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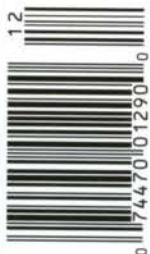
DIESEL WORLD

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FIRST LOOK: NEW V6 DIESEL **EZ 7.3L DIPSTICK FIX**
EVENTS: ■ Diesels on the Mountain ■ Bully Dog Days ■ East Coast Nats

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- Cummins/
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CUMMINS:

- Power Combo
That Works



BANKS DIESEL V6 Good Things Come in Small Packages

Banks Powertrain, a division of Banks Engineering, is bringing a V6 diesel engine to market sometime in 2013. This new-to-the-U.S. motor is a version of the VM Motori 630, DOHC, 60-degree V6 diesel that has been in use in Europe for a few years now. While the VM Motori version, the A630, has been used in Chrysler and Jeep vehicles for the European market, it is not available in the United States yet and can't be used for any conversions or new builds because it is not EPA certified. Industry rumors are that some 2013 vehicles, such as the Grand Cherokee, will get an EPA version of the 630, but their availability for other aftermarket and conversion uses will be strictly limited for the immediate future.

The new Banks massaged 630T version will have certification—and even better, it also makes more power than the Euro version. One would expect no less from Gale Banks Engineering and its powertrain division. Best of all, after the certification is completed, you'll be able to get one to drop into your rig of choice.

The Banks Powertrain 630T will have an AutoMind electronic diesel controller for fuel management and a base power output of 268 hp at 4,000 rpm and 421 lb/ft at 2,000 rpm. This is up from the original VM Motori OE numbers of 240 hp at 3,400 rpm and 400 lb/ft at 2,400 rpm.

The lightweight aluminum engine will tip the scales at around 498 pounds in full dress, and all this is in a package that will be about 31.5 inches high, 27.77 inches wide and 22.53 inches long. This makes it small enough for your midsize pickup, Jeep, Sand Rail or any other smaller rig that would benefit from the power and torque of a diesel engine.

We don't have the space to cover all the detailed points about the Banks 630T Diesel V6 in this column, so we'll cover the latest information and the highlights of the package.

First off, Gale Banks Engineering and



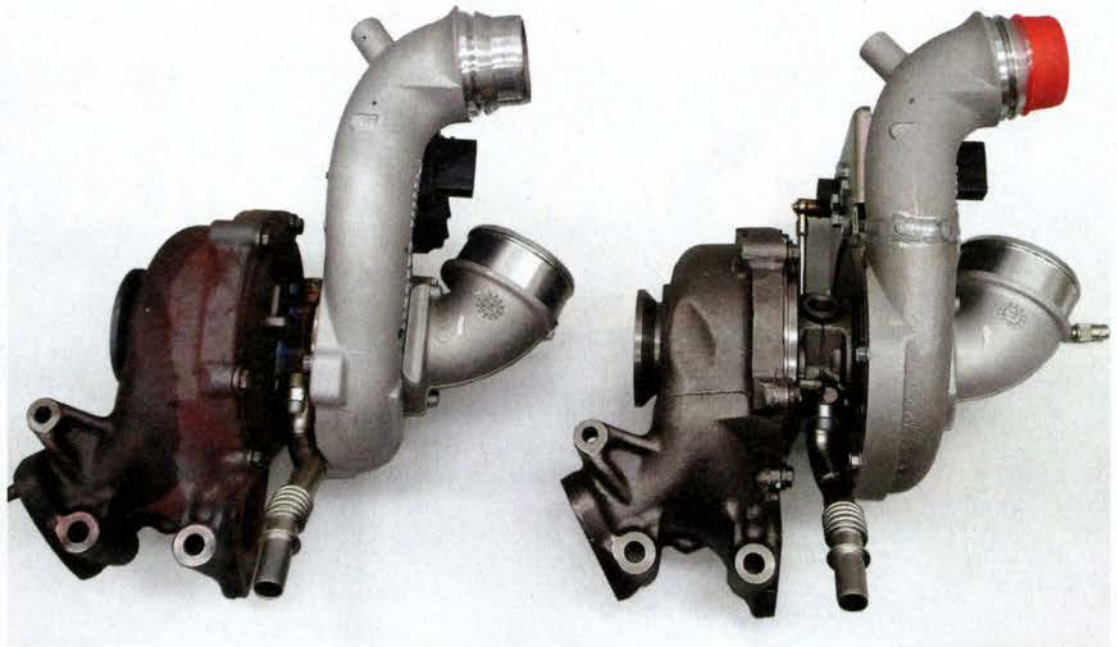
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NEWS

Powertrain division has been involved with the U.S. military for years. This means that you'll likely see some of these motors in a few specialty military rigs in the near future. To this end, Banks is doing testing and refinements on this engine using JP8, or military-grade fuel. The little, oil-burning V6 will be tested on both JP8 and DF2 (standard diesel #2 fuel). It's not surprising that the engine can make more power with DF2 than JP8, but then, the

military can't run jets on DF2. The power loss is about 5 to 6 percent at the same fuel flow rate.

