY 0 - 350 HP



CATEGORY 1 - 450 HP



CATEGORY 2 - 500 HP



CATEGORY 3 - 600 HP



CATEGORY 4 - 700 HP



INCLUDES LIFETIME TECHNICAL SUPPORT

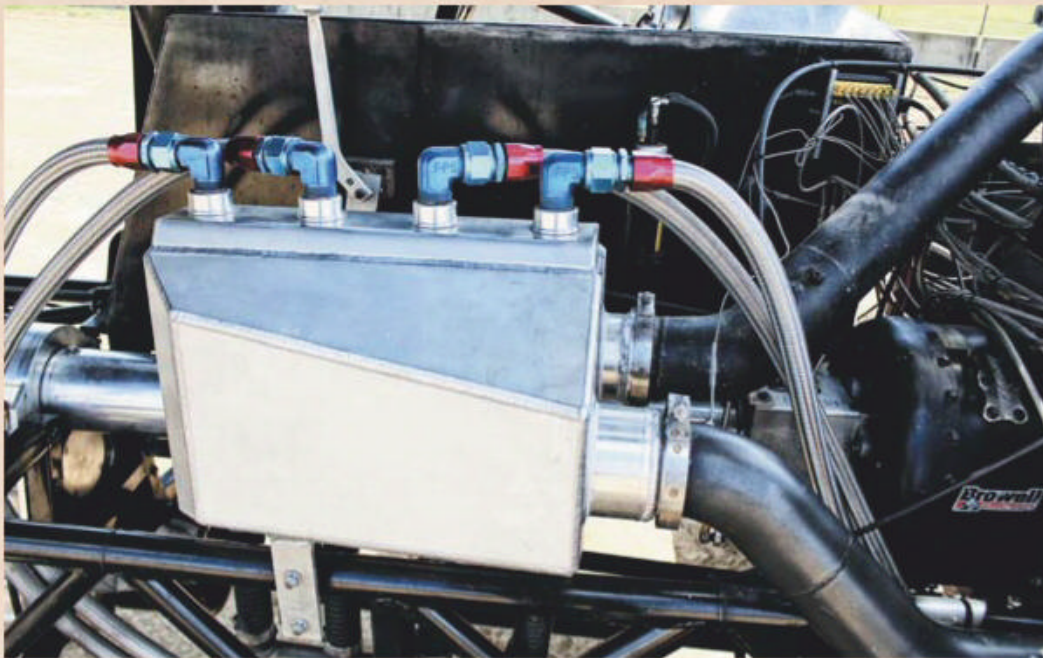
GET.MORE.

SUNCOASTPERFORMANCE.COM | 800.868.0053

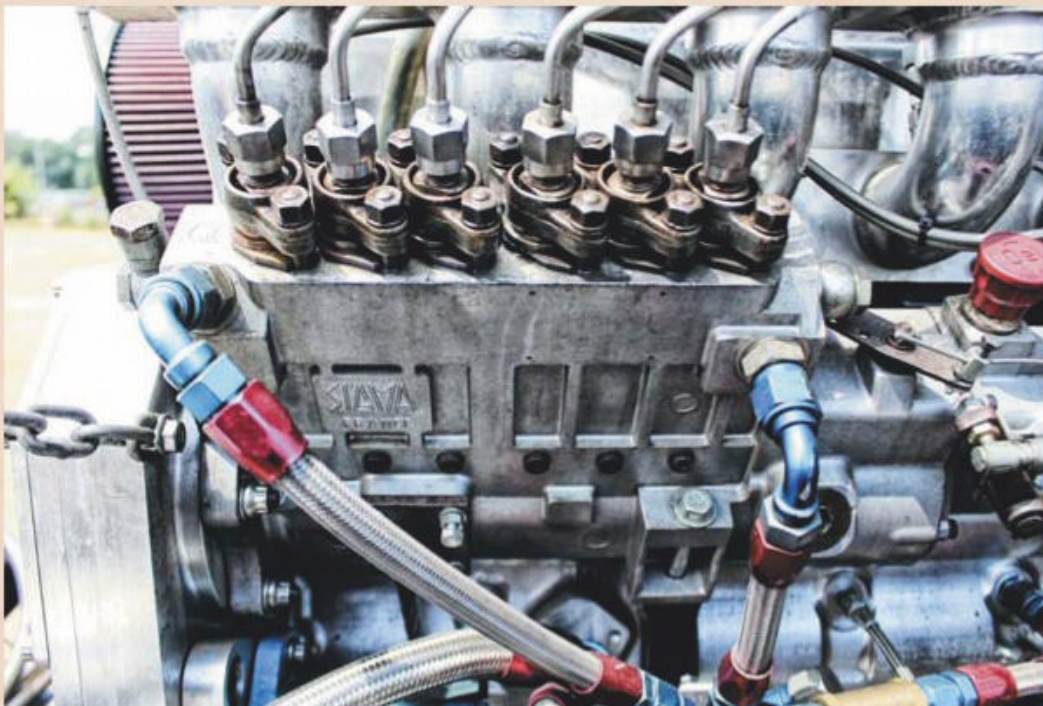
f @suncoastperformance



▲Like many engines in the Super Stock class, Todd's Cummins employs a two-stage, triple-turbo system. In this arrangement, two identical HX82-based Holsets serve as the atmosphere unit while a third HX82, bolted to a T6 foot Steed Speed exhaust manifold, acts as the high-pressure charger. To keep drive pressure in check, the trio is wastegated to produce a maximum of 120 psi of boost.



▲After two stages of compression, intake air is routed through a Sandridge Customs water-to-air intercooler. In conjunction with burning through 100 pounds of ice per hook, the intercooler system drops the engine's intake temperatures to 90 degrees F. A boost-triggered water injection system brings additional cooling into the equation, with a secondary stage activating should EGT exceed a preset maximum.



▲For ultimate fueling, the almighty Sigma pump got the call. The cast-aluminum Sigma, sourced through Columbus Diesel Supply, makes use of 16mm plungers and 0.120-inch injection lines. At the end of those CNC-bent lines sits a set of Scheid's billet-body, triple-feed injectors. SAC style, 5-hole nozzles are utilized and electrical discharge machining is employed for maximum durability. Each injector orifice measures 0.035-inches, effectively making them 5x35's in injector speak.

TIME-TESTED, FRESH LOOK

be treated to the latest and greatest the Indiana engine builder has to offer. A competition-ready, 391 ci Cummins is built around the use of Scheid's billet-aluminum dry block, which accepts cylinder liners, has been fire-ringed, and sports a factory 6.7L Cummins crank, billet-steel rods, and low-compression Diamond Racing pistons. A high-flow, 12-valve billet-steel head resides up top and anchors to the block by way of ARP 14mm head studs.

SIGMA PUMP & 5X35'S

For its unmatched injection rate, the Sigma is still king in the Super Stock class. The cast-aluminum body, 16mm plunger pump hanging off the side of Todd's engine provides more than enough fueling to clear 3,000hp on the dyno. The Sigma receives its fuel supply from the back side of an Aviaid two-section wet sump oil pump. Obscene amounts of fuel make it in-cylinder thanks to oversize, 0.120-inch injection lines and a set of Scheid's billet, triple-feed body injectors, equipped with 5x0.035-inch nozzles.

120 PSI OF BOOST

A two-stage, triple-turbo configuration comprised of three HX82-based journal bearing Holsets with billet compressor wheels handles boost production. Thanks to great flow through the billet cylinder head, a relatively tame (for Super Stock), 120 psi of overall boost is all that's necessary to make the kind of power that's needed to run at the front.

2008 FORD SUPER DUTY

OWNER: Todd Dugan

HOMETOWN: Bladensburg, Ohio

ENGINE: 6.4L 391ci Cummins built by Scheid Diesel

BLOCK: Sleeved and fire-ringed billet-aluminum block, 6.7L Cummins crankshaft, 9/16-inch ARP main studs, billet-steel connecting rods, Diamond Racing 12:1 compression billet pistons, Scheid billet-steel roller cam

HEAD: Billet-steel 12-valve competition cylinder head with oversize valves, individual runner intake manifold, 14mm ARP head studs

OIL SYSTEM: Wet sump via Aviaid two-section pump

FUEL: Columbus Diesel Supply 16mm Sigma pump, Scheid Diesel 5x0.035 triple-feed injectors, 0.120-inch injection lines, Aviaid lift pump

AIR: Triple-turbo arrangement using three HX82-based turbochargers with billet compressor wheels, wastegated manifold charger, T6 Steed Speed exhaust manifold

COOLING: Sandridge Customs water-to-air intercooler, boost-referenced water-injection system with secondary EGT-triggered system

TRANSMISSION: Browell blow-proof bellhousing, Crower four-disc clutch, Profab Machine one-speed reverser and quick change transfer case

ELECTRONICS: CORSA IntellaDash data acquisition system

HORSEPOWER: 3,000+ hp (dyno)

TIRES: 34x18.0x15 Nichols Pulling Edge

WHEELS: 15x18-inch Real Racing Wheels

FRAME: Barker Machine and Fab chassis with 2-inch diameter chromoly tubing

AXLES: Profab Machine Rockwell SQHD (rear) with gun-drilled axle shafts and spool, Rockwell F106 (front) with locker and military steering knuckles, 6.20 ring and pinion front and rear

SUSPENSION/STEERING: Pro Shocks adjustable coil overs and Rancho RS9000XL shocks (front), solid suspension (rear), PSC hydraulic-assist steering system

AMERICA'S FAVORITE DIY BUMPER KIT

BORN TO BUILD

STRENGTH & STYLE FOR YOUR NEXT WEEKEND PROJECT



DIY BUMPER KITS

Pre-cut, pre-bent steel to fit your make/model/year



HEAVY DUTY

American-made 3/16" plate steel



CUSTOMIZABLE

600+ options to match your unique style

START YOUR BUILD AT [MOVEBUMPERS.COM](https://www.movebumpers.com)

\$50 OFF 2 BUMPER KITS WITH CODE [DIESEL555](#)

AS LOW AS \$46/MONTH WITH AFFIRM + FREE SHIPPING



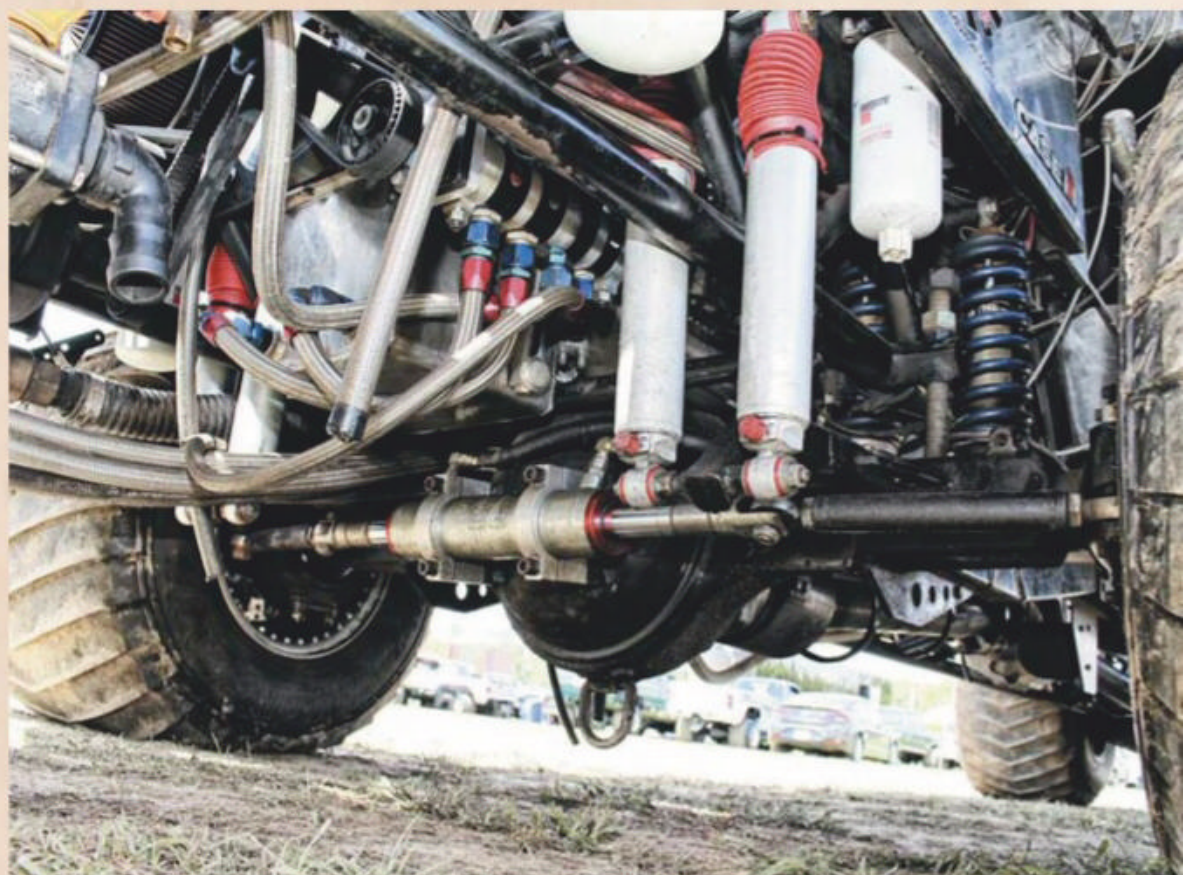
TIME-TESTED, FRESH LOOK

That's down significantly from the 150 psi or more these engines used to see. A Sandridge Customs water-to-air intercooler and the corresponding ice box and water pump system ensures that the boosted air—entering the engine through the individual runner intake manifold—is as cool and dense as possible.

