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DIESEL POWER

THE VOICE OF THE TURBODIESEL ENTHUSIAST

FORD VS. RAM VS. GM

2011 PICKUP TRUCK SHOOTOUT

BULLETPROOF BOLT-ONS:

- **SUPER DUTY** OIL AND EGR COOLERS
- **RAM** TWIN TURBOS FOR 6.7L **CUMMINS**

2,000HP, TRIPLE-TURBO, 7.3L POWER STROKE

2,300-LB-FT, BILLET-STEEL-BLOCK CUMMINS

PLUS!

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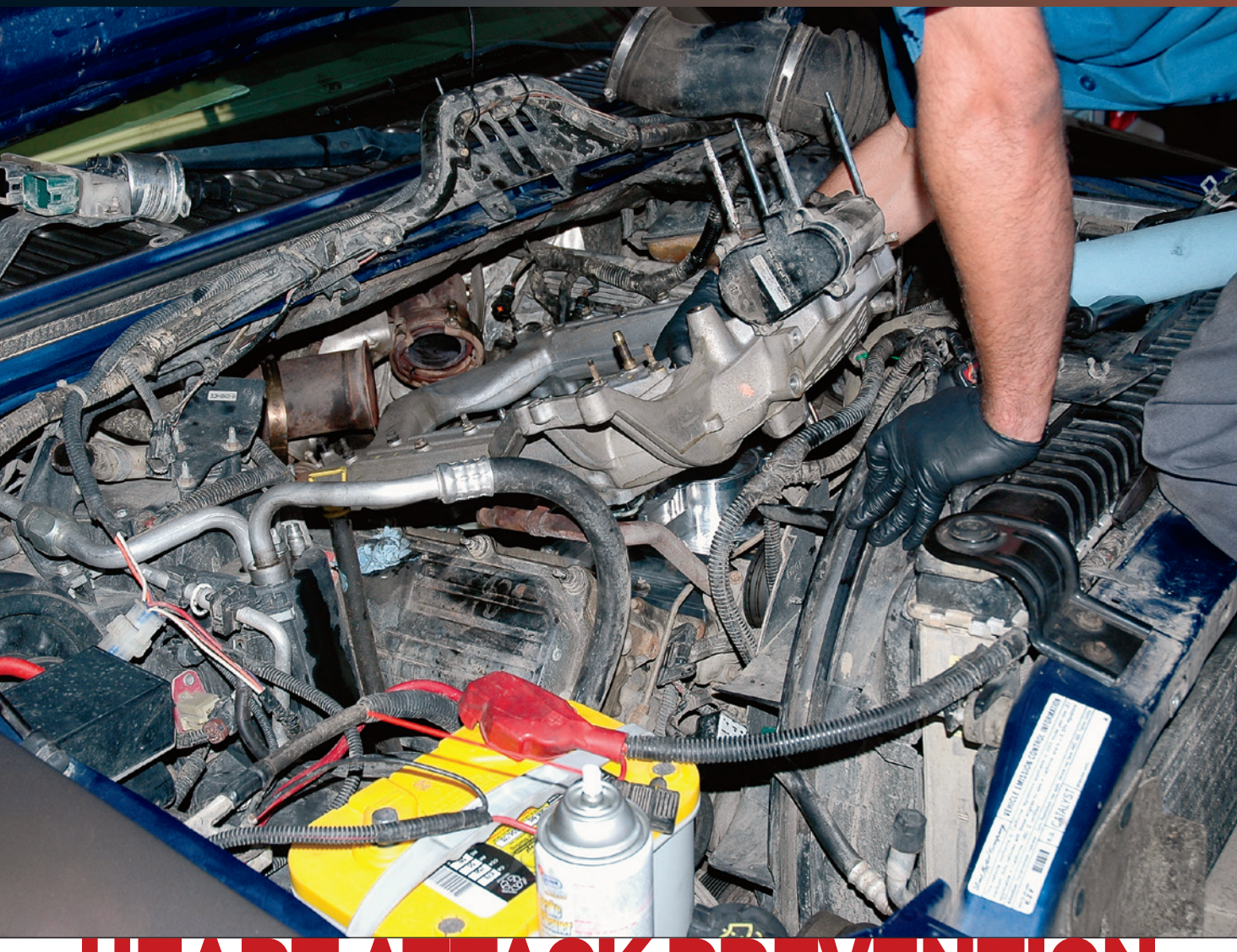
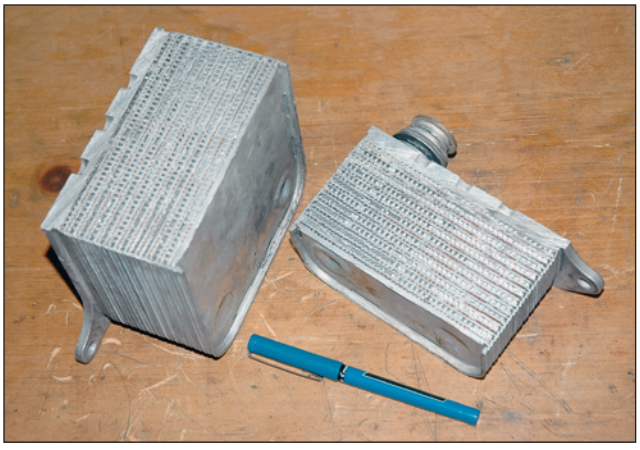


