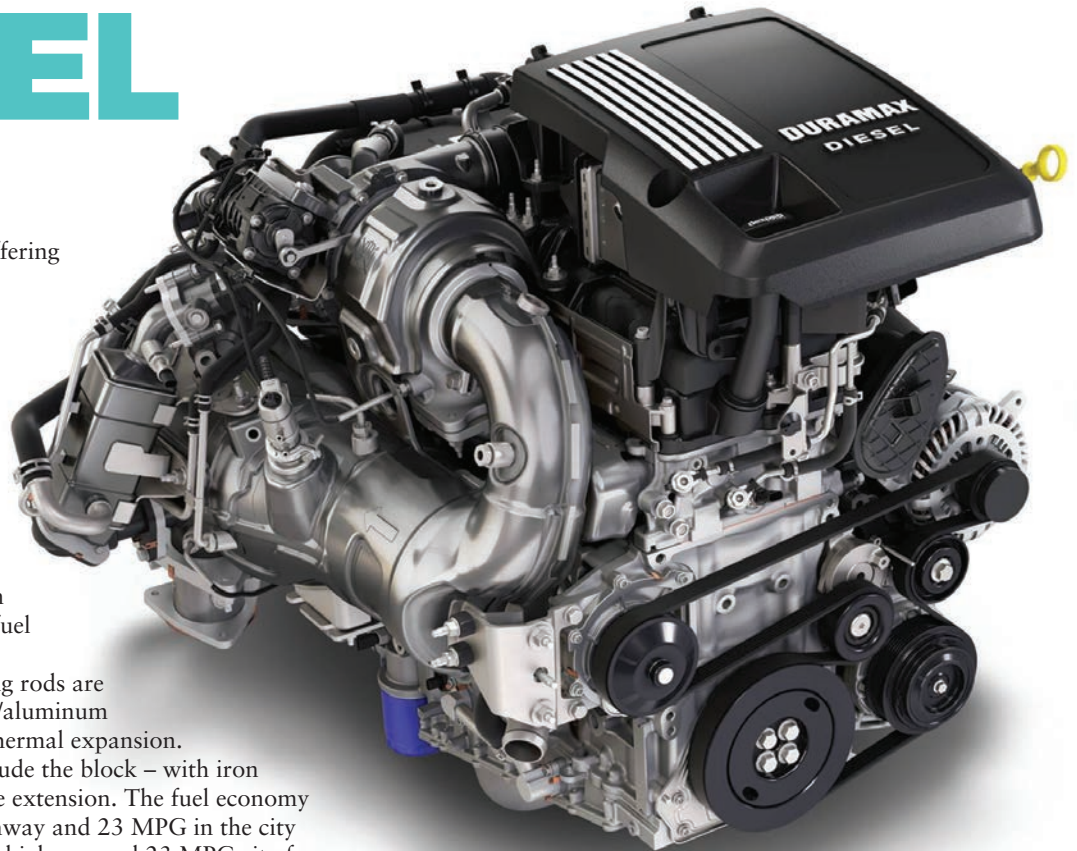


NEW GM 3.0L DURAMAX DIESEL

BY BRIAN ROBERTS

We are now in 2020 and GM is offering a new in-line six diesel engine option to power its pickups. This all new 3.0L turbocharged diesel engine (RPO - LM2) is designed to achieve high fuel economy while still delivering the horsepower and torque truck buyers demand. This is the first time ever that GM has offered an inline diesel for its light duty trucks. The engine itself is constructed of mainly aluminum components to reduce weight for fuel economy.

