

Welcome to
**Lower
Visco
City.** 

2014 DETROIT DIESEL DD13

Guardol FE® Engine Teardown Results



These parts were pulled from a 2014 Detroit Diesel DD13. They belong to an Atlanta, Georgia-based fleet operating refrigerated units in coast-to-coast service. All oil drains were performed at 45,000 mile intervals using Guardol FE[®] 10W-30 (FA-4). At the time of this teardown, the odometer was pushing nearly 900,000 miles.



Piston - Thrust



Piston - Anti Thrust

884,000 MILES

PISTONS

Engines approaching one million miles would typically exhibit varying amounts of medium and heavy carbon deposits in the ring grooves. In this case there is only light carbon and virtually no piston skirt scuffing. Guardol FE 10W-30 protects where it counts.



Piston - Front



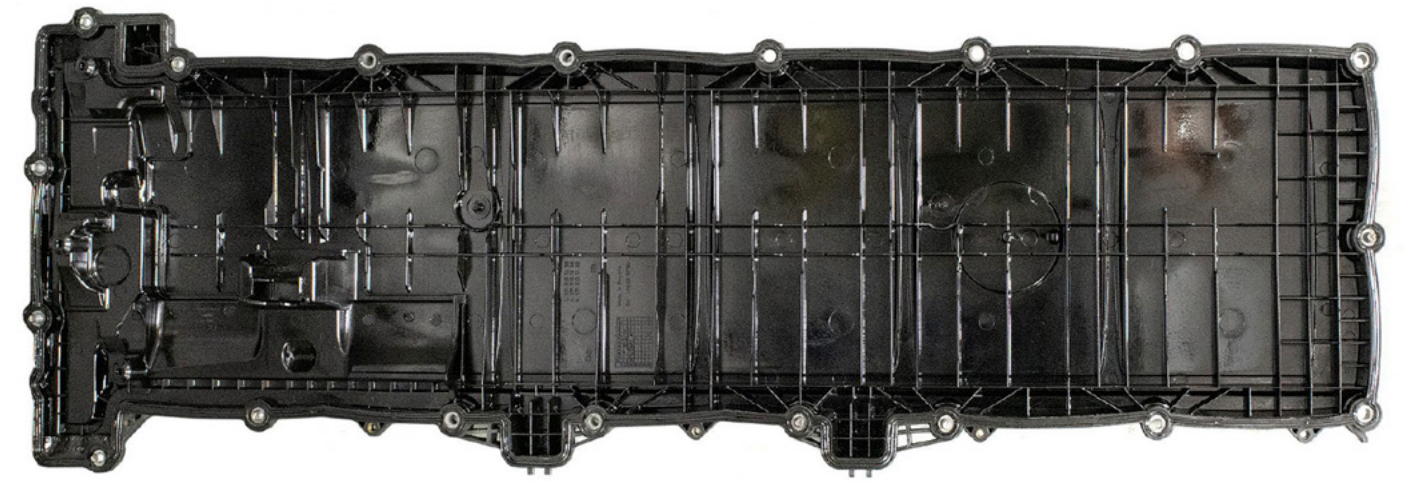
Piston - Rear



Liner 1A



Liner 1B



Rocker Cover

CYLINDER LINERS.

Cylinders are subject to extensive heat and friction over the life of an engine. And while these liner cutaways show a few signs of wear, the cross-hatching looks like new with an overall average of 2% scuffing.

ROCKER COVER & OIL PAN.