STRONG, RIGHT OUT OF THE GATE

They say that being competitive in the Super Stock class boils down to driver skill rather than the truck itself. In a category where too much horsepower can actually hurt you, those that find the right balance between reading the track and knowing precisely when to pour on the power see the best consistency, along with the drivers that simply accumulate seat time. Judging by Todd's first season in the driver seat of the Angry Farmer Products Ford you would think he's been sitting there a lifetime. Not only did he take the win at the prestigious Enderle Pull-Off, but he finished Second Place in the NTPA's 2019 Super Stock points chase.

At the end of last season, Todd made his intentions to stay in Super Stock even more concrete by purchasing a second truck: the Cummins-powered ride coined "Up in Smoke," which was formerly owned by Josh Deeter. With this type of commitment, and his daughter rumored to pilot the new addition, he'll have two highly-capable trucks in the hunt in 2020. **DW**



▲A Rockwell F106 equipped with a locker and military steering knuckles distributes digging power to the front wheels while a PSC hydraulic-assist steering system allows for maneuverability. Also notice the fact that two Rancho shock absorbers are positioned forward of the axle on either side. Located next to the oil pan you'll find the Aviaid two-section wet sump oil pump that's responsible for supplying more than 100-psi of oil pressure for the engine and also serving as the lift pump for the Sigma.



Inferior Plastic
Fuel Tank

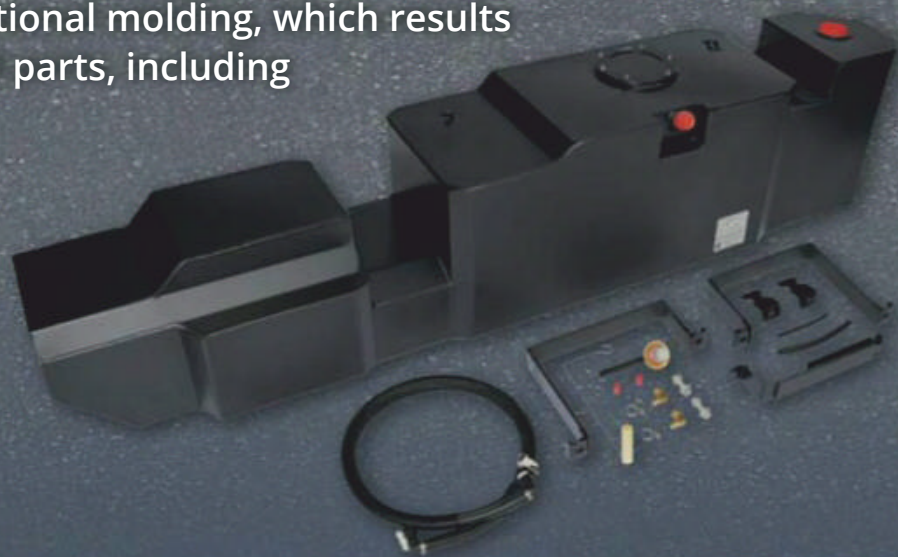
Premier Transfer Flow
Fuel Tank with ReliaSteel®

Only Premier Steel Fuel Tanks Will Keep Up with a 6,500 lb. Truck.

Since 1983, Transfer Flow has been engineering excellence and crafting premier fuel tank systems from the highest quality American materials. Transfer Flow fuel tanks are made with ReliaSteel®, high-yield U.S. aluminized steel, to withstand strong weather elements and heavy use.

Plastic aftermarket tanks are made using rotational molding, which results in varied thickness and may require additional parts, including expensive underbody plates for protection.

Transfer Flow fuel tanks ship complete with everything needed for installation. Rest easy knowing that your Transfer Flow fuel tank is safe, legal, reliable, and backed by our 6-year, unlimited mileage warranty to keep your adventure going mile after mile.



REPLACEMENT TANKS REFUELING TANKS

(833) 375-3132 | [TransferFlow.com](https://www.TransferFlow.com)

IN-BED TANKS

TOOL BOX COMBOS



TIME-TESTED, FRESH LOOK



▲Downwind of the Reverser sits a quick change transfer case from Profab Machine. Also referred to as a drop box, it diverts power to both axles. But not only that, it allows for fast (last-minute, even) gear changes should the truck's final drive ratio need to be increased or decreased.

▲The 158-inch wheelbase Barker Machine and Fab tube chassis was built around the use of a Rockwell SQHD rear axle. The Profab Machine-sourced axle sports a fabricated differential housing that conceals a spool and a 6.20:1 ring and pinion. Gun-drilled axle shafts help lighten the narrowed semitruck axle without sacrificing strength.



▲Power transfer begins with a Crower four-disc centrifugal clutch, housed within a blow-proof bell housing from Browell. The familiar one-speed gearbox known as a reverser takes over from there, this one being from Profab Machine.

▼The driving force behind Todd's campaigning a Super Stock truck can be found in this can. As the CEO of Angry Farmer Products, he's using truck pulling's most captivating class to promote his company's new penetrating spray. When you consider how many top five or better finishes he and his truck had in 2019, the advertising exposure for what is being called the number 1 penetrating spray in America has been invaluable.



[illegible]

ONLY \$33.95

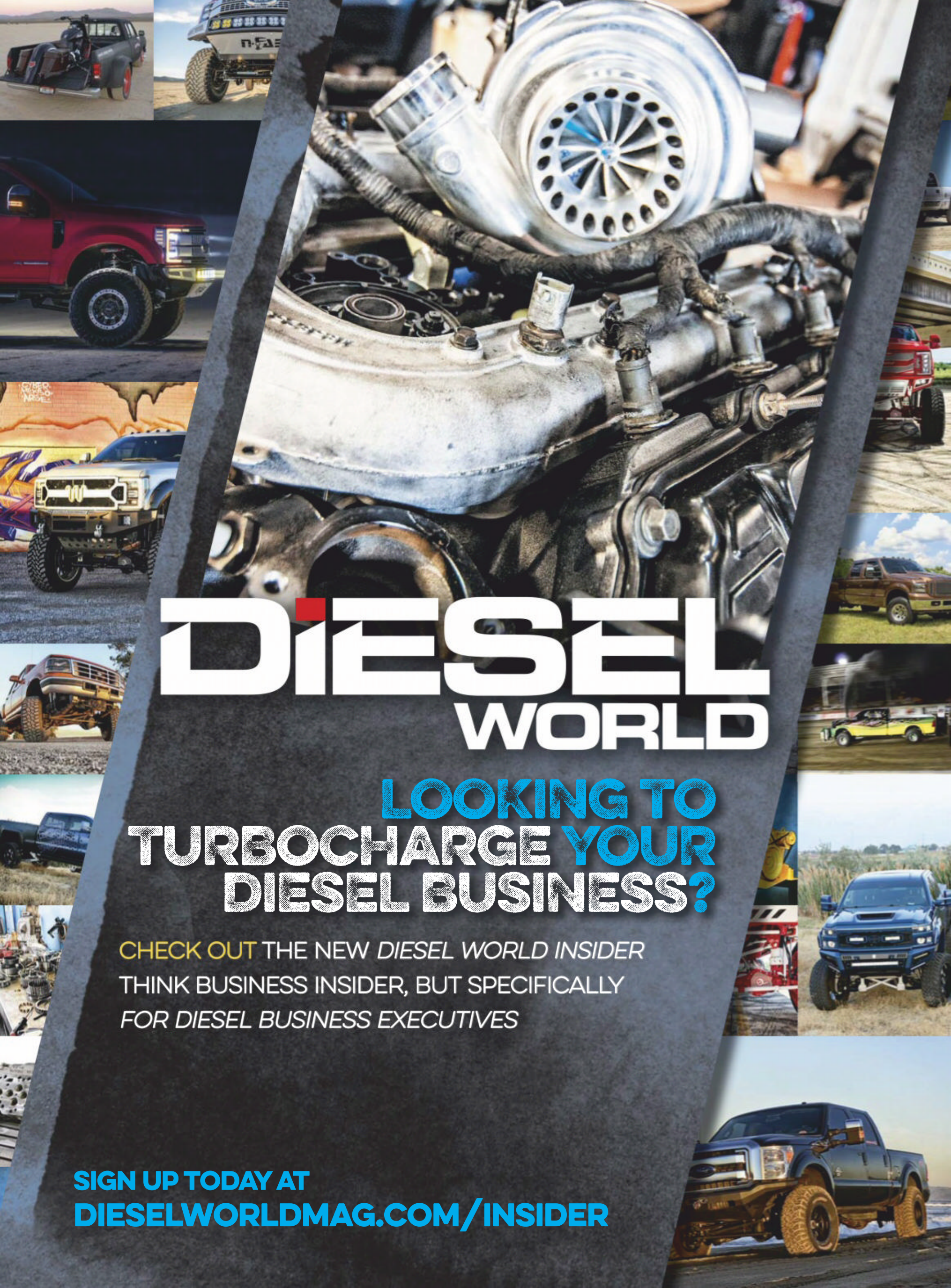
Limited-Time Offer: Act Now!



JUST
FILL IT ► CUT IT ► SEND IT

That's 24 issues for a total savings of \$133.81 on the cover price.

Or, log on to www.engagedmediamags.com/combo_dwst and use promo code **AO93I3H2** or call **800-764-6278** to order your subscription. Allow 6 to 8 weeks for delivery of first issue. Outside U.S., add \$71 per year for postage. Payment in U.S. funds only.

A collage of images featuring various diesel trucks and a large central image of a turbocharger. The central image is a close-up of a turbocharger with a silver turbine housing and a black compressor housing. Surrounding this are several smaller images of trucks: a red pickup truck, a white pickup truck, a blue pickup truck, a yellow pickup truck, a blue pickup truck, and a blue pickup truck. The text "DIESEL WORLD" is prominently displayed in the center.

DIESEL WORLD

LOOKING TO
TURBOCHARGE YOUR
DIESEL BUSINESS?

CHECK OUT THE NEW *DIESEL WORLD INSIDER*
THINK BUSINESS INSIDER, BUT SPECIFICALLY
FOR DIESEL BUSINESS EXECUTIVES

SIGN UP TODAY AT
DIESELWORLDMAG.COM/INSIDER



treadmagazine.com

FEATURES GEAR CAMPGITE HOW-TO'S ISSUES CONTACT NEWSLETTER ADVERTISE SUBSCRIBE

TREAD ★ A GUIDE TO AUTOMOTIVE ADVENTURE & OUTDOOR LIFESTYLE

PULLING POWER: RECOVERY WINCH BUYER'S GUIDE
JEFF YERGEN • FEBRUARY 24, 2017

ROCK N' ROLL: PUT YOUR BEST FOOT FORWARD
TREAD STAFF • FEBRUARY 20, 2017

OUTFITTER: A ROUNDUP OF THE LATEST AUTOMOTIVE ACCESSORIES
TREAD STAFF • FEBRUARY 15, 2017

MADE THE CUT: PLAIN-EDGED FOLDERS
TREAD STAFF • FEBRUARY 16, 2017

WEAPONIZED: ASSAULT INDUSTRIES' A-BOMB
TREAD STAFF • FEBRUARY 17, 2017

It's easy to see why side-by-sides have become the vehicle of choice among many powersports enthusiasts. They can accommodate the whole family while tackling... [READ MORE...](#)

[TWEET](#) [COMMENT](#) [SHARE](#)

OUTFITTER: A ROUNDUP OF THE LATEST AUTOMOTIVE ACCESSORIES
TREAD STAFF • FEBRUARY 15, 2017

CTEK 150A Off Road Charging System CTEK makes the power management of a vehicle's two-battery system simple, safe and smart. The brand has continued its G250S O... [READ MORE...](#)

[TWEET](#) [COMMENT](#) [SHARE](#)

2-WHEEL ADVENTURE: GETTING OUTFITTER FOR ADVENTURE MOTO
BRYAN DORR • FEBRUARY 13, 2017

I've been on the road full time now for over five years, spending a vast majority of that time in a large four-wheeled overland adventure vehicle, first a 4x4 5pc... [READ MORE...](#)

[TWEET](#) [COMMENT](#) [SHARE](#)

ADVERTISEMENT

BRADFORD KNIVES
ESSENTIAL CAMP/HIKE FIXED BLADE
CUSTOM BUILT YOURS AT [BRADFORDKNIVES.COM](#)

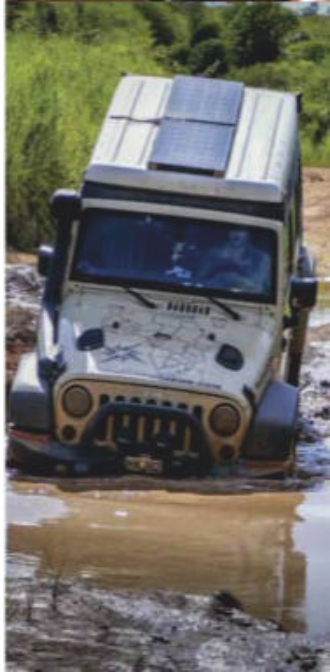
2017 TREAD: WHEEL & TIRE BUYER'S GUIDE

TOYO TIRES PRESENTS TREAD 2017 OFF-ROAD TIRE BUYER'S GUIDE

@TREAD_MAGAZINE

ADVERTISEMENT

THE BMW 3 SERIES.
TAKE ADVANTAGE OF EXCEPTIONAL LEASE AND FINANCE OFFERS.
[Offer Details](#)



TREAD
ONLINE

GO VISIT US
WWW.TREADMAGAZINE.COM



DRAWING 101

A BEGINNER'S GUIDE TO COLLECTING THE QUICKEST TIME SLIP POSSIBLE



As winter draws to a close and you brace yourself for spring and better driving weather, there is a lot to look forward to. For many, warmer temps mean they'll be hitting the drag strip. Whether it's to follow the racing organization they run points in (such as ODSS), to find out if the changes they performed over the winter yield quicker elapsed times, or they're just looking to mix things up at the local test 'n tune, drag racing is on their minds. This could be you. Trust us, there is a track in your area and an event on the calendar that's intended for you and your diesel. For a lot of you it'll be the first time you've ever pulled into the staging lanes—and that's OK.