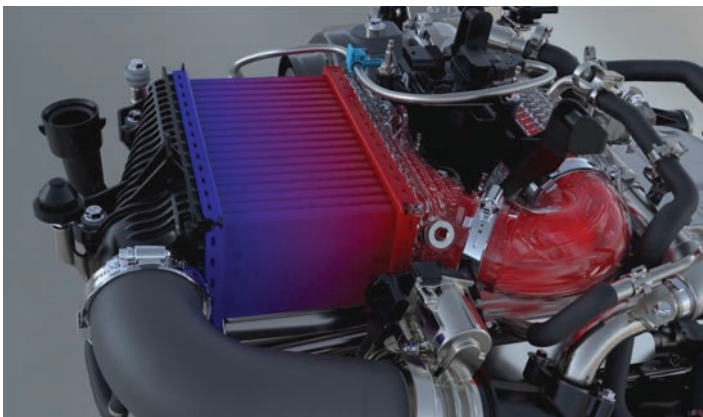
The crankshaft and connecting rods are iron, pistons are a blend of silicon/aluminum for higher resistance to heat and thermal expansion. Major aluminum components include the block – with iron cylinder liners, head and crankcase extension. The fuel economy standards are 33 MPG on the highway and 23 MPG in the city for the 2WD version and 29 MPG highway and 23 MPG city for 4WD. The horsepower rating is 277 with 460 lb.-ft of torque. The towing capability is rated at 9,300 pounds with a payload of 1,870 pounds. This rating puts it last compared to Dodge and Ford's 3.0L diesel. The in-line six design also lends itself well to balancing for a smooth-running engine.



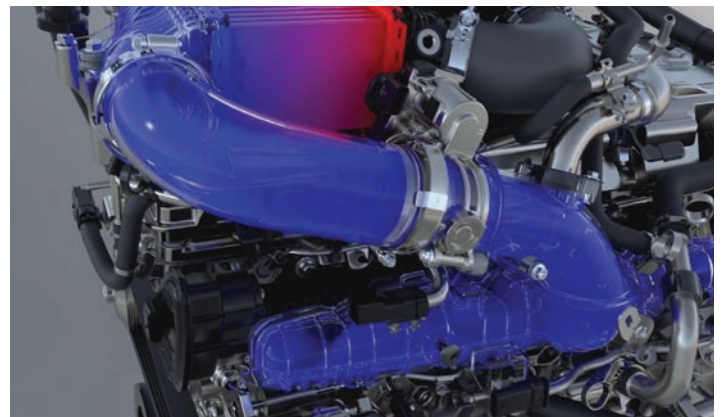
GM 3.0L Duramax Diesel comparison to the competition

Truck Model	HP	Torque	Fuel City	Fuel Highway	Max Towing	Max Payload	0-60
Chevy Silverado 3.0L L6 (4x2)	277	460 lb-ft	23 mpg	33 mpg	9,300 lb	1,870 lb	7.1 sec.
Ram 1500 3.0L V6 (4x2)	260	480 lb-ft	22 mpg	32 mpg	12,560 lb	2,040 lb	8.1 sec.
Ford F150 3.0L V6 (4x2)	250	440 lb-ft	22 mpg	30 mpg	11,500 lb	2,020 lb	7.7 sec.

