RUN-RITE

CAR CARE MAINTENANCE PRODUCTS

TMK Targeted Maintenance Kit

GDI- What it means for your vehicle -

GDI or Gasoline Direct Injection are the most common fuel systems used today. It is part of the technological advances designed to improve fuel efficiency and performance on smaller engines. Many vehicles are now equipped with direct fuel injection, variable valve timing and turbocharging. In addition, there are other changes designed to reduce engine friction.

When everything is clean and operating properly, these systems deliver crisp performance and good fuel economy. Yet the very design of these systems leaves them prone to deposits that can quickly cause problems.

Direct fuel injectors are exposed to extreme temperatures (flame temps up to 2700F – 3600F) and (surface temperatures up to 500F) as well as the pressures of the combustion process. Fuel pressures can reach as high as 2500 PSI under load. This demands a very precise level of control. Deposits can reduce fuel flow and disrupt engine operation and decrease fuel economy.

Low tension piston rings- About 40% of total engine friction comes from the rings. In an effort to reduce this effect on fuel economy, engines now use low tension rings. As deposits and varnish build on the rings, this tension is further reduced allowing oil to pass into the combustion chamber. This leads to excess oil consumption and also LSPI (low speed pre-ignition). This is uncontrolled combustion when the oil deposits ignite and explode in the engine. LSPI can cause severe engine damage. Excess oil consumption can reduce the life of other parts such as the oxygen sensors and catalytic convertors.

Variable valve timing- Valve timing can be altered to meet changing engine power needs. This is controlled by very precise systems with tolerances measured in microns. As sludge and varnish build in the oil system, the ability to control the engine is compromised.

Turbochargers- The turbocharger pushes more air through the engine to increase power and performance. They operate under extreme conditions! The rotor may spin at over 100,000 RPM and is exposed to high exhaust temperatures. Turbos require lubrication that can stand up to extreme conditions. If the engine oil isn't maintained the turbo could starve for oil and fail.

#1633 Targeted Maintenance Kit:

The Run-Rite 1633 Targeted Maintenance Kit is designed to reinvigorate today's cars and light trucks. It will drive out Deposits and help maintain fuel efficiency!

Modern fuel-efficient engines do a great job in delivering crisp performance, good fuel economy and reliability.
As long as these precise fuel and induction systems are kept clean and free of deposits! The best way to insure like new performance is to keep your vehicles fuel system clean. An annual (7500 miles/ 12,000 km) targeted maintenance kit is recommended. To maintain peak performance, the combination in the 1633 kit delivers proven chemistry to each targeted area to drive out deposits and help maintain fuel efficiency!
This service can help improve fuel economy and provide many other benefits for ALL engines.

The first step, **#1510 SledgeHammer** provides a concentrated dose of detergents to remove deposits from the injector, combustion chamber and intake valves.

In addition, step 2, the **#1101 Fuel Shot** delivers an organic friction modifier thru the fuel delivery system to reduce frictional drag and keep the ring land area clean free from deposits. This is especially critical in Gasoline Direct Injection (G.D.I.) engines but is truly needed in Port Fuel Injection as well.

The third step **#3713, is the GDI Synthetic Engine Oil Treatment Concentrate**. This helps improve lubrication and oil flow to critical components and also reduces soot and the risk of low speed preignition damage.
This combination reaches areas of the engine that are critical to keep clean to ensure good fuel economy, better performance and to reduce overall deposit formation. For best results, use this kit every 7,500 miles (12,000 km).

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#1510 Sledgehamme • Product Data

SledgeHammer! contains the strongest concentrations of detergents and cleaners available, to break through fuel system deposits on fuel injectors, intake valves, ports, and combustion chambers. SledgeHammer! Contains an advanced additive package that helps control the unique deposit forming tendencies of GDI engines. It exceeds the performance requirements of all industry tests including GDI, IVD, PFI, CCD and LTFT tests. SledgeHammer! resulting in increased power, improved acceleration, and measurably lower emission levels. SledgeHammer! is safe for all engines and emission controls. Contains NO alcohol or methanol!

Chrysler 3.3L Intake Valve and Combustion Chamber Deposit Performance Test

A Chrysler 3.3 liter engine in a Dodge Intrepid vehicle is used to generate intake valve and combustion chamber deposits and to measure and to measure an additive's ability to remove these deposits. The dirty-up cycle is 15,000 miles and the cleanup cycle is one tank of fuel containing SledgeHammer! During the dirty-up stage, all four vehicles run for 15,000 miles on a commercial fuel containing typical gasoline detergent additive. At the end of 15,000 miles, the engine is disassembled and the combustion chamber deposits are measured carefully so that they are not removed.

All four vehicles are restarted and run an additional one tank of gasoline. At the end of the test, the engines are disassembled and the combustion chamber deposits are again measured. Any change in combustion chamber deposits in the engines running on the fuel with the test additive are compared with the results at 15,000 miles.

SledgeHammer! at a dosage of 3230 ppm vol/vol, the dosage that will be delivered by SledgeHammer!, removed 80.8% of the intake valve deposit and 19.6% decrease in overall combustion chamber deposit thickness.

- Cleans injectors, valves & induction components
- Rapidly drives out the toughest deposits
- Improves acceleration
- Restores power
- **Reduces vehicle emissions**
- Reduces octane requirements
- Helps eliminate "carbon rap", knocking, pinging and hesitation
- Protects against corrosion
- Works in extreme temperatures found in today's high-tech engine

#1101 Fuel Shot • Product Data

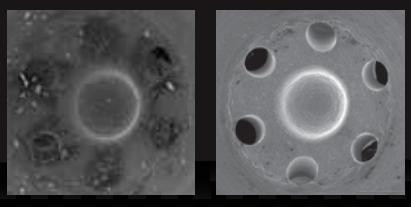
Fuel shot is a friction modifier specifically formulated to be used as a gasoline additive. Fuel shot reaches critical areas in the upper cylinder of the engine, working to reduce friction in mechanical and fluid ways among the piston, piston rings and cylinder wall having an immediate affect on fuel economy. Fuel Shot helps to reduce sticking of oil control rings, which helps reduce oil derived deposits. This is especially important in GDI engines.

Research has shown that between 40% to 60% of mechanical friction in an engine can be attributed to the piston, ring, and cylinder wall. Over time, Fuel Shot helps to refortify the lubricant carried throughout the engine, leading to even greater fuel economy. Fuel Shots formula has been proven by Sequence VI-A Engine Dynamometer Tests as well as US Federal Test Procedure and Highway Fuel Economy Tests. In addition, engine wear reduction testing and High Frequency Reciprocating Rig Testing document its performance.

It contains a combination of specially processed base oils, additives and friction modifiers designed to reduce engine friction and viscometric power losses. Fuel Shot's highly advanced nano-technology provides advanced fuel delivered lubrication. The syringe applicator ensures that all of the chemistry is delivered to the fuel tank. Additionally, Fuel Shot can help reduce the vehicle emissions of carbon dioxide, which is a contributor to greenhouse gases and global warming.

- Reduces friction among the piston, piston rings and cylinder wall
- Helps to keep rings free from sticking
- Reaches critical areas in the upper cylinder of the engine
- Improves fuel economy for up to 5,000 miles!
- Helps to refortify the lubricant carried throughout the engine
- Benefits increase with continued use
- **Reduces vehicle emissions of carbon dioxide**

GDI Injector Nozzle Clean-Up Results



Dirty Cleaned

GDI Valve Clean-Up Results

Dirty Cleaned

Broken Connecting Rod

Low Speed Pre-Ignition - Deposits cause off time explosions