If any sport is to grow, there has to be newcomers willing to give it a shot.

Like any form of competition, there are a thousand things to learn in order to be competitive. From race prep to staging to the actual race itself to collecting your time slip and analyzing the data, drag racing is much more than simply lining up and matting the go pedal. For the A to Z basics, we've got you covered this month. Next month, we want to see you in the staging lanes. Follow the tips and tricks listed here and you'll be able to hit the ground running when you decide to become more than a spectator. **DW**

▲ Unless you plan to bolt slicks on the rear of a four-wheel drive diesel, always drag race in 4-Hi. If you're making any significant amount of horsepower (and especially torque) over stock, you won't be able to leave the line with any amount of meaningful boost on tap without lighting up the rear tires. Once that happens, the race is over. By racing in 4-Hi, your E.T. will be reduced by half a second or more.

3,000 HP Tough!

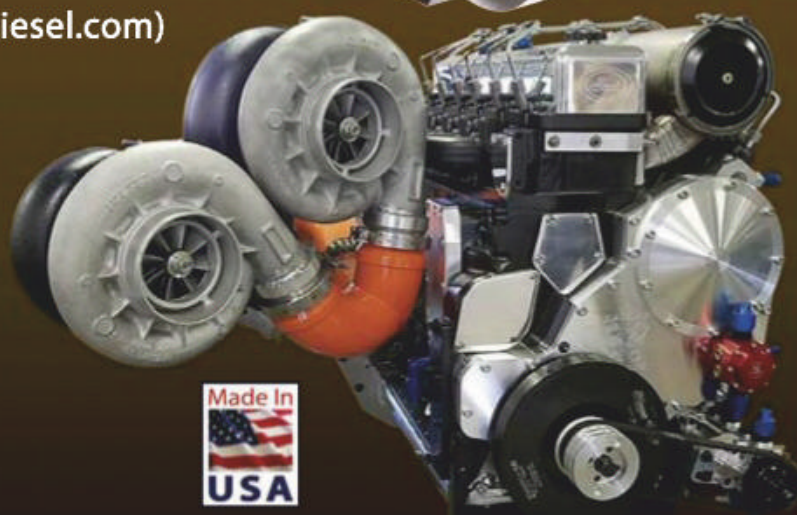


Van Haisley

Your truck may not put out as much power as the highly modified Cummins diesel in Van Haisley's potent "Rock-Hard Ram" —winner of the Super Stock class at the prestigious Scheid Diesel Extravaganza. But with ARP fasteners you can be assured of having the kind of reliability that you need when amping up the power in your diesel.

ARP manufactures head studs from ARP2000 and Custom Age 625+ material for most diesel applications. Bring on the boost! Also available are main stud kits, rod bolts, damper and driveline bolts. Check out ARP's dedicated diesel website (www.ARPdiesel.com) for details.

Naturally, all ARP fasteners are manufactured in-house to the industry's highest standards. There's nothing better for your diesel!



ARP
automotive *Racing* products

800-826-3045

www.ARPdiesel.com

Get a FREE copy
of the 2020
catalog online



DIESEL WORLD

**FOLLOW
US ON**



**FACEBOOK.COM/
DIESELWORLD MAG**

**INSTAGRAM.COM/
DIESELWORLD MAG**



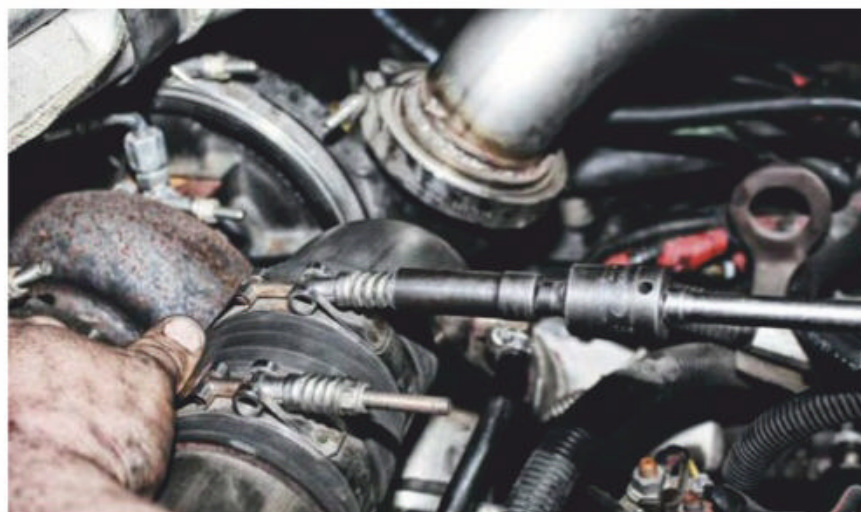
▲ If you've got four-wheel drive, use it. A 4x4 diesel truck has the unique advantage of being able to distribute all of its power to four separate wheels rather than two out back. This means traction is guaranteed even if you're leaving the line with considerable boost, and it's why so many street trucks can cut 1.8 to 1.6-second 60-foot times. Note that if you're using four-wheel drive, avoid the water in the burnout box and go straight into staging your truck.



▲ Whether you're making 500 hp or 800 hp, it always pays to drop the air pressure in your tires. Dropping air pressure increases your footprint, and more rubber coming in contact with the racing surface means more grip. Added traction means better 60-foots and ET's with no ill-effect on trap speed or any other factor. Just don't drop pressure too low (draw the line around 20-25 psi), and make sure you have a means to air back up once you're done racing.



▲ IDrag racing with an automatic transmission seems simple on the surface, but there is a lot more to it than simply selecting Drive and inching forward. To get the quickest possible elapsed time, you may have to adjust or manually control converter lock up. The sooner you lock the converter, the sooner you can maximize the amount of power you're sending to the ground. In applications such as the Allison, a second gear launch may be highly beneficial. Staging and leaving in second gear places more load on the engine, which means you can leave the line with more boost while also skipping the 1-2 shift delay that occurs almost immediately.



▲ Sending your truck down the drag strip at full bore with the kill tune uploaded is likely the hardest few seconds your engine will ever see. Under these circumstances, the chances of experiencing a blown intercooler boot increase. As part of your pre-trip inspection, do yourself a favor and snug up each clamp in your intercooler piping or at least verify that all of them are tight. Cooler weather in particular has a way of making clamps slightly contract, which increases the potential of a blown boot scenario.

PLUG IT IN
FEEL THE DIFFERENCE



GDP



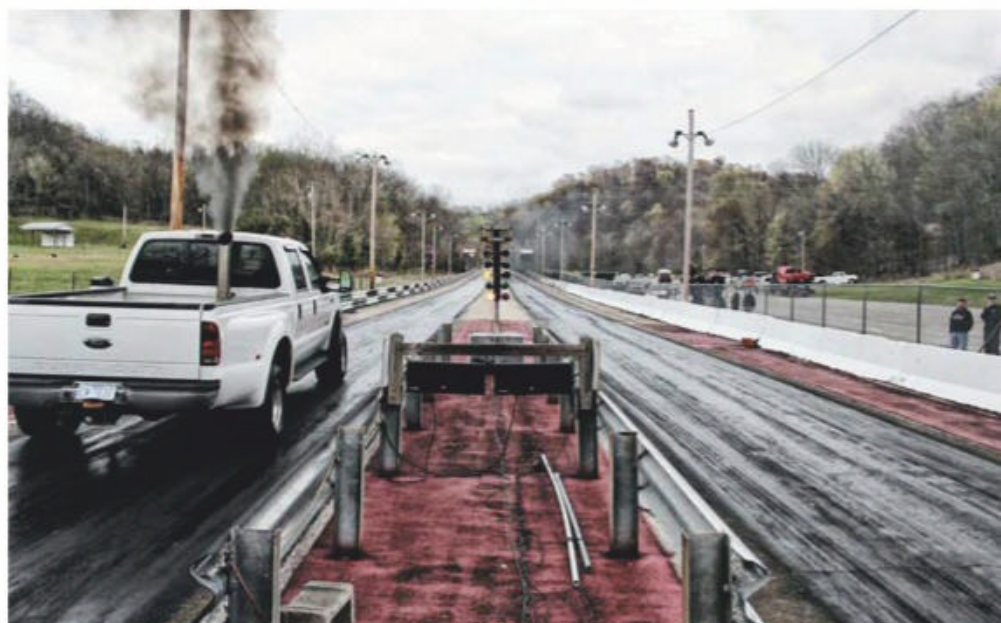
▲ It's true that dropping weight is the same as adding horsepower. Think about it, if you reduce the amount of mass you need to get moving (and keep moving) you can lower your elapsed time—and you can do it for free! Simple things like removing the spare tire, losing the tailgate, pulling the drop-in bed liner, leaving all of your tools behind, and even showing up on a quarter tank of fuel all play into your favor.



▲ The inspections don't end at home. As you arrive at the racing venue, expect to wait in line for a tech inspection to be conducted by one of the track's officials. Often nothing more than a quick once-over to make sure your vehicle is safe to send down the track, the inspection can entail a visual check for fluid leaks, nails in tires, cracks in the windshield, and confirmation that the batteries are properly secured. And just as you had to sign a waiver to race, you'll likely have to fill out a tech card and jot down your John Hancock once more before they break out the shoe polish and assign you a number.



▲ Staging is the most important part of drag racing, so it's absolutely vital to know exactly how the Christmas tree works. For newcomers, it's best to stick with a Sportsman tree (also known as a "full" tree or .500 tree). This is the default style tree that's run at most test 'n tunes and entry level type bracket racing classes. On a full tree, each of the three lights above green illuminate for exactly a half-second at a time (hence ".500").



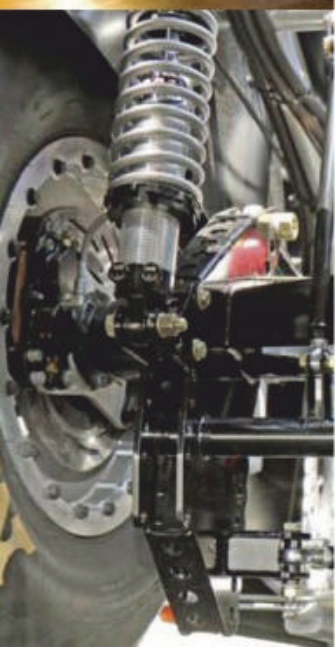
▲ Assuming you've already locked the transfer case in 4-Hi (where applicable) and driven past or around the burnout box, begin creeping up to the starting line. You'll want to do this slowly so as not to trip both the pre-staged and staged beams too quickly. Before tripping the first beam, start building boost by power braking the truck (brake pedal to the floor, moderate throttle applied). Working the brake and throttle, slowly inch your way into the second beam. Once the staged bulb is lit, the aforementioned three yellow lights will begin illuminating downward toward green in half-second intervals. Leave on the last yellow. Don't wait until you see green to begin moving.



▲ If you're looking to get the best E.T. possible (say you've been 13.00 in the quarter and you want to try to squeak into the 12's), shallow staging is the best way to do it, and luckily this is the most common form of staging on a Sportsman tree. When you shallow stage, you trip the "pre-staged" beam (illuminating the top-most amber) and stop as soon as you trip the second, "staged" beam (the second light from the top of the tree). By slowly inching into the second beam and barely lighting that second light, you give yourself precious extra inches (7 or 8) of travel before the E.T. timer begins. In a way, shallow staging offers you a head-start. This rolling head-start can be fairly significant if you're running large tires.



▲ It's important to keep in mind that the method you use to stage has a direct effect on your reaction time. When you shallow stage, your reaction time will be slower but your elapsed time quicker. However, when you deep stage you typically see a quicker reaction time but a slightly slower E.T. No matter what, don't get too caught up in reaction time figures, as they have no bearing on E.T. One area where shallow staging really shines for amateur drag racers is if they've been leaving too early (i.e. red-lighting).



StreetTrucks

FEATURES TECH PROFILES PRODUCT REVIEWS TRUCK REVIEWS EVENTS ADVERTISE SUBSCRIBE



TOP TRUCK OF 2017



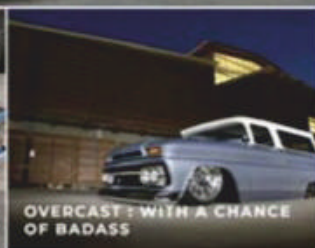
SHOW'S OVER : A REVOLUTIONARY C-10 BUILD



THE DREAM CATCHER: RMD GARAGE'S '58 CHEVY APACHE



RS-01: THE ROADSTER SHOP'S PROTOTYPE PICKUP



OVERCAST : WITH A CHANCE OF BADASS



SWITCHBACK : THE OTHER CLASSIC AMERICAN PICKUP

STAY UP TO DATE WITH THE
LATEST FEATURE ARTICLES, PICS, VIDEOS,
TECH NEWS, AND MORE!