Water to air intercooling



Variable intake manifold



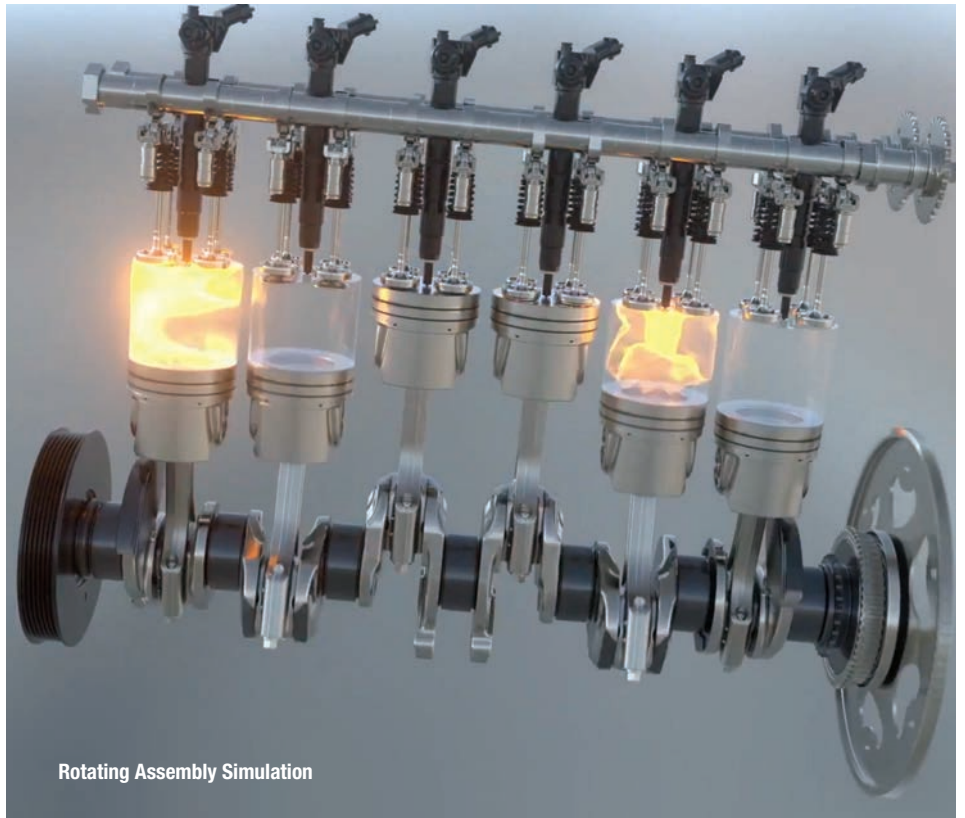
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The LM2 has a bore of 3.3068-3.3074" (83.992-84.008 MM), stroke of 3.5430" (90.000 MM) and a compression ratio of 15:1. The engine utilizes a variable-geometry turbo which helps with lag and higher peak torque at lower engine speeds. Having variable geometry, the turbos vanes can open and close depending on driving conditions. The turbo uses roller bearings and generates boost pressures of up to 29 PSI and can spin a up to 175,000 PRM. The 3.0L is mated to a 10-speed automatic transmission (10L80).

GM controls the thermal management of the engine with a flow-control valve that allows opening or closing of coolant flow. Utilizing this an engine that is running too cool can have the flow stopped to increase the engine temp. The cooling system is split, one path to the head and one to the block. There are other circuits that go to the transmission and engine oil cooler. The design of this thermal management system provides flexibility for the engine to regulate its operating temperature to maintain peak efficiency.

The 3.0L diesel is an option and upgrading to the LM2 powerplant in your truck will cost an additional \$2,495. That is the same price to upgrade to the 6.2L LS gas engine which can tow up to 13,400 pounds. The fuel economy rating on the 6.2L is 16 MPG city and 20 MPG highway. Given the upgrade price is the same for both engines, the fuel economy gained in the diesel version surpasses the



6.2L at today's current diesel prices making it a potential winner if max towing is not a concern. Comparing the GM 3.0L to the competition of Ram 1500 and Ford F150 with their 3.0L Diesels you will see the GM powerplant has the highest rating for fuel economy with best acceleration. This

result obviously hurts the tow capacity. The 9,300-pound tow capacity is expected to cover 90% of the market according to GM. The other 10% will opt for the V8 gas engine. For an everyday driver with good towing capability the new GM 3.0L has a slight advantage over its competition. Time will tell if GM has found a sweet spot for their 3.0L diesel. In the event you see this engine in your shop sooner rather than later, AERA has you covered with specifications currently in Prosis Pro. ■



AERA Technical Specialist Brian Roberts has over 20 years of experience in the automotive aftermarket, including time at Federal-Mogul (Fel-Pro), Modern Silicone Technologies and Dana Corporation as a Product Engineer and Product Manager. He has a wealth of information in gasket development, production and distribution; in particular, the engine sealing process and solving problem applications. For more information, email: brian@aera.org.