

To See It... Is To Want It

Some say this flatbed is a must!



DIESEL TECH

MAGAZINE

ENGINE EXHAUST INTAKE POWERTRAIN CHASSIS MODS

VOLUME 10 — ISSUE 4

FIRE TRUCK

RED

FIREMAN ADDS TWINS

TO HIS

CLASSIC
RIG

ULTIMATE *STEP BY STEP*

AXLE

INSTALL

BULLETPROOF

6.4L

PART 1

DIESEL TECH TRUCK-BUILD SERIES





EDITOR'S PICK PART I

BULLET PROOFING OUR 6.4L

One of the many perks to this job is always being around heavily-modified diesel trucks. Yes, as the editor of *Diesel Tech* I probably shouldn't be as easily impressed as I am, but what can I say? I'm a fan of the industry and I love to see first-hand the different ways you can custom build a truck. After years of covering builds for this publication, drooling over trucks at SEMA and even being involved with a couple of my own projects, I decided it was time to create a truck that is truly comprised of aftermarket products and upgrades that represent me as the editor of a daily driver pickup truck magazine. We're calling the build "Editor's Pick" and while I completely admit the project name lacks creativity, I guarantee the end result won't.

AUTOS 4 LESS

We started with a bone stock 2010 Ford F350 Power Stroke that I picked up at a local truck lot in Idaho Falls, Idaho. I went to Autos 4 Less on a brutal cold

January afternoon when the temperature high for the day was a low single digit. I only agreed to test drive the truck to keep warm, since I figured it was well out of my price range. You need to realize this dealership is very unique in that the sales associates don't work on straight commission, but instead focus on volume and pride themselves on selling as many vehicles as they can each day to cover their overhead costs.

Simply put, they were willing to work within my budget. After working out the

details with David Claiborne from Autos 4 Less, I signed the papers and drove off the lot with a big smile.

Side note, it was so cold that day that I couldn't even get the electric windows to go down so I just had to take David's word that once the truck thawed out, everything would work, and thankfully it did. Plus after the snow melted I realized the truck also came with a fifth-wheel hitch that was buried in the bed of the truck.

HEADING SOUTH

So what do you do when you live in Idaho and you have a new-to-you truck that you want to get started modifying, yet it's still too cold outside? You head to Arizona where it's warm, that's what!

Even though I bought the truck on what seemed like a whim—at least it appeared that way to my wife—I knew months in advance that my next project truck was going to be a Power Stroke. I had begun talking back in October with



Ken Neal and his brother Gene, the owners of Bullet Proof Diesel, months before I even bought my Ford. I knew when it came to making these Power Strokes bulletproof that the Mesa-based company in Arizona needed to be my first stop.

BULLET PROOF DIESEL

The slogan at Bullet Proof Diesel is, "If you depend on it, Bullet Proof it!" It seems like every 6.0L or 6.4L owner either has Bullet Proof Diesel products on it, or is planning to in the near future. This manufacturer has a solid reputation in the diesel industry and a lot has to do with its EGR Coolers.

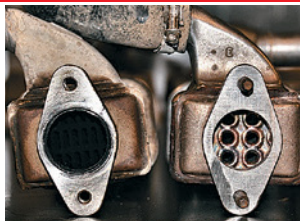
There were two specific BPD upgrades I wanted to make on my 6.4L that both Ken and Gene highly recommended. The first one was the upgraded EGR Coolers with the stainless steel tube design that come with a lifetime warranty. At the shop, the stock EGR Coolers are remanufactured using the stock cores and built to be, for lack of a better term, bulletproof. The other upgrade the brothers suggested for my must-have list is the BDP Oil Cooler System Half Kit with the Bypass Oil Filtration system. It was not only the reputation of the company and its products, but also the quality people that made the decision to head to Bullet Proof an easy one for me.

GETTING STARTED

I was first greeted by Wyatt Ashton, who wears a lot of hats at Bullet Proof Diesel. One of his main responsibilities is to manage the work flow of the shop. After talking for a few moments, Wyatt pulled my truck into the building and introduced me to Shop Tech Jacob Lopez. Jacob has been with BPD for over eight years and is one of the original hires for the company. Plus like a lot of people at Bullet Proof Diesel, he daily drives a Power Stroke to work, so I knew my truck was in good hands.

While Jacob was busy with the tear down we talked about what makes their EGR Coolers so much better, because to be honest, in looking at one from the outside it didn't appear to be that much different.

"It's what is inside that makes the biggest difference," said Jacob as he compared my stock one to the new one that he would be installing. "The patented stainless tubing inside is a huge improvement over stock and makes a big differ-



ence with the cooling." This kit includes the Horizontal EGR Cooler, which is the large EGR cooler that runs parallel with the exhaust manifold, as well as the Vertical EGR Cooler, that runs from the Horizontal EGR up to the EGR valve. Plus the kit also includes miscellaneous EGR gaskets; these are the metal gaskets that seal up between the EGR coolers and their connection points.



One of the qualities that impressed me the most was how well organized the Bullet Proof Diesel parts are. Besides the EGR Coolers and new hoses, the individual parts and components are separated into different sections to help keep the installation as organized and as easy as possible.