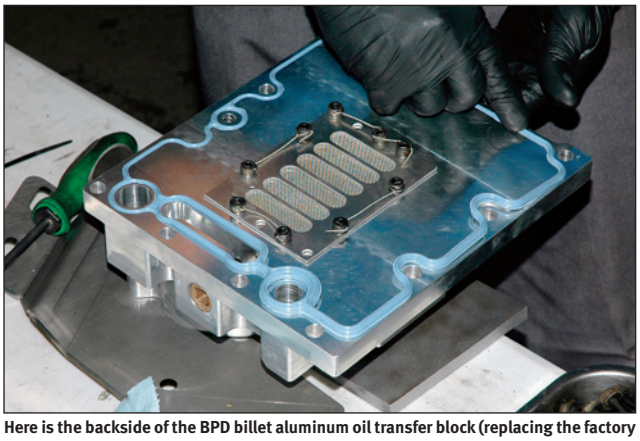
HEART ATTACK PREVENTION FOR THE 6.0L POWER STROKE

BULLETPROOF EGR AND OIL COOLER UPGRADES FOR '03 TO '07 FORDS

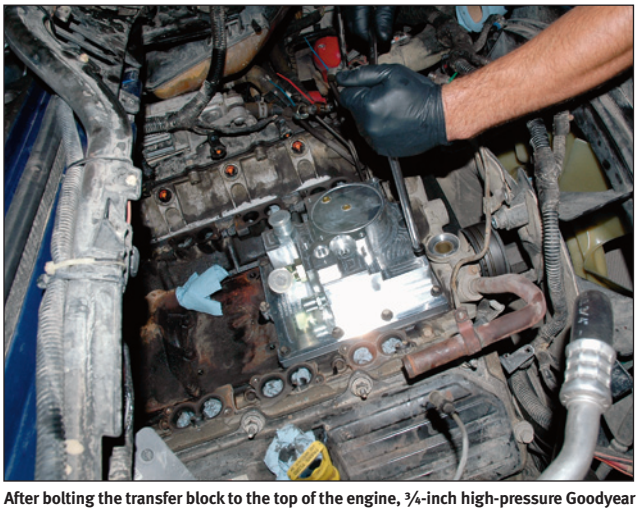
Engine oil and coolant are the interrelated lifeblood of the 6.0L Power Stroke. If a clot should form, preventing flow, or the fluids become mixed, severe damage can be done to the injectors, high-pressure oil pump (HPOP), engine bearings, heads, turbo, block, and pistons. The symptoms to watch out for include: steam coming out of the exhaust pipe, the puking or unexplained loss of coolant from the overflow bottle, and coolant or sludge in the intake manifold when you remove the EGR valve. A thick, black ooze in either the engine coolant or oil systems and internal sections of the intake manifold that look like they've been steam-cleaned is also a sign that something is wrong. The factory liquid-to-liquid engine oil cooler (EOC) situated on top of the 6.0L directly below the oil filter is prone to clogging because the internal coolant passages are narrow and BulletProofDiesel (BPD) says the 6.0L requires 18½ gallons of cooled oil per minute at peak demand. BulletProofDiesel's solution is to replace the factory oil cooler and filter with a remotely mounted air-to-liquid cooler and spin-on filter. The other line of defense is an upgraded EGR cooler. This operation turned an '03 Ford into a reliable diesel truck that still has functioning emissions equipment. This isn't the first time we've operated on one of these potentially reliable engines; for more critical information see "Every 6.0L Problem Solved," in the July '09 issue of *Diesel Power* magazine.**DP**



Here is the heart of the problem—the 6.0L Power Stroke's factory engine oil cooler has small passages that can clog, reducing flow and limiting the amount of heat transfer from the oil to the coolant. If coolant can't pass through the oil cooler, it can't get to the EGR cooler, which can then rupture. According to BPD, the best way to test an engine oil cooler is to measure the temperature of the engine oil and coolant at the same time. When the engine oil cooler is working, the coolant and the oil temperature should correspond closely—within 5 degrees at idle. It's not advised to run your 6.0L if you have a leaking EGR cooler.