ONLINE

VISIT US AT

www.streettrucksmag.com



◀ How quick you can get staged or how well you can build boost on the line for an effective launch is dependent on a lot of things. The size of your turbocharger(s), what horsepower level you're at, and the stall speed of your torque converter are just a few of the variables that play into it. For example, a looser (higher stall speed) converter will allow you to build more boost than one with a tighter stall speed. So if you've added a bunch of fuel and a big single turbo but are still running a stock stall speed converter, you likely won't be able to get off the line as quickly as you could with a higher stall.

▼ If your truck is capable of running 13.99 or faster in the quarter-mile, NHRA guidelines require you to wear a helmet. Helmets should have a SNELL rating of 2010 or 2015 (2010 helmets expire on January 1, 2022). If your truck runs faster than 11.50 in the quarter-mile, you're probably not new to drag racing, and at this point you know you need a roll bar to legally go down the track.



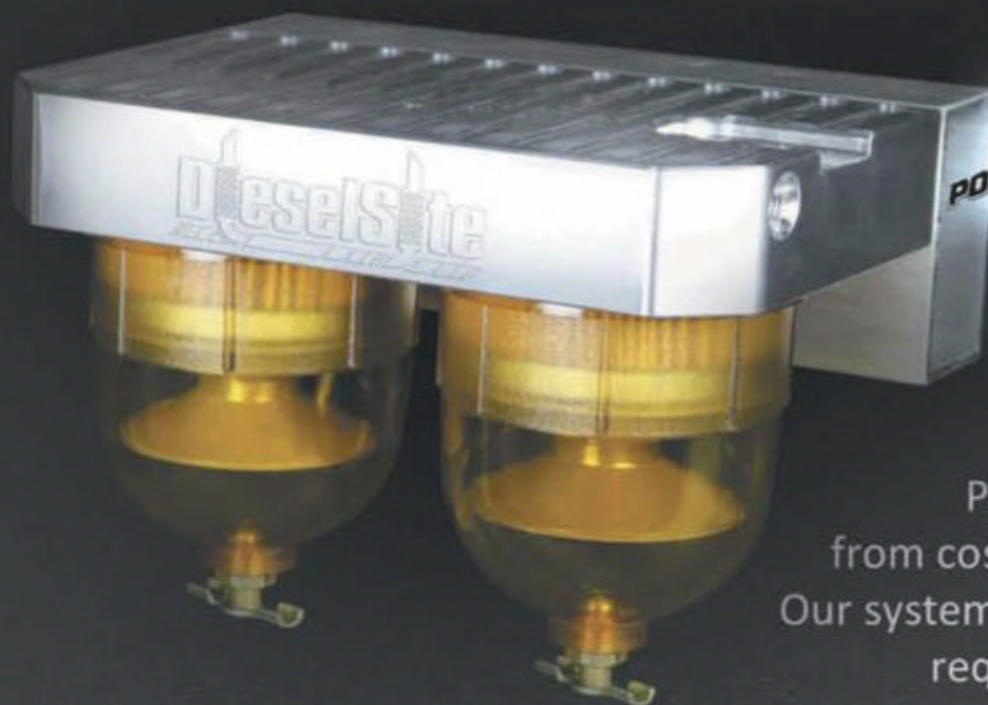
▲ While courtesy staging (as it's formally known) isn't always enforced, it's always a good idea to practice it no matter what. Courtesy staging means competitors take turns tripping the pre-staged and staged beams. For example: you light your pre-stage, then wait for your opponent to light both the pre-staged and staged beams before you light your staged beam. This way, neither of you is rushed into staging. It's the fairest way to play.



▲ Leave your A/C off. Given the fact that most novices are racing their daily drivers or work trucks, this can be easy to forget to do, but adding moisture to the track is a big no-no. Also remember to roll up your windows when it's your turn to stage.



▲ Even though the weather can be warm at the height of the drag racing season, leave the shorts and sandals at home and wear closed toe shoes and pants when it's time to climb into the driver seat. This tip is common sense 101, but you'd be surprised how many people show up expecting to race in flip-flops.



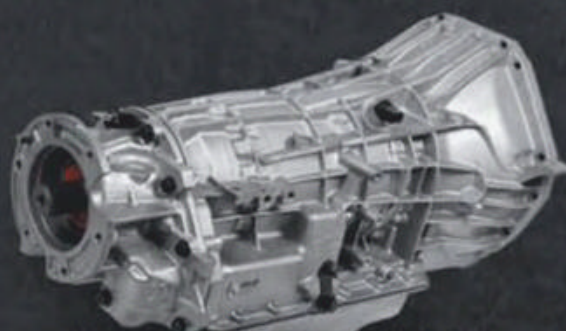
PROTECT YOUR 6.7L FORD DIESEL!

Protect your 6.7L FORD diesel fuel system from costly repairs NOT covered by OE warranty. Our system includes 2 micron filtration and doesn't require any cutting of the factory fuel lines!

FORD TRANSMISSIONS FOR 1990-2010 VEHICLES



LEGENDARY E40D & 4R100
1990-1997 Ford E40D
1998-2003 Ford 4R100



LEGENDARY 5R110
2003-2010 Ford 5R110

ENGINEERED TO LAST.

LEGENDARY OPTIONS:

- DIESELSITE Torque Converters
- DIESELSITE External Filtration
- Mag-Hytec Deep Pans
- Billet Shafts and Internals
- Tru-Cool Transmission Coolers
- Fully Built "HERCULES" Model
- Gas and Diesel Models



Call us! 888-414-3457
www.dieselsite.com

DEALER INQUIRIES WELCOME!

Enter your 1/4 Mile ET/Speed and Weight of your car

ET:	12.66
MPH:	108
WEIGHT:	7100
Calculate	

Your HP computed from your vehicle ET is 620.82 rear wheel HP and 689.80 flywheel HP.
Your HP computed from your vehicle MPH is 628.24 rear wheel HP and 698.04 flywheel HP.

▲ Dynos are fun, but nothing is a better indicator of horsepower than the drag strip. As long as you know the weight of your truck on race day, you can calculate how much power it's sending to the wheels using the elapsed time and trap speed listed on your time slip. Accurate online horsepower calculators can be found at WallaceRacing.com or CompetitionDiesel.com. While both ET and mph can get you a very close ballpark hp number, using trap speed is always the more accurate of the two.

Convert ET's For 1/4 Mile and 1/8th Mile

Convert 1/8th Mile Stats to 1/4 Mile Stats	
1/8th Mile ET:	8.00
1/8th Mile MPH:	85
Calculate	
1/4 Mile ET is 12.75 seconds	1/8th ET of 8.00 seconds.
1/4 Mile MPH is 105.40 MPH	1/8th MPH of 85 MPH.

▲ If you're limited to your local, eighth-mile track but want to make an educated guess as to what your truck would run in the quarter, a conversion factor of 1.57 to 1.59 will get you real close. Simply take your eighth-mile elapsed time and multiply it by the aforementioned numbers (ex: an 8.00 eighth-mile equates to a quarter-mile E.T. between 12.56 to 12.72 seconds). If you're estimating your quarter-mile trap speed, multiply your eighth-mile mph number by 1.25. These conversion factors hold true for most street-driven trucks.

WHAT ALL OF IT MEANS

To understand what everything means on your time slip, refer to the glossary below. Throughout the course of your race, various data points are recorded by the track's timing system, so even if you're unable to make a full pass (maybe you blew an intercooler boot after the 330-foot mark), you can still piece together the type of trajectory you were on. Armed with the info on this tiny sheet of paper and the various drag racing calculators available online, you can even guesstimate your 0-to-60 mph time or how many G's your truck pulled on the launch. In this example, notice that the left lane red-lit. The offending truck was deep-staged on a Sportsman tree.

	LEFT	RIGHT
Car # ...	658	21
Class ...		TD
DIAL ...		
R/T ...	.183	.247
60' ...	1.801	2.085
330 ...	5.332	5.707
1/8 ...	8.327	8.774
MPH ...	81.63	80.11
1000 ...	10.938	11.397
1/4 ...	13.153	13.602
MPH ...	101.71	102.03
Left 1st .8796		
Compulink AUTOSTART OFF		

- **R/T = reaction time**
- **60' = how quickly you made it to the 60-foot mark**
- **330 = how quickly you made it to the 330-foot mark**
- **1/8 ET = eighth-mile elapsed time**
- **1/8 MPH = eighth-mile trap speed**
- **1,000 = how quickly you made it to the 1,000-foot mark**
- **1/4 ET = quarter-mile elapsed time**
- **1/4 MPH = quarter-mile trap speed**



▲ Our last bit of advice is to refrain from hot-lapping your truck. Give things a break between passes and a chance for the engine and transmission to cool down. Even though your transmission temp gauge may not have gotten hot on the first pass, the torque converter still could've seen excessive heat, even if only temporarily. Even if you're not making a ton of power, hot-lapping can take a lot of miles off of your equipment.



THE DIESEL PODCAST

THEDIESELPODCAST.COM



Spotify



YouTube



iHeart
RADIO



GET IT ON
Google Play



Listen on
Apple Podcasts

LISTEN
ON

STITCHER



Andrew Villablanca's
2006 RAM
5.9L Cummins

AMSOIL
The First in Synthetics

ALLIGATOR
PERFORMANCE

BD DIESEL
PERFORMANCE.COM

FLEECE
PERFORMANCE ENGINEERING

NITRO
GEAR & AXLE

EFILive

Davis
Diesel Performance

DDP
DYNAMITE DIESEL
PERFORMANCE

TSI
WORK

ALLIGATOR
LIVE BUILD
5.7RAM | 3.0FORD

TRUCKPORT

DIESEL PERFORMANCE
CONVERTERS

DPM

STEALTH

NTN
NASTY TRUCK NETWORK

MTN
DIESEL SUPER SERIES

CHOATE
ENGINEERING PERFORMANCE

MISHIMOTO

MDP

Pure
Diesel
Power

SoCal Diesel

SD
STAINLESS DIESEL.COM

DIESEL
RESOURCE

M4
MERCHANT AUTOMOTIVE
DURAMAX & ALLISON SPECIALISTS

Complete Performance
CP
www.cpaddict.com

HOT SHOT'S SECRET
POWERED BY SERVICE

PPEI
CUSTOM TUNING

DIESEL CRATE

RR+
BRANDMANAGEMENT

TURN14
DISTRIBUTION

VALAIR
Performance Diesel Clutches

Freedom
Racing Engines

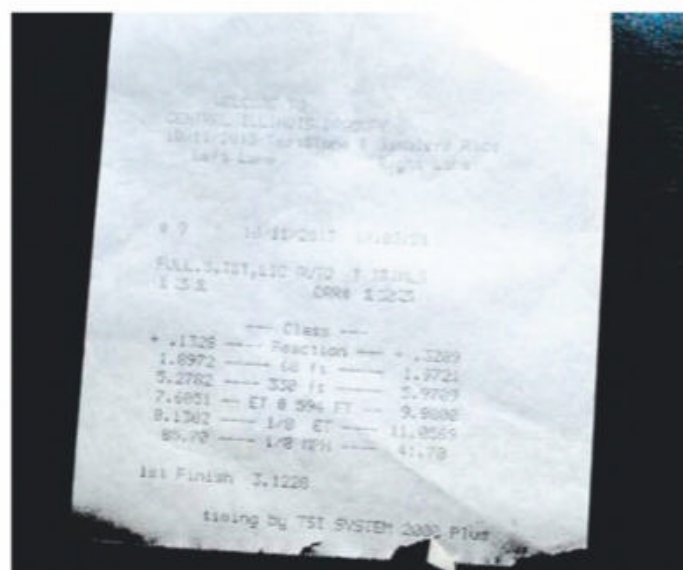
DIESEL
WORLD



▲ Diesel-only events are fun, but don't forget that any old test 'n tune at your local, small-town drag strip offers a great chance to hone your drag racing skills. Plus, it's an exciting way to mix things up with late-model sports cars, classic muscle cars, and plenty of sleepers.



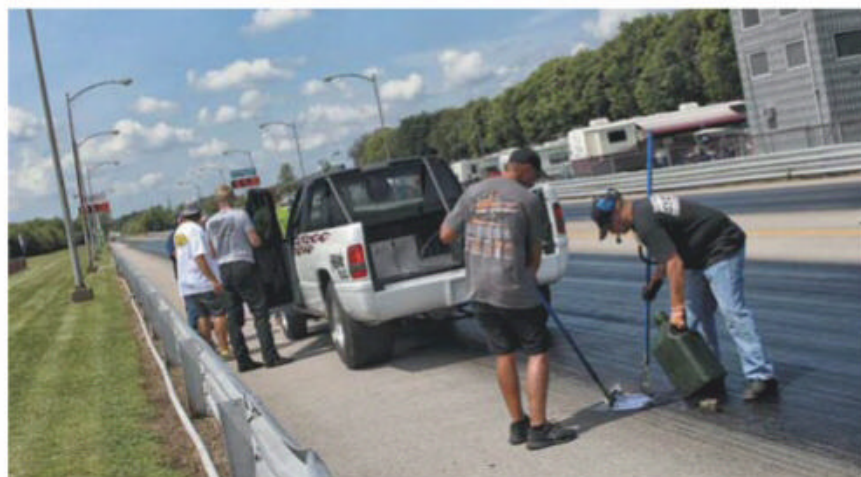
▲ Whenever possible, data log your passes. Not forgetting to grab your time slip is one thing, but knowing how your engine performed throughout the duration of the run can be extremely beneficial in pointing out a problem, diagnosing that problem, or simply verifying that everything is working as it should. For instance, seeing what rail pressure you were able to sustain, what fuel pressure fell to, or how high your EGT was can be extremely telling.