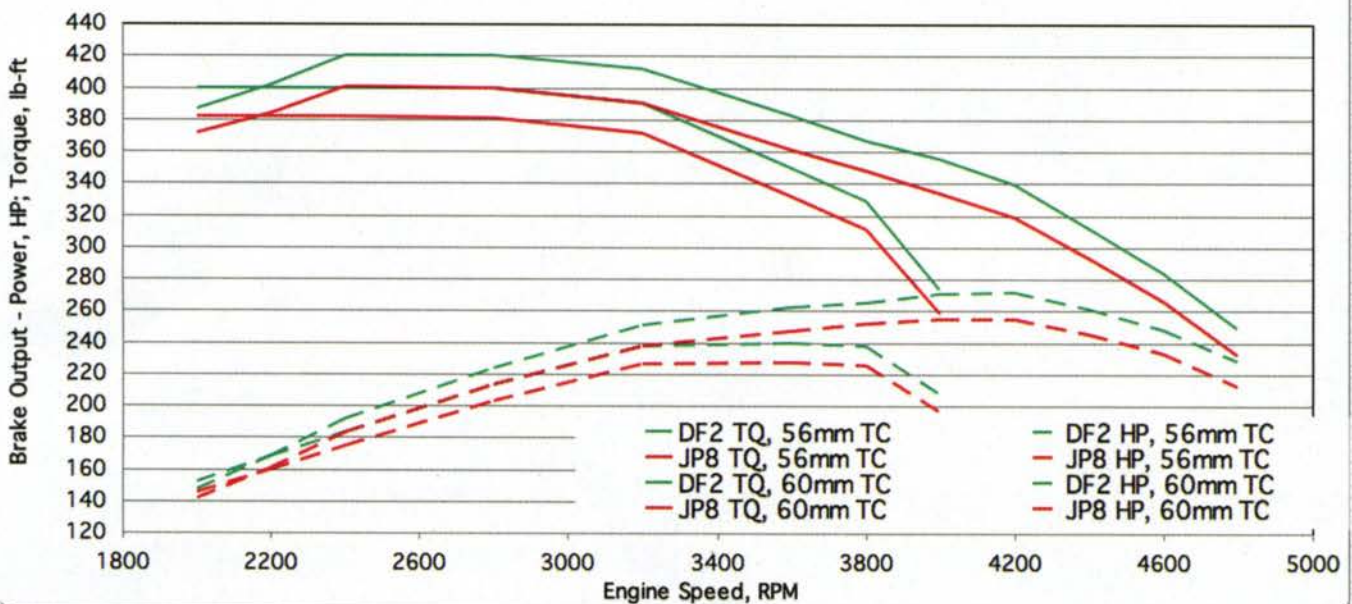
The up side for every potential user of the 630T is the compact size of the V6 and its higher output per cubic inch. The Banks 630T is original OE trim but puts out 240 hp for its 490-pound, wet, fully dressed engine weight. This equals 2.04



pounds of engine weight per hp produced. (By comparison, a Cummins 4ISBe makes 185 hp and weighs 795 pounds wet and fully dressed, or 4.30 pounds per hp. Also, a Caterpillar C4.4 ACERT makes 174 hp/980 pounds wet and fully dressed, or 5.63 pounds per hp.)

Banks also plans to take this lightweight powerplant even

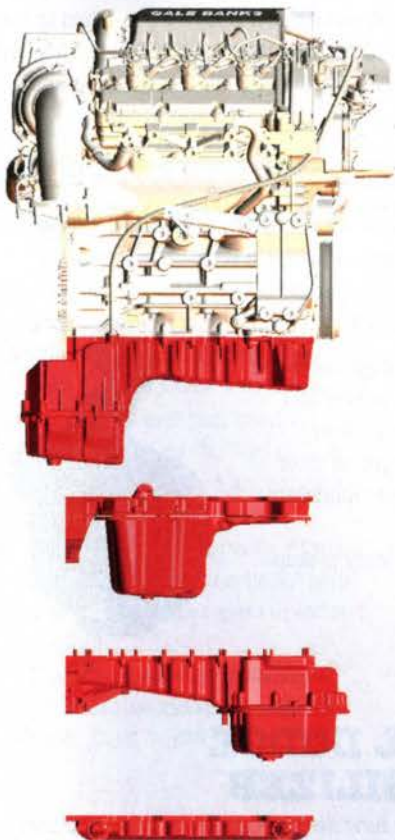
GALE BANKS ENGINEERING - 630T PRELIMINARY DYNO TEST DATA
UNCORRECTED CRANKSHAFT OUTPUT - WATER PUMP ACCESSORY DRIVE ONLY
DF2 vs JP8 / 56mm vs 60mm TURBOCHARGER



farther, with a 600hp, 7,500rpm version in the works and targeted at Bonneville for next year.

Every pound counts in the military, on the track and just driving around town. More power per pound of engine means extra power to haul, pull and just save fuel. *Diesel World* is excited about the Banks 630T program and will continue to keep you informed as things progress with this program. **DW**

(Editor's note: Banks Power is also working on transmission options for the 630T motor, so you shouldn't have to work that issue out on your own. We'll bring you more information about that in a later issue of DW.)



BANKS DIESEL V6 CURRENT DEVELOPMENT PATH

- Increasing the size of the turbocharger components restored performance back to acceptable levels on JP8 and increased engine fuel efficiency by 4.3 percent, as compared to the base hardware configuration.
- Compressor wheel diameter increased by 4mm (from 56mm to 60mm). It now employs a split-height, 12-blade design with extended exducer blade tips, versus non-extended nine-blade design.
- Peak operational speed of the new compressor wheel is 185,000 rpm; the smaller base compressor wheel was rated for 200,000 rpm.
- Boost (25 psi) and air mass flow (30 lbs/min) are maintained.
- Compressor efficiency increased from 65 to 82 percent; compressor outlet temperatures were reduced by 55 degrees F.
- Turbine wheel diameter increased by 3mm (from 47mm to 50mm); both nine-blade. VNT mechanism geometry is unchanged between the two wheel sizes.
- EGT was reduced by 210 degrees F; backpressure was reduced by 7 psi.
- AFR increased by 1.0 points via reduced in-cylinder EGR during valve overlap (caused by excessively high turbine backpressure).