Here is the backside of the BPD billet aluminum oil transfer block (replacing the factory oil cooler and filter block) with its steel screen (replacing the factory plastic screen) bolted and safety-wired so there is no chance of anything coming loose and falling into the HPOP.



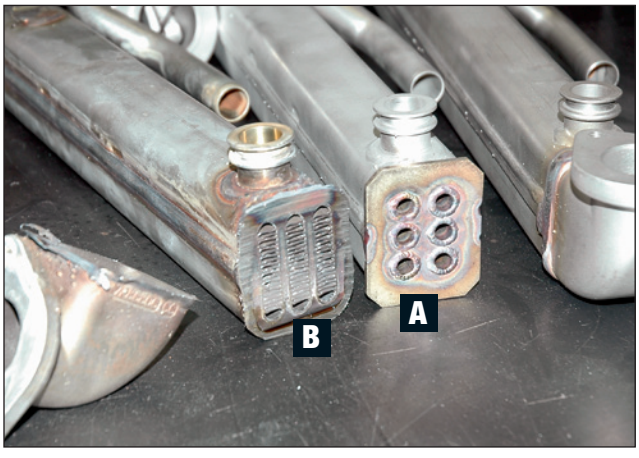
After bolting the transfer block to the top of the engine, ¾-inch high-pressure Goodyear oil lines and -12 JIC (Joint Industry Conference 37-degree flared fittings) were routed.

The oil lines and -12 JIC fittings were routed to a Wix 85832 spin-on filter remotely mounted with a custom bracket since the factory bumper—where BPD usually mounts the 18½-gpm filter—had been replaced with a large, tubular, steel winch bumper.

Condenser mounted oil cooler option is now available, this option does not require A/C modification.

The bumper-mounted Fluidyne air-to-liquid cooler was bolted in front of the A/C condenser. If A/C performance suffers, BPD recommends removing the OE orifice tube and replacing it with a GM white orifice tube (Four Seasons Part# 38623) after reclaiming the original refrigerant. Then recharge the A/C system with an additional 6 ounces of refrigerant more than the OE specified amount. Perform a testdrive at highway speeds and add up to an additional 12 ounces of refrigerant as needed.

BulletProofDiesel reminded us that the '03 6.0L Power Stroke has a round-style EGR cooler, and '05-and-newer engines came with a square style. Most '04 models have the square cooler (right), but early '04 models have the round version (left). You can tell by the VIN number. A sample VIN number is: 1FTRW21P24EB10150. In the middle of the VIN number, you see the digits 4EB. The 4 means it was an '04 model year. The E denotes which production plant built the truck (in this case, E is for Kentucky). Lastly, the B is the start of the sequence number (the last 6 digits of the VIN). Some early '04 models have a 4EA code. The A denotes the early build and most likely is a round-style cooler. The B, C, D or more all denote later-model '04 builds with square-style EGR coolers. Round and square models are not interchangeable.



The BulletProofDiesel upgraded EGR cooler (cutaway A) is better than the stock piece (cutaway B) because it's made out of stainless steel, its internals have a generous-sized round geometry that expands and contracts at the same rate, and it is less likely to clog. The purpose of the EGR cooler is to introduce oxygen-depleted exhaust gas back into the intake air after it's cooled by engine coolant. This scheme limits or cools combustion, thereby reducing NOx production, which takes place in the cylinders at high temperatures.

PRICE LIST:

- BulletProofDiesel oil cooler upgrade (6.0L condenser mount) $1,895
- BulletProofDiesel EGR cooler upgrade (round) $450

Installation of the BPD enhanced replacement EGR cooler upgrade and oil cooler upgrade takes a whole weekend for the average enthusiast. It requires removal of the intake manifold, turbo, and factory components to be replaced. You'll also need to loosen the up-pipe-to-exhaust manifold bolts located between the engine block and firewall. Remember, this is surgery, so keep everything as clean as possible. If you decide to pay a good diesel mechanic to have it done, you're looking at a seven-hour job ($500 to $800 for labor).

"This operation turned an '03 Ford into a reliable diesel truck that still has functioning emissions equipment."

Source

BulletProofDiesel
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