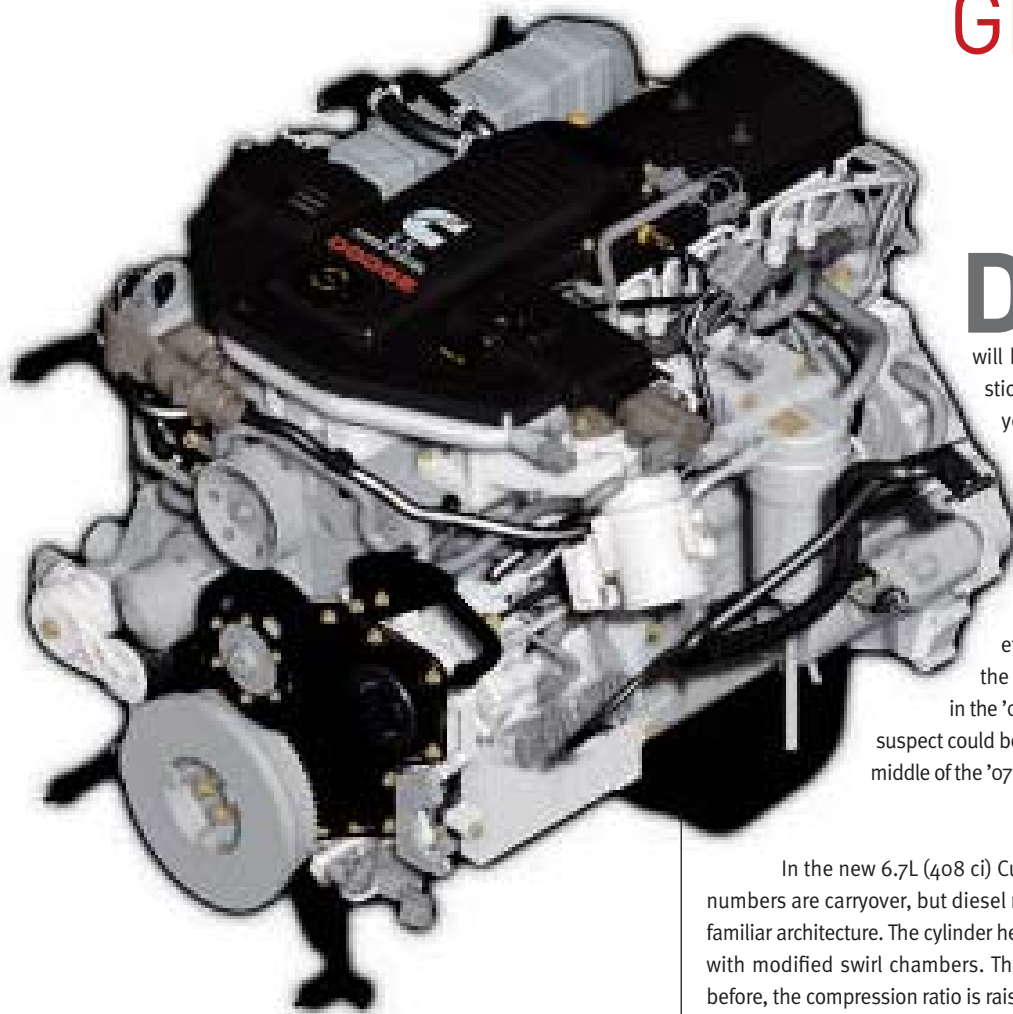


PUMP UP THE VOLUME

NEW CUMMINS DISPLACEMENT GROWS TO 6.7L



Dodge is ready to take the top spot in the turbodiesel displacement wars. Assuming the rumors are correct, Ford will have a 6.4L Power Stroke and GM will stick with a 6.6L Duramax for the '07 model year. That means the next Cummins will have the largest displacement available in a consumer diesel truck. Unless DaimlerChrysler is sandbagging the power specifications, the added space will not be used to boost performance but will help the engine run cleaner, quieter, and get better gas mileage. Here are the changes to the Cummins that will debut in the '07 Ram 3500 HD Chassis Cab and that we suspect could be in the 2500/3500 trucks as soon as the middle of the '07 model year.

THE ENGINE

In the new 6.7L (408 ci) Cummins, just 40 percent of engine part numbers are carryover, but diesel mechanics will be comfortable with the familiar architecture. The cylinder head is basically the same as the 5.9L, but with modified swirl chambers. The angle-split rods will be the same as before, the compression ratio is raised to 17.3:1, and the low-tech flat tappet cam drive system does not change. Now let's look at what will be different.