After removing the bypass/anti-drain back assembly, the spring can be discarded and replaced with the new version that is provided.

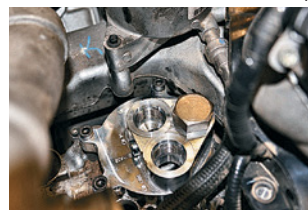
HALF KIT

The Bullet Proof Oil Cooler System Half Kit retains the stock OE engine oil cooler, but adds an additional air to liquid heat exchanger for added cooling capacity. This can be used to compensate for a stock OE oil cooler that has become restricted, just as a heavy-duty upgrade for towing, or heavily-modified trucks.

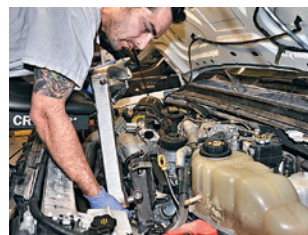
This kit also upgrades the stock OE filter system and implements a remote mounted spin on style oil filter located on the driver's side of the truck behind the bumper.



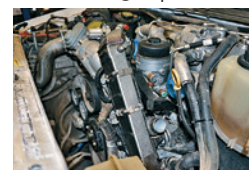
The Half Kit adapter is installed next and it's important to make sure the step on the bottom is placed on the filter housing drain. Once the adapter is resting on the housing you don't want to twist or spin it. If the filter housing drain is broken, oil will not flow properly through the system.



Here Jacob Lopez installs the second of two EGR Coolers, this is the



Vertical one. On the outside they look similar to the stock versions, but Bullet Proof Diesel has built a strong reputation in the industry for what they're able to do to the inside of its EGR Coolers.



The next stage of the install included removing the intercooler. Normally the stock one would be put back on when the BPD installs were complete, but we decided this would be the best time to upgrade to an improved intercooler from BD Power.



are provided.

The new Oil Filter Bracket and Adapter were easily assembled using the detailed instructions that



One quick tip is to fill the oil filter with oil before installing it on the adapter to help prime the oil system.



The Bypass Oil Filtration Amsoil 2 Micron kit works in conjunction with the 6.4L Half Kit and helps to improve oil quality and longevity.

Similar to the location of the Half Kit, the

Bypass Oil Filtration system is mounted behind the front bumper. The bumper only had to be loosened, not removed, since Jacob was able to gain access by removing the headlights.



Unless you're looking for it, you'd never guess the oil filter adapter bracket was just forward of the driver's side front wheel.



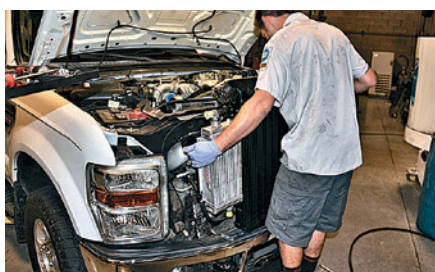
Next up was the new Oil Cooler that includes two plugs and two ports.

The oil cooler bracket was first



installed on the new BD Power intercooler using the provided self-drilling screws.

Then Jacob bolted the Oil Cooler



to the bracket with the bolts pointing toward the intercooler.

The new BD Power Xtruded Intercooler with the Oil Cooler mounted on the side was installed next.

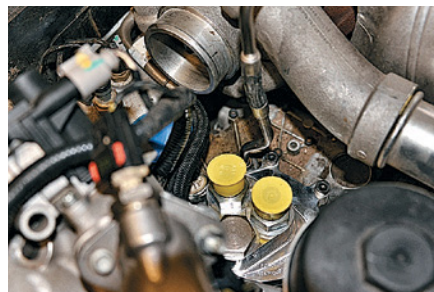
BD POWER

The reason we went with BD Power for the Charge Air Cooler (CAC), also known as the intercooler, is because of the manufacturer's reputation in the industry for quality. Located over the border in Canada, the Abbotsford-based company in British Columbia is a world class manufacturer who distributes products worldwide for North American diesel vehicles.

Its wide range of products are specifically engineered for performance and it is all done in-house. The BD Power state-of-the-art facilities cover 65,000 square feet, and employ 100 plus highly-trained individuals.



BD's free-flowing intercooler is designed with streamlined external air passages that improve engine cooling, while offering less fan noise and less blade resistance. Plus, what sold us on the upgrade is the improved engine power and efficiency of the radiator and air conditioning heat exchangers.



Designed through testing at 100 plus psi turbo boost pressure and 500 degree turbo outlet temperatures, the extra thick cast end with support struts have integrity and ensure long life without ballooning and cracking.

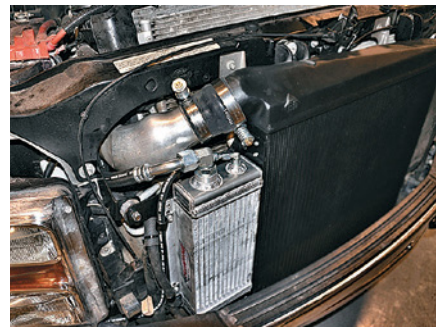
BD Power also provides boots and clamps with its intercooler, which only add to the over-built theme of the truck.

