



**POWER STROKE**  
**D I E S E L**

# Remanufactured 6.0L Injector Comparison Kit

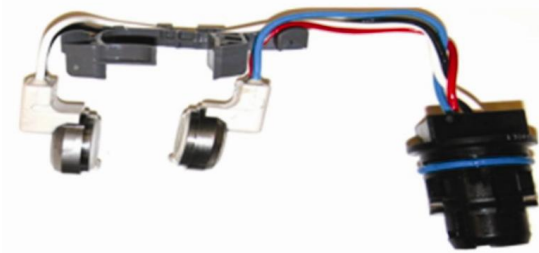


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# Coil Assembly

- Motorcraft replaces the entire coil assembly with a new assembly. This is important to prevent wire fatigue and poor cold starting.
- The competition re-uses coil assemblies (connector seals, wires, and wire guide are not replaced). In addition, pin alignment and conductivity is not verified when re-used.

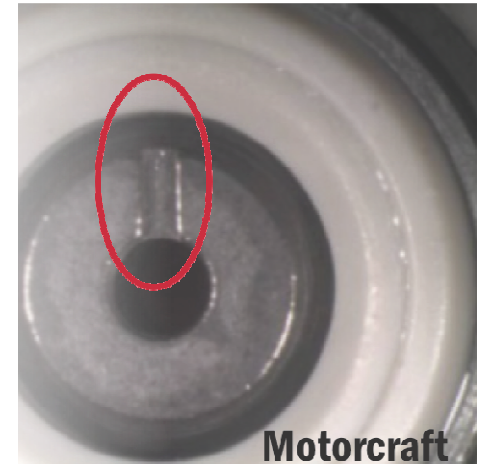




# Coil Assembly End Caps



- Poor cold start performance can be a result of “stiction”. “Stiction” occurs between two precision ground surfaces when a thin film of oil is present creating a hydraulic lock between the two surfaces.
- Motorcraft patent pending technology features an end cap with a vented slot to prevent this “stiction” condition. This vented slot ensures smooth engine performance in cold starting conditions.

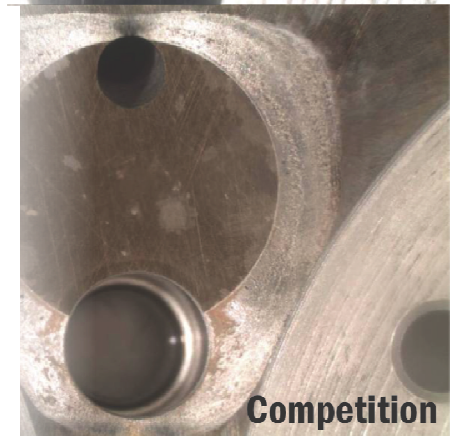




# Disk Check Assembly

- Disk check assembly high pressure sealing surfaces are refinished to original specifications (All eight sealing surfaces are machined).
- Sealing surfaces are critical to the operation of high pressure fuel systems with injection pressures reaching 20,000 + psi.
- Motorcraft OE specifications maintain less than 2 microns\* deviation from perfect surface flatness which assures fuel injector long life, high mileage, and reliable performance.
- Many competitors do not refinish sealing surfaces and for those who do, the surfaces are refinished in a non-circular pattern. Both of these approaches can create leakage paths.

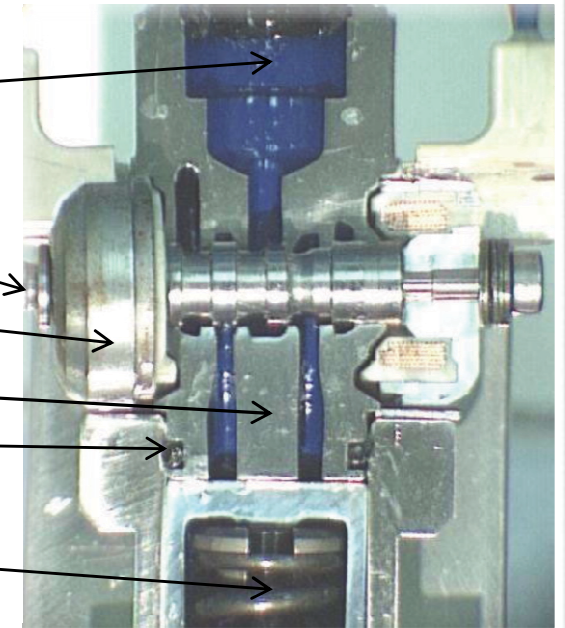
\*For comparison purposes, a human hair is approximately 74 microns.