▲ So you've built adequate boost in your staging, cut a good light, and rocketed out of the hole and down the track as quickly as possible—now it's time to collect your report card. The time slip you collect on the return road leading back to the pits has all the data you need to analyze you and your truck's performance. The physical act of drag racing is beyond exciting, but this information will tell you where you need to improve, what went wrong, or if your truck is actually making the same horsepower that fancy dyno said you were...



▲ Test 'n tune events offer plenty of practice for a novice drag racer, especially on nights when turnout is low. With fewer competitors, you can get a lot more passes in, making adjustments to your driving style or the truck in between, and becoming more comfortable each time down the track.



▲ While unfortunate, leaks, driveline breakage and outright oil-downs do happen from time to time, and when they occur all action on the track comes to a stop. If you suspect anything is drastically wrong during your own journey down the track, our best advice is to pull over to the side of the track immediately. By pulling over as soon as possible, you minimize the damage done to the racing surface and less clean-up will be necessary to get racing back underway.

DIESEL WORLD

FOLLOW
US ON



WWW.FACEBOOK.COM/DIESELWORLD MAG
WWW.INSTAGRAM.COM/DIESELWORLD MAG

SPYNTEC

INDUSTRIES

Replace weak factory unit bearings
Disconnect hubs for less drag and
better fuel economy
Save money with serviceable hubs



Hub Conversions For:
1994 to 2010 Dodge
1999 to 2010 Ford
Jeep Tj, YJ, XJ & JK Wrangler



The Leader in Fixed Spindle Hub Conversions
888-290-2953 234-759-3105

SPYNTEC.COM

GET REAL HUBS

THE 3-WAY YOU CAN TELL YOUR MOM ABOUT



Our paint pens have a 3-way tip to give you a pinpoint, fine, and broad applicator in one instrument.

With more than 300,000 factory and custom-mixed colors available in aerosol cans, brush-in-bottle, and ready-to-spray cans, we always deliver perfectly matched paint.

Automotivetouchup.com
888-710-5192



- Home of the Cummins "Big Stick"
- Custom Camshaft Grinding (Gas/Diesel)
- Duramax, Powerstroke, VW TDI, and other diesel camshafts
- Regrinds and billets available
- All work guaranteed

Geoff Bardal
over 30 years experience

(604) 856-3571
Aldergrove, B.C.

www.coltcams.com

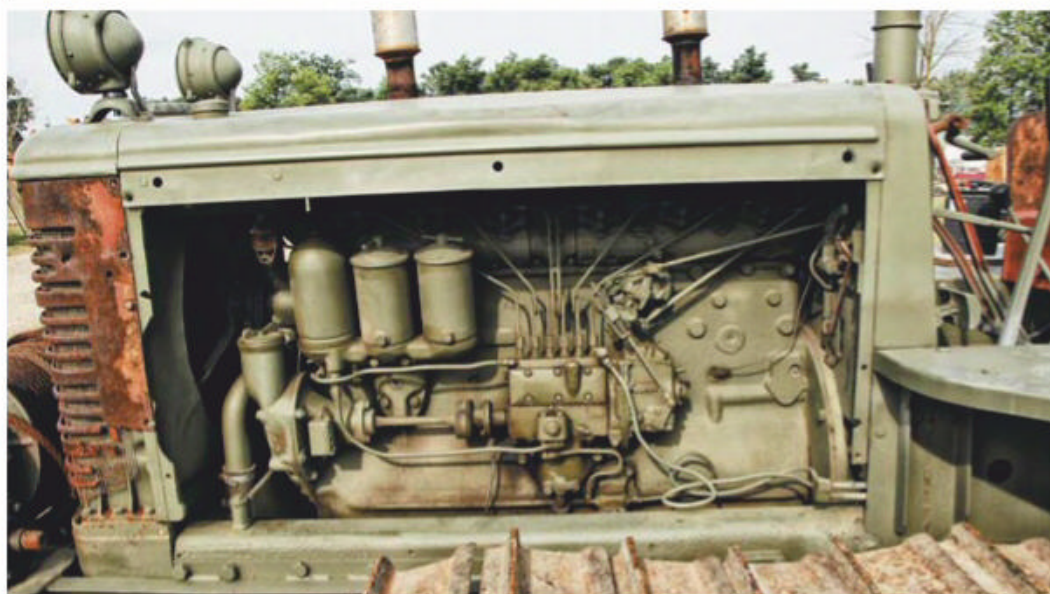
1942 INTERNATIONAL TD-18 CRAWLER

▼ This World War II veteran has a long way to go for a full restoration back to its original Ordnance tractor configuration. After being sold surplus, it was converted to a dozer and much of the military equipment was removed. That stuff isn't common so it's taken Adam years to scrounge up what little he does have. It started off as a Lot 4 tractor, with a four-person seat, dual 60 gallon fuel tanks and storage boxes on the rear with bustle baskets.





▲ Adam is missing the original PTO drive for the front winch but the original swinging drawbar is still there, less the military pintle hitch. A second fixed pintle hitch mounted above the swinging drawbar. Adam reports the running gear is fairly tight but that it needs new tracks.



▲ The IH 691ci 6-cylinder diesel debuted about the same time as the TD-18. It was a part of International's second generation family of diesels and they pushed them in a big way. It had a 461ci, 68 brake horsepower, four-cylinder little brother with the same bore and stroke that was used in the TD-14 crawler and other applications. The 691 saw use in a great many applications beside the crawler, including marine and stationary operation. It was a wet-sleeved, indirect injected, seven-main bearing six and weighed in at 2805 pounds. At 1400 rpm, it made 103 hp. It was rated at 84.66 belt horsepower by IH and 80.44 at Nebraska in a 1938 test but in civilian use, they only ran them to 1200 rpm. The engine was revised several times in its long life, to about 1958, and was listed at 125 hp at 1600 in 1958. Like all the period IH diesels, it started on gasoline and then was switched over. It had a direct driven air compressor used for an air brake system for trailed equipment.

When a country goes to war, its army needs more than bombers, tanks, cannons, rifles and ammunition. Those are part of what makes the tip of the spear but the best spear tip is of no use without the shaft that carries it to the enemy. That shaft is made up of everything from apple sauce to zerox ink. During World War II, one of the many items making up the shaft was the Heavy Tractor, M1 (IHC TD-18), a military version of the International Harvester TD-18 crawler.

The first TD-18 rolled off the line October 20, 1938 and sales began in 1939. The TD-18 was the big boy in the IH "TracTrac-Tor" line. It had their biggest six-cylinder tractor diesel of the day, the 691 cubic (TD-18 later called the D691), and was designed to compete with the Allis-Chalmers L and others in the big crawler market. Cat would challenge it in 1940 with their D7 and Allis-Chalmers with the HD10W and HD-14 in 1939 and 1940. Anticipating war in some form, an American rearmament push began in the late 1930s and that push included crawlers. It got very much more serious when World War II began for the U.S. on December 7, 1941.

Crawlers of all types and brands had been in widespread use by the U.S. ground forces since World War I. With the combat arms, they were used as artillery prime movers in difficult terrain for big guns like the 155mm. They were also employed as heavy recovery vehicles and for dragging pallets of supplies off a beachhead. Of course they also saw more normal use in construction work, with or without a dozer blade.

The TD-18 was seen in uniform as early as 1940 and was categorized as Heavy Tractor, M1 (IHC TD-18). That last bit was necessary because there were two other "Heavy Tractor, M1" from other makes, namely the Allis-Chalmers Models L (early on) and HD-10W, and the Caterpillar D7. The TD-18 Ordnance Tractor variant came in several different forms during the war, Lots 1, 2, 3 and 4. We could not find all the differences between them, but it's known the Lot 1 tractors were essentially civilian tractors with a single speed front winch. Lots 2 thru 4 had many updates mandated for government service. Among these were an extra-wide, four-person seat. The winch changed to one with two spooling in and one spooling out speed and the Lot 4 tractors had dual fuel tanks, 120 gallons total.

The basic TD-18 was used in many roles during the war, but we are mainly talking about Ordnance Tractors, those used by an artillery branch of either the Army or the Marine Corps. They were typically used to pull either the 155mm M1918 gun, the newer 155 mm "Long Tom" gun or the 8-inch gun over rough terrain. The TD-18 had a top speed of just under 10 mph, so if the guns needed to move fast over roads or longer distances, a heavy 6x6 truck like the Mack NO 7.5-ton might be used. Later the M4 high speed tractor became more common. The Marine Corps used the TD-18 to good effect in the Pacific. As they fought from island to island towards Japan, seldom were there roads and the ground was often soft or sandy, so the big crawlers were needed to drag the field guns into position.

The tractor shown belongs to Adam Voght. He bought it as a derelict tractor in 2000. It's a '42 Lot 4 tractor built for the Ordnance Branch of the U.S. Army. Its military history is unclear, but Adam thinks it was operated out of the Jefferson Proving Grounds, near Madison, Indiana, and sold surplus from there. The likely buyer was a nearby coal fired powerplant who converted it into a bulldozer and used it to push coal. Some sources list as many as 7,500 TD-18s in various configurations being built for the war effort. The TD-18 model lasted through several upgrades and evolutions into the late 1950s. **DW**

SPECIFICATIONS

1942 TRACTOR, HEAVY M1 (IHC) ORDNANCE CRAWLER

ENGINE: 6-cylinder diesel, IH TD-18

DISPLACEMENT: 691 ci

BORE & STROKE: 4.75 x 6.5 in.

***RATED DRAWBAR POWER:** 70.66 @ 1200 rpm

FLYWHEEL POWER: 103 hp @ 1350 rpm

RATED TORQUE: 475 lbs-ft @ 650 rpm

COMPRESSION RATIO: 14.2:1

TRANSMISSION: 6-speed (3x2)

WEIGHT: 30,000 lbs.

LXWXH: 15.9 x 7.8 x 7.8 ft.

FUEL CAPACITY: 120 gal.

TRACKS: 20-in width, 3,885 sq-in. ground contact

***RANGE:** 216 miles @ 8.3 mph with full load

***DRAWBAR PULL:** 18,973 lbs. @ 1203 rpm, 3.27% slip

***TOP SPEED:** 9.4 mph

***FORDING DEPTH:** 45 in.

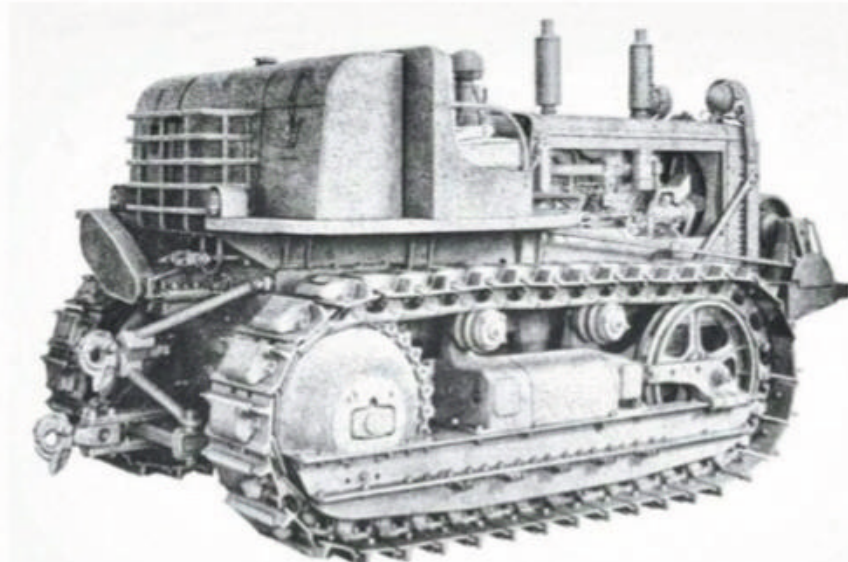
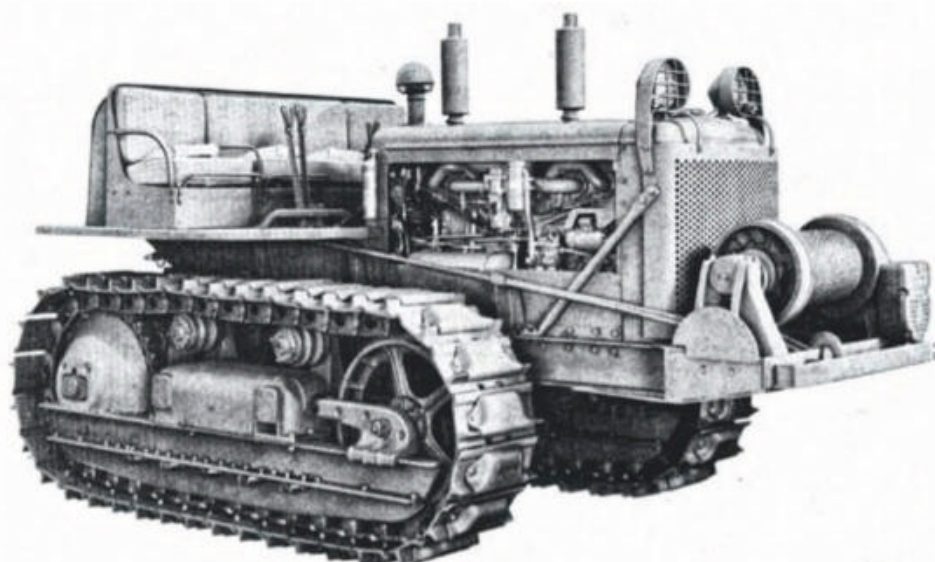
GRADE ABILITY: 20 deg. w/30,000 lbs. load

* As Rated by Nebraska Tractor Test 315, 1938

‡ As Rated by U.S. Army



▲ The front winch in the Lot 4 tractors was a 30,000 pound Gar Wood and it had three speeds, two pulling in and one going out. It carried approximately 300 feet of 3/4 inch wire rope. The winch was used for recovery and moving the large field guns.