The bore is increased to 107mm (4.21 inches) and the stroke grows to 124mm (4.88 inches) while larger oil galley-cooled pistons will be used to fill the new space. Better bearings with increased load potential will help

“Cummins will have the largest displacement available in a consumer diesel truck.”

increase durability. There will now be an intake throttle used to control air management. A 3.0 generation Bosch injection system (26,000-plus psi) will replace the current 1.3-generation equipment. This new system is capable of up to five injection (two more) events during the power stroke. The CM 2100 fuel management system has two times the processor speed of the old unit, and the engine computer now has 40 percent more flash memory.

Thanks to the improved computer keeping watch over the Cummins, the service interval for all types of driving will be extended to 7,500 miles before the oil needs to be changed. There is also a 15,000-mile change interval for the fuel filter and the coalescing blowback valve (crankcase ventilation) equipment will not require service for 70,000 miles.

THE TURBO

The new Holset VGT (variable geometry turbo) will provide 24.5 psi of boost to the new Cummins. It is a water-cooled unit that automatically adjusts the swallowing capacity on the exhaust side of the turbine. Instead of using vulnerable pivoting vanes, the VGT moves the exhaust wheel along an axis to increase or decrease the volume of gasses affecting that side of the turbo. This should improve performance at all engine speeds while allowing the control needed to improve gas mileage. This new turbo setup can also work as an engine brake and provide up to 235 lb-ft of stopping power, compared to about 180 lb-ft found in most aftermarket exhaust brakes. To extend the life of the Holset, the truck computer will have an idle

This is how the new Cummins will fit in the engine bay of a Ram 3500 Chassis Cab. The 6.7L Cummins will be available with an Allison-fighting, Aisin-built six-speed automatic transmission.





This display engine shows the cam drive gears remain the same for this generation of Cummins. The cutaways also give a glimpse of the water-cooled EGR and other new emissions goodies.



The Bosch injectors have been upgraded from version 1.3 to the latest third generation. They provide 130cc total injection and are capable of up to five injection events per stroke.

shut-down feature with a timer to keep the truck running until temperatures inside the turbo reach safe levels.

QUICK SPECS

ENGINE: 6.7L high-output Cummins turbodiesel inline-six

AVAILABILITY: Ram 3500 HD chassis cab

TYPE AND DESCRIPTION: Six-cylinder, inline, turbocharged, intercooled

DISPLACEMENT: 408 ci (6690 cc)

BORE X STROKE: 4.21 x 4.88 (107mm x 124mm)

VALVE SYSTEM: OHV, 24 valves, solid lifters

FUEL INJECTION: Electronic high-pressure common rail

CONSTRUCTION: Cast-iron block and head

COMPRESSION RATIO: 17.3:1

POWER (SAE NET): 305 hp @ 3,000 rpm

TORQUE (SAE NET): 610 lb-ft @ 1,600 rpm

MAXIMUM HIGH-IDLE ENGINE SPEED: 3,500 rpm

FUEL REQUIREMENT: Ultra-low sulfur diesel

OIL CAPACITY: 12 qt. with filter

COOLANT CAPACITY: 32.7 qt

EMISSION CONTROLS: Exhaust gas recirculation, diesel particulate filter, oxidation catalytic converter

EMISSIONS EQUIPMENT

Dodge says this new engine will produce about 90 percent better emissions than the 5.9L Cummins. This is no small task and involves a number of components. In addition to the coalescing blowback valve system, a water-cooled EGR (Exhaust Gas Recirculation) valve will route some spent gasses back into the intake manifold (not the turbo inlet), to be burned a second time by the engine to reduce NOX emissions. Spent gasses that are allowed to escape the engine will go through the turbo, then hit an oxidation catalyst. After that, it will travel through a particulate filter built by Tenneco. This device will communicate with the Cummins, which will use the extra fuel-injection events to heat the exhaust system (within a certain safe range) to "aftertreat" the trapped particles. Dodge decided on this self-sufficient system instead of urea injection, which requires additional equipment and regular service. Environmentalists will also be happy to know the new Cummins will still be capable of using B20, which is fuel made of 20 percent biomass-based materials.

WHEN CAN I GET A 6.7L CUMMINS?

Unless you buy the new '07 Ram 3500 HD Chassis Cab (with no bed), you'll have to wait. It looks like the 6.7L will need to be available by January 2007 so Dodge can meet the new federal emissions requirements. We would assume that means the new Cummins 6.7L will debut in the '07 1/2-Ram 2500 and 3500, but we all know what happens when you assume. **DP**

Source

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