Next it was time to hook up the

hoses. Too bad the polished Half Kit adapter had to be covered up and is no longer easily visible.



Jacob began running the hoses that were all manufactured in-house to ensure the quality and precision that is required with all Bullet Proof Diesel kits.



The installation of the BD intercooler with the new Oil Cooler was completed next. Again, we could just have used the stock intercooler, but we're glad we went with the upgraded one from BD Power. The lower the turbo boost pressure drop across the intercooler (inlet vs. outlet) the higher the volume flow. The more air volume that can flow through the intercooler and the higher the turbo boost pressure will result in lower exhaust gas temperatures (EGT). Simply put, BD's Xtruded Intercoolers are designed for performance diesel engines, and considering what else we have planned in the near future, this could be considered a must for our build. Just a quick teaser: BD Power offers a lot more than just intercoolers so we'll most likely be back on its website soon looking for more performance products.



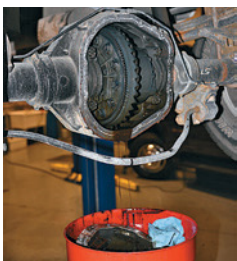
Jacob Lopez (L) checks the grille to make sure it clears the new Oil Cooler while Wyatt Ashton assists.



AFe POWER

The purpose of the first round of installs was to bulletproof the truck and provide a solid foundation for future upgrades. So we figured this would be a good time to upgrade the covers as well while the truck was still at the Bullet Proof Diesel shop.

We've trusted a lot of our projects to advanced FLOW engineering (aFe) and they've never let us down so that's why



we keep coming back to this California-based company. When you consider all the different types of vehicles aFe covers, there might not be a

company out there that releases more new products on a regular basis than aFe.

We contacted aFe Power for front and



rear differential covers as well as a deeper transmission pan.

The first step is to drain all the fluids; we started in the rear and worked our way forward.

The difference between

stock and the aFe high-quality products is night and day.



Each cover comes with an O-ring, which fits snug into

the groove around the perimeter. It's the added touches that make the difference when it comes to aFe.



Jacob started with the top bolt hole and continued around the bolt pattern until all 12 were installed and finger tight. Then he went back and tightened the bolts as specified. This cover has about a 5-quart lube capacity at the factory line, which is an improvement over the factory cover that only held about 4 quarts.



The front diff cover went on as easily as the rear one. The Pro Series differential covers include an oil level sight glass and deep reach magnetic dip stick for maximum protection.



The transmission fluid was drained next as Jacob moved on to the last install for the first part of the build.



The new aFe Transmission Pan with machined fins has an additional capacity of 7.5 more quarts over stock. The



internal and external fins transfer heat from the fluid to the ambient air for maximum cooling. The transmission pan is constructed of durable die-cast A380 aluminum with reinforced ribs and a wrinkle black powder-coating with machined fins for maximum strength and styling.



I've had nothing but success with Royal Purple products in the past so when it came to picking my oil and fluids the decision was easy. The truck didn't come with any service or maintenance records so I wanted to do a complete fluid change using all Royal Purple products so I could start keeping track of my truck moving forward.

SOURCES:

Adrenaline Performance
208-357-5603
adrenalineperformance.net

aFe Power
951-493-7155
afepower.com

Air Lift
800-248-0892
airliftcompany.com

Andersen Manufacturing
800-635-6106
andersenhitches.com

AnzoUSA
888-360-3696
anzousa.com

Autos 4 Less
208-552-5445
autos4lesscars.com

BD Diesel Performance
800-887-5030
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Bestop
800-845-3567
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BOLT
877-251-8798
boltlock.com

Bullet Proof Diesel
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bulletproofdiesel.com

Compustar
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kyb.com

LEDGlow
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ledglow.com

Maryland Perf. Diesel
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Road Armor
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roadarmor.com

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rockauto.com

Royal Purple
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royalpurple.com

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statusgrilles.com

SuspensionMAXX
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suspensionmaxx.com

T-REX Grilles
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trexbillet.com

UnderCover Bed Covers
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undercoverinfo.com

Warn Industries
800-543-9276
warn.com

WeatherTech
800-441-6287
weathertech.com

WrapWorldInk
208-323-2453
wrapworldink.com



For the differential covers we used Royal Purple's Max Gear oil. Specially designed to extend gear and bearing life, Max Gear provides superior corrosion protection over competing conventional and synthetic gear oils.



For the transmission fluid, we used Royal Purple's Max ATF, which is scientifically engineered to extend the life of your transmission by reducing the amount of heat and wear on your transmission system.



The last step in completing our full fluid swap was to add new diesel engine oil. Diesels take a lot of oil, so we opted for the 5-gallon jug, which saved both time and money. Royal Purple oil is specifically formulated to maximize performance and meet the demands of high performance and modified engines.

With part one of the six-part series build now complete, I headed back for home. To pass the time on my drive back to Idaho from Arizona I began to plan what I wanted to do next to my 6.4L. **DT**



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