▲ This is how the tractor will look when complete. This is a Lot 3 tractor but the difference between Lot 3 and 4 are not apparent until you see the back. The Lot 4 tractors have a second fuel tank behind the existing, about where the bustle basket is now. Note the second pintle hitch about the drawbar. The tractor came with an air system to operate the air brakes on the field guns.



▲ This is the typical load for the M-1 Ordnance tractor, the legendary M-1 155mm Long Tom. It had a 6.1-inch bore and could fire a 45 pound round at 2,800 feet per second up to 15 miles. It fired eight different types of projectiles using bagged charges. The Armor Piercing round could penetrate up to 7.7 inches of armor plate and the HE round could blast through 6.5 feet of concrete. Rate of fire is listed at 40 rounds per hour, served by a crew of 14. The complete assembly weighed 30,500 pounds. Dsdugan

23 Miles Per Gallon...



Into the Shop getting
10 Miles Per Gallon-

- DPF Delete Kit
- GearVendor Overdrive
- Gauges

23 MPG out the door -
Another satisfied
Ford truck owner

Call Us Today:
770.949.7191

FORD
Performance Specialists

"FPS works on
Fords Exclusively!"

Tech 770.949.7191 • eMail ShoGuy89@aol.com • Fax 770.485.9738 • Online FordSpecialists.com • Mableton GA 30126

Prices subject to change. Parts subject to availability. Some items intended for off-road use only. Ask for details on this and warranty info. Not affiliated with Ford Motor Co. Independently owned & operated.
All vehicles shown are owned by customers of Ford Performance Specialists. Items that modify vehicle emissions control systems without CARB Certification are illegal for sale or use in California.

POWERMASTER YOUR DIESEL

ULTRA DUTY STARTERS ARE ENGINEERED
TO HANDLE THE SEVERE REQUIREMENTS
OF THE MOST AGGRESSIVE DIESEL ENGINES

- GEAR REDUCTION PRODUCES HUGE TORQUE
- DURABLE MOTOR DELIVERS CONSISTENT CRANKING RPM
- HEAVY-DUTY SOLENOID IS BLUEPRINTED FOR LONG LIFE
- TOUGH WRINKLE FINISH FOR HARSH DIESEL ENVIRONMENTS

AVAILABLE FOR CUMMINS, DURAMAX
AND POWERSTROKE ENGINES!



POWERMASTERPERFORMANCE.COM



GIVE US A CALL! 630-957-4019

OFFICIAL



GOLD



SILVER



BRONZE



BUY TICKETS AT
ULTIMATECALLOUTCHALLENGE.COM

2020 ULTIMATE CALLOUT CHALLENGE

ALLIGATOR PERFORMANCE

ULTIMATE CALLOUT CHALLENGE

ALLIGATOR PERFORMANCE

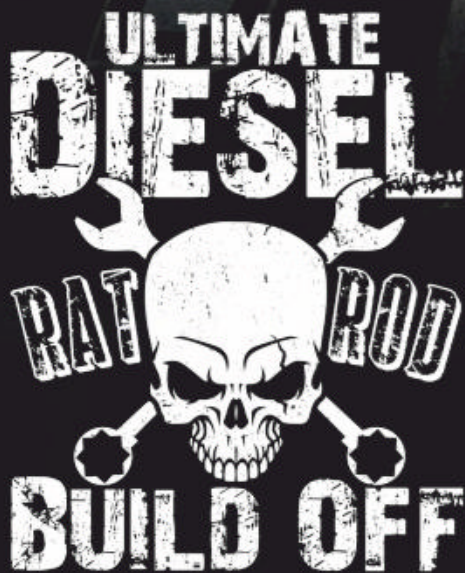
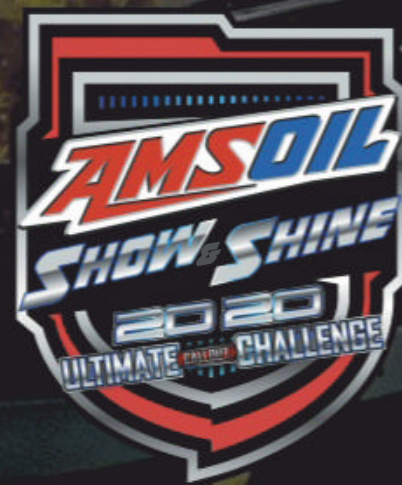
The Ultimate Callout Challenge brings together the **30** best competitors in North America where they battle it out by competing in a drag race, sled pull and dyno competition. After the three days and the three events, their scores are calculated to find out who is the 2020 UCC Champion!

Back again in 2020 Outlaw Diesel Super Series Quick 8 Shoot Out. Watch as the fastest diesel go head to head in 5.90 Index, Pro Street, Pro Mod, and Pro Dragster classes.



The Diesel Performance Industry Expo brings the top manufacturers, wholesale distributors, shops and companies to showcase their products at UCC, creating the largest diesel selling show in the country. Check out and purchase products from our **150+** vendors that will be at UCC 2020!

The Amsoil Show n Shine sends the challenge out once again to trucks across the country. Who has the best looking truck in the country? 300 trucks will show off what they got for cash, bragging rights, and be featured in a Diesel Magazine.



New this year the Ultimate Build off! Featuring Hawk Design vs Village Customs going one on one to see which team can build the Ultimate Diesel Rat Rod.

BUY TICKETS AT
ULTIMATECALLOUTCHALLENGE.COM

1963 STUDEBAKER 2-TON DIESEL TRACTOR





▲The '63 Studebaker is no hanger queen. Though it isn't "rode hard and put away wet" it does get plenty of exercise on Dane Farms, hauling hay and livestock.



t the dawn of the 1960s, most of the smaller independent American auto and truck manufacturers had faded away under the searing light of "The Big Three," General Motors, Ford Motor Company and Chrysler Corporation. Studebaker was way older than any of them but was grimly hanging on to it's tiny slivers of the car and truck markets.

Studebaker was founded in 1852, incorporated as the Studebaker Brothers Manufacturing Company in 1868 and was a very well known and respected manufacturer of horse drawn wagons, carriages of all types and tack well into the 20th century. Their involvement in motor vehicle manufacture started in 1897, when they experimented with electric vehicles. They started building gas powered cars in 1904, floundered a bit with ill-advised collaborations with Garford and E-M-F, finally setting down in 1911 with their own Studebaker brand. Though their horse-drawn equipment was a big money maker in World War I, Studebaker execs saw the writing on the wall and ceased the production of wagons and horse tack in 1919.

From World War I into the '30s, Studebaker was one of the leading motor vehicle manufacturers and at points was one of the pinnacles of automotive technology. It was in the 1930s that Studebaker's involvement with diesel power began. By 1937, Studebaker had a full line of trucks into the medium duty range up to 3-ton capacity and they offered a 2-ton model J20D with a Hercules DJXB diesel. That continued for 1938 with the K20D. The market interest in diesels was limited at this time, but Studebaker continued offering a smattering of diesel products well into the 1950s, especially for export markets, most of which used Perkins diesels.

By the early 1950s, Studebaker was in deep financial distress and merged with Packard to become Studebaker-Packard. This shallowed the steep financial dive but the company was still headed for the ground. By 1960, after more corporate reshuffling, the company was holding it's own and the managers of the truck division decided the time was ripe to introduce diesels into their medium-duty lines. They went diesel shopping and settled on the recently introduced Detroit Diesel 53 Series as a good fit for their Transtar truck lines.

The first experimental installations of the GM 4-53 took place late in 1960 and into 1961. As these things go, it was a fairly easy update and the Studebaker sales department announced the new line of trucks in April of '61. The first production diesels rolled off the line in June of '61, though there was some initial confusion on whether they were '61s or '62s. For those '62 models, only the 212 ci, 130 hp 4-53 was offered in the 2-ton E45A and E45E (19,500 lbs GVW and 23,000 lbs GVW).

For '63, the lineup was expanded to introduce a 159ci, 97 hp 3-53 into the E15 (1-ton dually) and E25 (1-1/5-ton dually). The E35A (1-1/2-ton HD) and E35C (2-ton light) got the 4-53 and E-45A and C models were unchanged. Added were the 96BBC option trucks, which were all 2-ton fifth-wheel tractors. They featured a flat nose that shortened the truck by 10.5 inches. This was designed to allow the truck to tow 40 foot semi-trailers and stay within the legal total length limit of the day. This lineup stayed the same into that fateful last year for Studebaker, 1964.

According to published sources, a total of 702 Studebaker diesel trucks in all weight classes were produced from '61 through '64. Overall, this was a perfectly timed entrance into the medium duty diesel market and the Stude with it's reliable and proven Detroit could have been a contender had not Studebaker one foot in the grave.



▲ The 96BBC truck, the “BBC” for “Bumper-to-Back-of-Cab,” was a revision to the standard Studebaker front end that lopped 10.5 inches from the length of the truck. After studying available documents, Marv estimates under 50 were built. All the diesel trucks had the thermostatically controlled Kysor shutters, though on the standard Transtar they were behind the grille. This prevented overcooling under light loads or cold weather



▲ A standard Transtar diesel, like Rick Meadows’ ‘62 shown here, looked more like the standard Studebaker truck of the given year. You can see the Kysor shutters behind the grill. This truck was also sold as a tractor.

1963 STUDEBAKER 2-TON DIESEL TRACTOR

Studebaker expired by what might be called “the death of a thousand cuts.” Their status had looked up a bit by the late ‘50s and again in the early ‘60s, with new management. Then the UAW strike of January of ‘62 happened and left them swinging for 38 days. The news media began (apparently inaccurately) reporting Studebaker intended leaving the auto business, which became a self-fulfilling prophesy and immediately killed a sales boost that had started after the strike. Nobody wanted to be stuck with a car or truck from a defunct manufacturer. That drove the final nails into Studebaker’s coffin and U.S. production ceased in 1964. Their Canadian factory continued building cars into 1966 and they were selling well to thrifty Canadians. The General Products Division, which built mostly Defense Department equipment, was purchased by Kaiser-Jeep, then American Motors and eventually became AM General.

This truck belongs to Marv Dane, an Ohio hay and livestock farmer, who bought the 8E45E-96BBC truck as a derelict in 2011 and spent a year and a half bringing it back to life. It’s the star of a small collection of five Studebaker trucks. Nicknamed Miss Levasy after a ghost town in Missouri, it’s won numerous show awards, including Best of Show at the Gilmore Car Museum 2018 truck show and four other first place awards in various shows. It’s currently one of four



▲ The Detroit 4-53 two-stroke is modest in displacement but big in physical size, tipping the scales at 1,095 pounds. At 212 cubic inches (from a 3.875 x 4.50 bore and stroke), the output varied according to application. In the Studebakers, it was rated for 130 gross horsepower at 2800 rpm and 271 lbs-ft at 1500 rpm. Compression ratio was 17:1. Considering the 42,000 combined gross weight, gearing is paramount. With a load, Marv reports he’s working the levers constantly to keep the truck in the power band. Solo top speed is 72 mph, with the Jimmy screaming like a Banshee.



Fuel Your Truck Addiction Twice A Month

**SAVE
BIG**

ONLY \$44.95

Buy a 1-year subscription to **Diesel World** along with a 1-year subscription to **Tread** and get a **77% discount** on the combined cover price!



**Limited-Time Offer:
Act Now!**

Fill out the order form below and mail it, along with your payment information, to:
Engaged Media LLC, PO Box 88761, Chicago, IL 60680-1761

**JUST
FILL IT ► CUT IT ► SEND IT**

YES! Sign me up for a subscription to Diesel World and Tread for just \$44.95.

That's 18 issues for a total savings of \$146.81 on the cover price.

Method Of Payment	☐ Check Enclosed	☐ Credit Card	☐ Money Order	☐ Bill Me Later
Payment Through Credit Card	☐ Visa	☐ MC	☐ AMEX	☐ Discover
Credit Card Number				
Subscriber Name	First		Middle	Last
Address				
	City		State	
Phone			Email	
Signature			Date	

Or, log on to www.engagedmediamags.com/combo_dwtrd and use promo code **AO93ITR1** or call **800-764-6278** to order your subscription. Allow 6 to 8 weeks for delivery of first issue. Outside U.S., add \$66 per year for postage. Payment in U.S. funds only.

Scan QR
Code and Pay
Online to **Get
Additional
Discount of \$2**





▲ Marv Dane's '63 Studebaker E45E-96BBC tractor is rated for a 24,000 pound GVW, with a combined rating of 42,000 pounds. The Detroit 4-53 is backed up by a Clark 5-speed with a direct 5th gear. The Rockwell 2-speed rear axle has a 5.41:1 high and a 7.44:1 low. Later in life, a Spicer three-speed over-direct-under splitter was added. The bed and tool boxes are custom. The truck was originally painted Blue Mist Metallic but Marv had his paint and body guy, Zack Brandell, use a darker Ford Blue, which is the "fleet" color for much of his farm equipment.



▲ A forest of levers. Studebaker diesel operators had a lot of direct control of their trucks, but not much creature comfort. Marv's truck doesn't have it, but power steering was an option and air conditioning was listed on the options sheet, though only one truck was known to have it. The big Studes had the option of hydraulic or air brakes and Marv's has air.