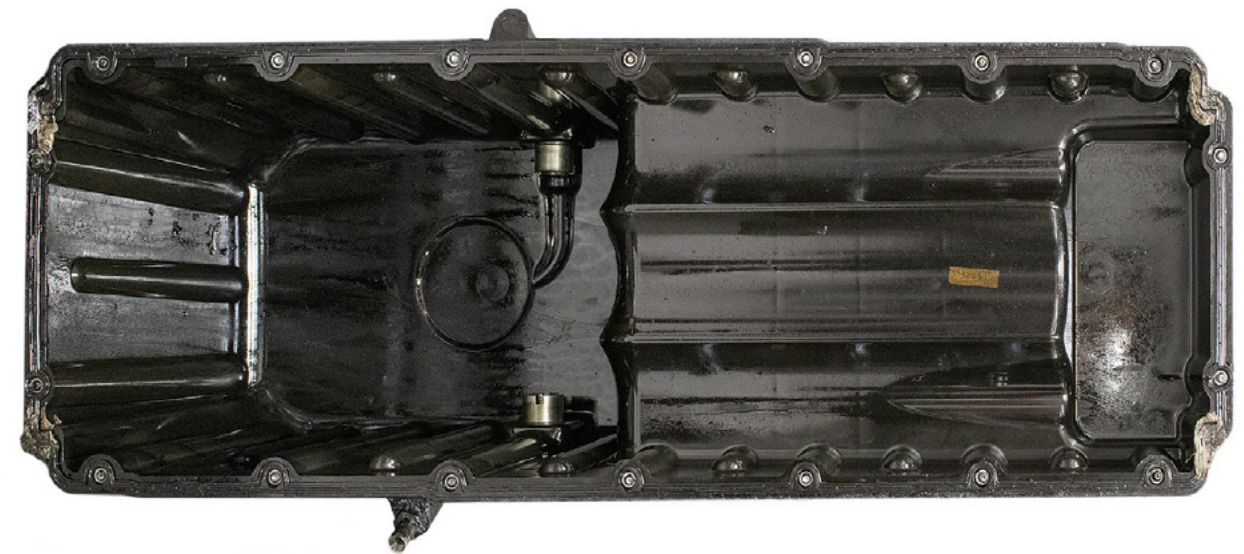
The oil pan and rocker cover is where sludge forms inside high-mileage engines. Close inspection of these photos of parts protected by Guardol FE® tell a different story.



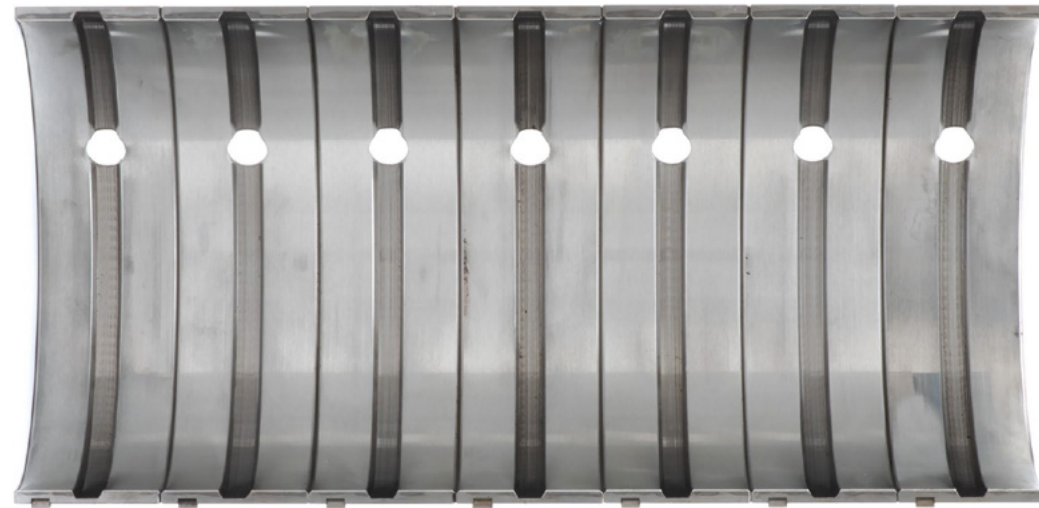
Liner 2A



Liner 2B



Oil Pan



Main Bearing Upper



Rod Bearing Upper

MAIN BEARINGS.

Bearings are where a poor performing product would quickly be exposed. The excellent High Temperature/High Shear (HTHS) properties of our FA-4 oil provide protection equivalent to our premium CK-4 15W-40.

ROD BEARINGS.

Rod bearings show little to no wear. Guardol FE® 10W-30 provides maximum durability.



Main Bearing Lower



Rod Bearing Lower

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HOME OF GUARDOL FE® 10W-30



LUBRICANTS