

Detergency

ECO Supreme Premium Diesel has a powerful detergent formulation that restores performance and fuel economy to the levels you experienced when your engine was brand new. ECO Supreme can help:

- Prevent carbon deposit buildup around the rings that hamper \Diamond their performance
- \Diamond Prevent injector tips from clogging and operating inefficiently
- Eliminate "stickiness" by removing internal diesel injector Δ deposits (IDID) that:
 - \diamond Slow down moving parts
 - Lead to a loss of power \diamond
 - \Diamond Create hard starts
 - \Diamond Cause performance to drag



Lubricity

ECO Supreme Premium Diesel has superior capabilities that extend your engine's life and protect your fuel system. Coating all moving parts with a protective layer provides increased lubricity that:

- \Diamond Reduces injector and injector pump wear so they last longer
- Reduces maintenance costs you don't have to replace \Diamond parts as often
- Reduces downtime due to maintenance and repair \Diamond

Corrosion Inhibitor

ECO Supreme Premium Diesel has corrosion inhibitor compounds that protect your engine from expensive damage because they:

- \Diamond Form a protective barrier on the metal
- Prevent corroded metal plugging filters and fuel lines \Diamond
- Keep fuel clean from rust particles and contaminants \Diamond
- \Diamond Stop rust from forming

Moisture Control



ECO Supreme Premium Diesel prevents fuel system freeze-ups and breakdowns with alcohol-free moisture control agents that:

- Protect against excess moisture from \Diamond condensation
- \Diamond Disperse moisture throughout the fuel
- Reduce microbial growth by controlling free moisture in fuels \Diamond
- \Diamond Stop ice crystals from forming

Cetane Improver

ECO Supreme Premium Diesel provides Cetane improvers to :

- Boost your engine's ability to start quicker \Diamond
- Produce more energy per gallon and increases fuel economy \Diamond
- \Diamond Reduce white smoke and knocking
- Reduce harmful emissions Δ

Thermal Stability

ECO Supreme Premium Diesel's first-rate thermal stabilizers protect fuel filters and lines by blocking the formation of:

- Preventing the development of gums and black sludge
- Keeping fuel from overheating and forming filter-damaging \Diamond deposits
- \Diamond Maintaining combustion efficiency for better engine performance
- \Diamond Helping the fuel system stay clean and free from buildup in the tank

The Problem

NEW OPERABILITY ISSUE

Internal Diesel Injector Deposits can slow the response or cause the sticking of moving internal parts, resulting in a loss of control of injection event timing and/or the amount of fuel delivered.

- Internal Diesel Injector Deposits (IDID) Control valve plunger
 - Needle guide

Diesel Injector Deposits

- Above the needle seat
- 'Conventional' Nozzle Deposits
- Inside spray channel reduce the hydraulic flow leading to a loss of power Injector tip deposits adversely effect the fuel spray leading to loss of power, increased emissions and fuel consumption

Performance Problems:

- Poor/No Start ٠
- Rough Idle/Drivability ٠
- **Excess Power/Particulate** Production (sticking open)
- Loss of Power (sticking shut)
 - Fuel Filter Plugging

Two of the types of IDID Problems:

- Waxy or "soap" deposits (carboxylate salts)
- Carbonaceous or "lacquer" deposits (thermal breakdown of fuel)

Internal deposits are different than "conventional" nozzle deposits.

٠ In form: internal vs. external to fuel pressure side In function: sticking vs. physical blockage

The Solution

Proper treatment with ECO Supreme Premium Diesel* will completely restore power loss and increase fuel economy up to 3 1/2%.