1963 STUDEBAKER 2-TON DIESEL TRACTOR

96BBC trucks known to still exist. We saw the truck at the 2019 Flatrock Creek Truck Show and it really stood out. Especially when he started it up. A Jimmy with a straight pipe tends to do that. **DW**



▲ Dateline 2011: Dane's Studebaker (forward on the trailer) and another truck being loaded for the ride home to a full restoration. No irony in the fact that the boom truck doing the loading is a WWII vintage Studebaker 6x6 deuce-and-a-half.

SOURCE

AMERICAN TRUCK HISTORICAL SOCIETY
WWW.ATHS.ORG

FLAT ROCK CREEK FALL FESTIVAL SHOW
KAUSERTRUCKING@WINDSTREAM.NET



FLEECE LIFT PUMP

THE ONLY IN-TANK HIGH-PERFORMANCE LIFT PUMP ON THE MARKET

With the Fleece PowerFlo Lift Pump, you can have a truck that's more reliable and capable of meeting your high horsepower needs. Our performance-driven lift pump incorporates dual gerotor pumps that provide increased reliability and capacity over factory lift pumps while supporting up to 800 RWHP. It's a direct replacement for your OEM in-tank pump and easily installs in half the time of other high-flow lift pumps. The innovative active fill bucket eliminates the need for tank sumps, draw straws, and the dreaded quarter tank issues typically encountered when using a higher flow lift pump. Visit us online today at fleeceperformance.com to learn more!

FLEECE POWERFLO LIFT PUMP AVAILABLE FOR THE FOLLOWING MODELS

• '05-'18 Cummins • '11-'16 Duramax (LML) • NEW '98.5-'04 Cummins • NEW '04.5-'10 Duramax (LLY, LBZ, LMM)



SEAMLESS, IN-TANK
INSTALLATION



DUAL GEROTOR PUMPS
PROVIDE 2X CAPACITY



ACTIVE FILL-BUCKET
TECHNOLOGY



317.286.3573 | www.fleeceperformance.com



DRONING ON AND ON

I have a 2007 Chevy 2500HD that is producing a drone/vibration that can be heard and felt. All this seems to worsen at freeway speeds. I have installed new motor mounts and a transmission mount with no change. It sounds like a diesel with a straight pipe on it. This truck has accumulated 50,000 miles and is all stock.

I checked the exhaust system and found no part of it touching a chassis or powertrain component. I can feel the vibration in the front tires, the exhaust system and the body, but when I touch the frame rail it's a very light vibration. The drone seems to be coming from high on the engine and is more pronounced at the top of the shift points. I can also feel the vibration in the air filter box. Has anyone experienced anything like this?

Mike Mog
Via Email

Duramax's have drone issues with many aftermarket exhausts. The noise usually happens at a certain fixed RPM and the fix often means a new exhaust system must be installed. However, if you're certain it's not the exhaust, have you eliminated the front wheel bearings as a possible cause of the droning sound?

Through the years that I've owned diesel pickups I've had two that nearly drove me to the brink due to a hard-to-diagnose droning sound. The drone seemed to be related to engine speed, which caused me to believe the annoyance was related to the engine. In both cases, a bad front wheel bearing was eventually discovered to be the root cause of the annoying sound.

What finally shed some light on the wheel bearing issue in one case was that I noticed the sound would nearly disappear when in a gradual right hand curve at freeway speeds. The right side of the truck would unload ever so slightly in the turn, taking pressure off the right-side wheel bearing. The right front wheel bearing had apparently been affected by an 18-inch-deep water crossing I had driven in a few months before. Water must have seeped into the wheel bearing assembly and pitted the surfaces. Why the sounds seemed to be related to engine speed remains a

mystery, though some have suggested that the noise produced by the bad bearing was resonating with the engine and cab structure, which produced harmonics at various speeds. Sounds complicated, but I do know the annoying sounds completely disappeared after changing the pitted wheel bearing assembly.

I replaced the front wheel bearing hub assemblies in my 2001 GMC a couple of years ago for largely the same reason. The bearing in one hub assembly was bad enough to create a "fairy dust" of steel particles that accumulated on the A-arm and brake rotor. Also, there was movement in the front wheel/tire when it was lifted off the ground. The source of the drone was obvious at that point. Genuine OE replacement Timken brand hub bearing assemblies were available from Amazon with free shipping for about \$140 each at that time.

EX-MIL DIESELS

I live in northern Minnesota and am looking for a pickup truck that can deal with the winter cold and still be cheap to drive. Not having much experience with diesels, I'm interested in your opinion about an older diesel's suitability for both me and where I live. I've read about ex-military diesel pickups and SUVs being sold dirt cheap in vehicle auctions all around the country. Some have fewer than 5,000 miles on the odometer. Are these vehicles worth considering?

Can the ex-military pickups be a good choice for a fuel economy vehicle? What should I look for when evaluating one of these diesels at an auction site?

Is the 6.2L diesel a good choice for our cold winter climate? Does diesel fuel still gel or clog the fuel systems when it's really cold? Is the block heater still the only way to go for open-air parking during the winter?

My father owned a Pontiac wagon in the late 1970s that was converted to use a 6.2L diesel (was originally equipped with a 5.7L diesel). That car would deliver more than 30 mpg on a good day, and was a great car out on the open road.

Vadan Wiess
Via Email

Aside from being bare-bones transportation with few amenities, most ex-military

6.2L diesel pickups and SUVs are geared lower (usually 4.10) and come with a 3-speed non-overdrive automatic transmission. The low differential gearing combined with no overdrive make these 1980s era trucks hard to live with for today's higher highway speed limits. The first modification should be installing an overdrive transmission. The best fuel economy will come when the engine is running at 1,800-2,000 rpm at your chosen cruise speed. Depending on how fast you drive, this may also require a differential gear set change too. For a fuel economy oriented 6.2L diesel, I prefer 3.42 differential gearing along with an overdrive transmission. It's not the best choice for hauling or towing, but the fuel economy possibilities will be what you remember from your father's Pontiac.

A few of the military electrical systems are powered by 24 volts DC. These systems include the starter, fuel injection pump solenoids, and glow system. I recommend converting these systems to their civilian 12 volts DC equivalents. Replacement parts are easily obtainable, and there's a lot more technical assistance available if you need it in the future. Converting to all 12v systems isn't all that difficult.

Not all auctions allow you to start the engine or test drive the vehicle. The better auctions will however offer some sort of declaration indicating what they found during a pre-auction evaluation. Otherwise, just look at appearance and whether the vehicle has been maintained.

Reliable operation of the 6.2L diesel during the winter will require the use of a block heater. I use a block heater on a timer with my 6.2/6.5 diesels whenever the overnight low dips below +20 F. I have the timer set to begin a heating cycle two hours before I need to drive the truck. Using the block heater allows the engine to start instantly, thus saving wear and tear on the batteries and starter. Plus, you begin getting heat inside the truck much sooner.

Commercial diesel fuel is regionally blended to resist clouding during the coldest winter months. This is accomplished by blending #1 petroleum diesel fuel with #2. Straight summer blend DF2 (diesel fuel #2), under just the right conditions of temperature and fuel quality, can develop wax crystals at approximately +20°F. These

AMERICAN
TR  XX



ATF-1910
KRONOS

★
22X12 | 24X14

POLISHED & MILLED MATTE BLACK

AMERICAN
TR  XX

AMERICANTRUXX.COM @AMERICANTRUXX

crystals produce a cloudy appearance in the fuel, which accumulate in the fuel filter or on the fuel strainer in the fuel tank while the engine is running. This accumulation can get to a point of closing off the fuel supply to the engine, and the engine will stop running. Winterized #2 diesel fuel is supposed to resist clouding down to the lowest temperature expected in a given region, but fuel blending is done weeks in advance and might not be adequate for a big unexpected drop in temperature. As a precaution, all diesel owners can treat their own fuel during periods of extremely low temperatures if you don't completely trust the winterized fuel blending at the pump. Most national brand fuel treatments can help diesel fuel resist clouding and gelling. As of the spring of 2017, I've driven a diesel pickup through a total of 31 cold Montana winters, and have never once experienced gelled fuel. Good luck with your truck.

ANY SCORCHED RV TRAILERS?

I just bought a new truck, and then I began to consider the potential for heat damage to a fifth wheel travel-trailer during an exhaust filter regeneration. The tip of the tailpipe on my new Duramax is only a short distance from the trailer.

I've searched the Internet and can't find anyone reporting a problem like this. The GM literature says the exhaust tip was designed to "moderate" temperatures at the exhaust tip, but I do wonder whether driving for a few hours on the highway during the summer would cause any damage to my trailer. I would like to know whether you have encountered any discussion about this.

Kyle Werner
 Fargo, ND

Actually, we have heard from RVers who were initially concerned about the same thing as you, but after a season of towing they discovered that the possibility of trailer damage due to a hot exhaust was not a problem.

Because of the higher average exhaust temperatures produced by the engine while towing, the regen system will likely

never or rarely activate. Also, GM programmed the system to not begin a regen cycle if the vehicle is moving at a speed of below 30 mph. These combine to reduce the possibility of higher-than-normal exhaust temperatures at the exhaust tip. Be happy, no worries!

LIKE SUNDAY MORNING...

I have a stock 1989 GMC 2500 6.2L diesel powered Suburban, and was wondering how easily one could replace the original engine with a Duramax.

Philip Baler
 Camrose, Alberta Canada

"Easily" is a relative term. For someone well-versed in auto mechanical and electrical systems, it can be somewhat easy to perform a conversion like you propose. It's still work, but relatively easy.

There have been a few '80s GM trucks converted to Duramax/Allison power. New motor mounts would need to be custom fabricated to get the engine to sit between the frame rails, and the engine itself will easily fit into the engine bay. We've long thought that the Duramax engine packaging was actually designed to fit the 1990s GM body style trucks (GMT400), which have a similarly sized engine bay when compared to your 1989 model. The turbo exhaust downpipe will interfere with the right-side frame rail, but a little careful frame rail trimming will allow the exhaust to clear without compromising frame strength.

Physically installing the engine, transmission, fuel supply system, cooling system and exhaust system are the easy parts. These all-electronic engines and transmissions require a lot of wiring along with a handful of computer modules. It's all perfectly doable, and we found during a conversion of a 1989 Chevy that the process became easier once the decision was made to strip nearly all of the original vehicle wiring and replace it with wiring matching the model year of the engine/transmission package being installed.

Numerous companies have been working toward a standalone electronics package that would allow the Duramax to be installed in just about any vehicle, though their target market is largely the marine folks. PPE (ppediesel.com) is offering such a package, as is Banks (bankspower.com). Some of the West Coast hot-rod Duramax conversions you may have read about incorporated the PPE system.

If you stick with the GM electricals and electronics, we recommend installing a steering column matching the model year of your engine/trans package. The fairly minor amount of modification required to install a newer column is well worth the effort because you'll have the correct electrical control of the Tow/Haul feature, turn signals, cruise control and Passlock security in the ignition switch assembly. In addition, the new steering column will provide the correct cable-shift components for the Allison.

We recommend modifying the original dash to accept the new instrument gauge panel. If done well, the new dash will look great, help during the de-bugging process and allow you to benefit from the new gauges and Driver Information Center once the truck is on the road.

You should visit thedieselpage.com/features/ClarkDMConversion.htm, a web resource that discusses a 1987 Chevy C30 with a Duramax/Allison conversion. Good luck, and let us know what develops.

Once the cheap and easy items are eliminated (like the fuel filter change or fuel line leaks), you may need to consider the most often discovered cause - injectors.

DIESEL WORLD

Send your questions to:
 DWEditor@EngagedMediaInc.com

Or mail them here:
 Diesel World
 17900 Sky Park Circle, #220
 Irvine, CA 92614



What a difference 3 inches makes
I'm Brenda, My man takes the
Pro+Plus Ultimate. Hear how he
satisfies me. (888)242-0469



PERMANENT LIFETIME ENLARGEMENT?

Liquids Work Faster Than Pills

Liquids absorb 98% and immediately goes into the body's system. Easy to use. Take with any beverage. Dr. Bross advises erection size can be 3 inches bigger and can have enlargement for a lifetime when you continue to take PRO+PLUS LIQUID. Men of any age can achieve the highest success rate in 1 to 2 months. Reach Your Maximum Potential. PRO+PLUS ULTIMATE does not contain Yohimbe or L-Arginine.

For more than 30 years Dr. Bross has satisfied millions of men.

Although liquid is shown to work faster than pills, some men prefer pills and PRO+PLUS ULTIMATE pills are an excellent alternative.

PRO+PLUS ACCELERATOR LIQUID or CREAM

Customers tell us the Accelerator Cream or Liquid can speed up the time it takes for male enhancement up to 50%. Easy to use. Works with any Pro+Plus pills or liquid formula. You can feel the benefits almost immediately using the Pro+Plus Accelerator Cream or Liquid with your Pro+Plus pills or liquid formula.

FREE WITH ONE YEAR SUPPLY OF ANY PRO+PLUS FORMULA

PRO+PLUS MYTMAX TESTOSTERONE BOOSTER

Can Help Raise Testosterone Levels. Increase Drive, Libido, Performance, Energy Stamina And Strength. Reduce recovery time between intervals. Can increase performance in 3 to 4 days.

PRO+PLUS XTREME

Be Ready Anytime • Immediate Firm Erections
Pro+Plus Xtreme Can Work In 30 Minutes. Effective Up To 12 Hours. Dr. Bross also recommends men suffering from erectile dysfunction and premature ejaculation without a prescription!



SUPER FORMULAS SPECIAL OFFER

Only \$25.00 Each Or Select **ONE FREE**
With Any Pro+Plus Liquid Order.
Select Any **THREE FREE** With a One
Year Supply of PRO+PLUS LIQUID.



SEXCITER LIQUID

Excites women better than
Spanish fly.

ATTRACT-A-MATE

Human pheromone spray can
make women desire you.



www.ProPlusMed.com

Call our live representatives that you can trust to give you important information about our products. Be careful of discounters, imitators and porn stars that sell similar products on Amazon and Google. Don't buy from sellers who: Don't disclose where their products are made, use inferior blends, can't call them and have no customer service.

**Credit Card Orders Call Toll
Free Anytime • 24/7** Se Habla Español

1-800-378-4689

Customer Service 1-707-931-1001



Mail Payment to: **Avid Pro Medical Dept. 05D5A • Box 6710, Malibu, CA 90264**

Name (Print. I am over 18 and agree to the terms of ProPlusMed.com)

Address / City / State / Zip

Credit Card Number

Expires

CVC Code

PRO+PLUS ACCELERATOR LIQUID	\$25.00	\$
PRO+PLUS ACCELERATOR CREAM	\$25.00	\$
MYTMAX Testosterone Booster (1 month supply)	\$45.00	\$
PRO+PLUS XTREME (1 month supply)	\$50.00	\$
SEXCITER LIQUID to Excite Women	\$25.00	\$
ATTRACT-A-MATE Pheromone to Attract Women	\$25.00	\$

- ☐ Check
☐ Money Order
☐ Cash
☐ Credit Card

Money Back Guarantee

Please Choose Which You Prefer
Liquid or Pills ☐ Liquid ☐ Pills

Original
Results in
3-4 months.

Advanced
Can gain up to
50% in length
& width in
2-3 months.

Ultimate
Can gain up to 50%
in length & width in
1-2 months.

30 Days plus 30 Days **FREE** ☐ \$50

60 Days plus 60 Days **FREE** ☐ \$90

☐ \$60

☐ \$110

☐ \$80

☐ \$140

Dr. Bross Recommends One Year Supply To Reach Your Maximum Potential.

☐ \$170

☐ \$210

☐ \$240

Shipping, Rush Service and Insurance \$20.00 VALUE ONLY \$ 14.95

Total Enclosed \$

V150

Individual results may vary. These statements have not been evaluated by the FDA.
This product is not intended to diagnose, treat, cure or prevent any disease.

ABCO DIESEL, INC.



POWER STROKE- DURAMAX- CUMMINS

FREE SHIPPING

on orders \$100 or more
CONTINENTAL US ONLY

WE INSTALL WHAT WE SELL CALL US NOW!



ABCO Diesel, Inc.
1439 W. Collins Ave.
Orange, CA. 92867,

www.abcodieselinc.com
info@abcodieselinc.com
714-997-1955

2003-07 FORD 6.0L



STOCK NEVER LOOKED SO PUNY



- ▶ Banks High-Ram® delivers up to a 64% reduction in pressure loss
- ▶ Improves airflow from intercooler
- ▶ Greater air density and a more responsive, fuel-efficient engine
- ▶ Includes Boost Tube
- ▶ **Emissions Compliant power!**

banks
© 2020 Gale Banks Engineering

bankspower.com
(800) GET POWER

PERFORMANCE PRODUCTS & SERVICE FOR CUMMINS DIESELS

8231 South 200 West, Fairmount IN 46928

Phone: (877) 948-3164 Fax: (765) 948-3163

HAISLEY MACHINE

vhaisley@comteck.com www.haisleymachine.com

Van, Patty & Curt Haisley

WHERE WE PUT...CUMMINS POWER "TO THE GROUND"



DURAMAX & ALLISON SPECIALISTS

"WE BELIEVE IN BUILDING LONG-TERM RELATIONSHIPS BASED ON INTEGRITY AND PERSONAL SERVICE"

MA ADDITIVE DIESEL FUEL TREATMENT
PART NUMBER: 10509

A MULTI-BENEFIT FUEL ADDITIVE THAT HELPS RESOLVE ISSUES ASSOCIATED WITH ULTRA-LOW SULPHUR DIESEL (ULSD) FUEL. INCREASES CETANE 2 TO 3 POINTS TO DELIVER A MORE COMPLETE BURN & MAXIMIZE THE EFFICIENCY OF THE ENGINE. HELPS WITH FASTER STARTS, SMOOTHER RUNNING, INCREASED POWER, HIGHER BTUS, AND IMPROVED FUEL ECONOMY.

NEW MA FUEL INJECTOR, L87, 2001-2004
PART NUMBER: 10801

NEW L87 INJECTORS UPDATED TO MEET MERCHANT AUTOMOTIVE SPECIFICATIONS WITH NO CORE CHARGE! COVERED BY A 12 MONTH / UNLIMITED MILE WARRANTY!

OVER 50,000 PARTS IN HOUSE

DURAMAX HEAD GASKET KITS

INCLUDES EVERYTHING NEEDED TO REPLACE BOTH HEAD GASKETS ON YOUR DURAMAX



DURAMAX REAR HOUSING SUPPORT, TRANSFER CASE BRACE

DRIVE LINE VIBRATIONS FROM A BAD U-JOINT OR OTHER FACTORS CAN PUT STRESS ON THE 4X4 TRANSMISSION HOUSING AND CAUSE IT TO CRACK. REPLACING A HOUSING CAN COST OVER \$1000. INSTALLING A REAR HOUSING SUPPORT CAN KEEP YOUR FOUR WHEEL DRIVE HOUSING FROM CRACKING



MA DEEP FILTER LOCK

FOR THE DEEP SUMP PAN FILTER. REDUCES CAVITATION DUE TO LACK OF SEAL AT FILTER. PREVENTS ACCIDENTAL FILTER FALLOUT. BOLTS EVENLY IN RELATION TO THE FILTER FOR A SECURE HOLD.







MERCHANT-AUTOMOTIVE.COM

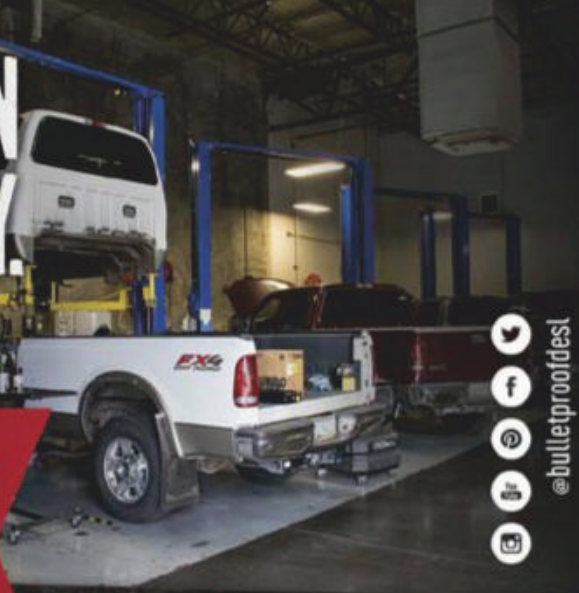





866-399-7169

THE AUTHORITY IN DIESEL RELIABILITY.

**WE DRIVE THEM.
WE SERVICE THEM.
WE ARE BULLET PROOF DIESEL.**





BULLET PROOF DIESEL

480.247.2331 | 888.967.6653
4245 E. PALM ST | MESA, AZ 85215

@bulletproofdiesel

AD INDEX | DIESEL WORLD MAGAZINE

ADVERTISER	PAGE NUMBER
ABCO Diesel Inc	127
Alliant Power	79
American Force Wheels	6-7
Amsoil	17
ARP	101
Automotive Touch Up	111
Banks Power	2-3
Banks Power	127
Bean's Diesel Performance	65
Bullet Proof Diesel	34-35
Bullet Proof Diesel	128
Colt Cams Inc.	111
Diamond Eye Manufacturing	27
Diesel Performance Parts, Inc.	25
Diesel Power Products	86-87
DieselSite	59, 107
Edge Products Inc.	55
EFILive Limited	131
EZ Lynk	69
Fleece Performance Engineerin	123
Flex-A-Lite Consolidated	129
Ford Performance Specialists	115
Fusion Bumpers	41, 71
GDP Tuning	103
Haisley Machine	128
Hammerhead	53
Harbor Freight Tools	29
Hypertech Inc.	49
Industrial Injection	81
KC TURBOS INC.	83
KT Performance	130
LMC TRUCK	19
Merchant Automotive	128
MKM Customs	60-61
Move Bumpers	93
Nitto Tires	132
Powermaster Performance	115
PPE (Pacific Performance Engineering)	32-33
PRO ENTERPRISES INC.	127
Pure Diesel Power	129
Pusher Intakes	31
Recon Truck Accessories	43
Riff Raff Diesel	13
Scheid Diesel Service Co., Inc	67
SpynTec Industries	111
Stealth Performance Products	47
Strictly Diesel	77
Summit Racing Equipment	14-15
Sun Coast Converters, Inc.	91
The Wheel Group	51, 125
Thermo-Tec Automotive, Inc.	48
Tire Rack	85
TITAN Fuel Tanks	39
Transfer Flow	95
TSW Alloy Wheels	8-9
U.S. Mags	72-73
Warn	11
Wheel Pros	20-21
Wilwood Disc Brakes	10
Xtreme Diesel Performance	45

Save Time & Money - a Winning Combination



*Pure
Diesel
Power.com*



Shop PDP for all your OEM & Diesel Performance Parts



and more!

Call Today! 715-204-3115



Scan this QR code with your smartphone
to visit our website



PERFORMANCE COOLING

Flex-A-Lite Now Offers Extruded Tube
Core Radiators and Dual Electric Fan
Systems for 2003–2007 Ford Super
Duty Trucks with the 6.0L Power
Stroke.

Coming Soon For:

➤ 2008–2010

Ford Super Duty

➤ 2003–2009

Dodge Ram with Cummins



The Future of Performance Radiators.

Better Cooling.

Stronger, More Durable
Construction.

Less Weight.



Flex-A-Lite

800-851-1510
www.Flex-A-Lite.com



YouTube





Get One Issue FREE!
+
SAVE 78% on Annual Subscription

SUBSCRIBE NOW

To Your Favorite Diesel World Digital Magazine

Just log on to

ENGAGEDMEDIAMAGS.COM/EEM-5031

OR

SCAN QR CODE BELOW



Available on app stores below



Online
(Win/Mac)

***12 issues for only \$19.99**

Single issues are also available at **\$5.99**.

For questions on downloading the magazine apps contact 800-764-6278.
For a full listing of our digital titles, visit www.engagedmediamags.com/digital today!

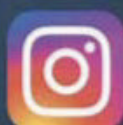


www.ktperformance.net

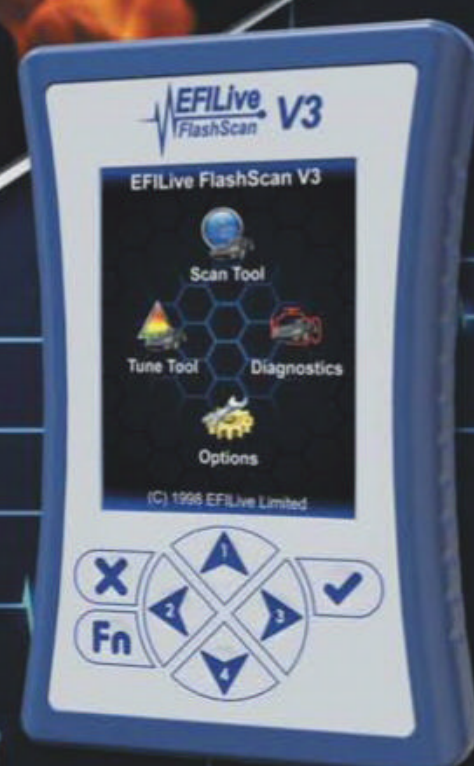
Toll Free Sales & Product Support:

1-855-587-3763

sales@ktperformance.net



- #1 6.0L Injector Seller In The Country
- In Business Since 2006
- Parts for all Trucks, SUVs, Cars, SxS...
- FREE Shipping on orders in the 48 states on over \$100 (excluding LTL)
- Most orders are delivered in 2 days!



UNLOCK YOUR VEHICLE'S **MAXIMUM** POTENTIAL!!!

Put the right tools in your toolbox! **FlashScan V3** from EFILive allows you to scan, data log and reprogram your vehicle for maximum performance and outstanding drivability.

TAKE THE GUESSWORK OUT OF TUNING. FEATURES INCLUDE:

- ✓ Replaces FlashScan/AutoCal V2
- ✓ Large, easy to read color screen
- ✓ Powerful ARM Cortex-M3, 32-bit CPU
- ✓ Built in 512MB micro SD Card stores hundreds of tune files and/or hundreds of hours of logged data
- ✓ Supports 300 VIN licenses
- ✓ VIN licenses store the vehicle's VIN, making it easier to keep track of licenses
- ✓ Automatic controller detection and identification
- ✓ Displays more comprehensive OBDII test results and descriptions than FlashScan/AutoCal V2
- ✓ Files transfer up to 10 times faster than FlashScan/AutoCal V2
- ✓ Resellers can customize menus, colors and images to achieve their own corporate look and feel
- ✓ Rugged Molex connectors
- ✓ Plug-and-Play, uses Windows' built in USB drivers
- ✓ Appears as a Windows USB drive in Windows Explorer
- ✓ Battery backed real-time clock for accurate timestamps
- ✓ Built-in power supply prevents data corruption if external power supply is interrupted
- ✓ All-in-one light duty (CAN J1979) and heavy duty (CAN J1939) protocols
- ✓ VPW protocol
- ✓ Serial interface (RS-232)

SHIPS FIRST QUARTER 2020

www.efilive.com