# Control Valve Body & Spool

- Both the control valve body and spool are precision ground to Ford specific diametrical tolerances for sealing and directing oil which results in optimal injector operation.
- All spools are replaced with new spools and machined to the existing control valve body. Competitors re-use old spools.
- Motorcraft includes the following new components:
  - Rail connections
  - Thru-rod, nut and belleville washers
  - Coil's and wiring harness
  - Spool
  - "O" rings
  - Springs





# Intensifier Body & Plunger

## Motorcraft

- The intensifier body and plunger are precision match honed to operate at extreme pressures and temperatures.
- Motorcraft uses all new plungers to assure durability and reliability.



## Competition's Plunger

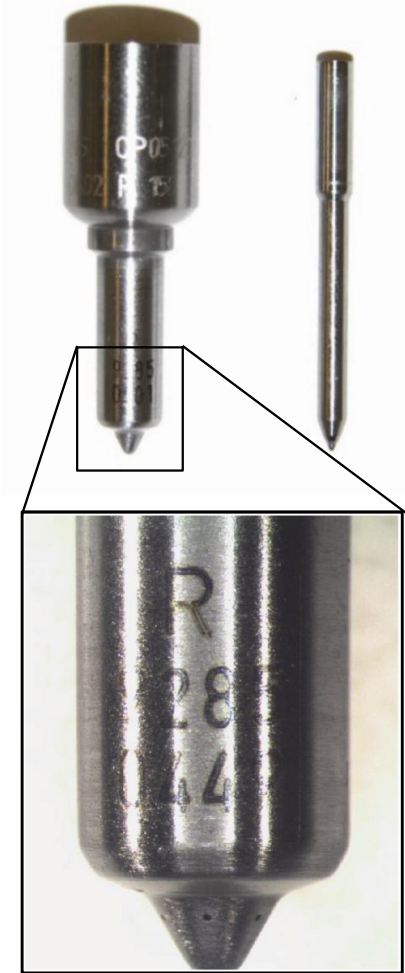
- Competition reuses the plunger. Reused plungers experience coating loss which can result in internal injector leakage.





# Nozzle Assembly

- All remanufactured nozzle assemblies are chemically treated and micro brushed to remove carbon and fuels prior to inspection and test.
- Seat radius scrubbed for proper sealing to cone nut.
- Each nozzle is flow tested to ensure proper injector performance and emissions.
- Orifice holes inspected 100% for acceptance criteria.
- The nozzle serial number is another example of the quality control processes in place to ensure Motorcraft remanufactured fuel injectors meet OE specifications.
- All remanufactured nozzles that do not meet Original Equipment specifications are replaced with new nozzles.



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# Non-Motorcraft Nozzle Assembly Analysis

Test	Performance	Pass/Fail
Flow volume:	553.41cc - 568.78cc	Fail
Leakage rate:	0.33cc – 0.37cc	Fail
Max needle lift:	267.8mm – 291.55 mm	Fail
Overall length:	-0.150mm – -0.250mm	Fail
Valve opening pressure:	-2.4 bar – -4 bar	Fail



- Competitor's nozzles failed flow, leakage, needle lift, overall length, and valve opening pressure.
- Failing Original Equipment injector specifications can lead to high carbon build up with nozzle coking, potentially "washing down" of the cylinder wall as well as crankcase dilution resulting in emission problems, and poor performance.





# Motorcraft Competitive Advantage Summary

Injector Component*	Motorcraft	Competition	Motorcraft Benefit
Coil Assembly	New	Used	New coil assembly prevents wire fatigue and poor starting
Coil Assembly End Caps	Uses end cap with vented slot to prevent "stiction"	Not available	Vented slot ensures smooth engine performance in cold start conditions
Disk Check Assembly	High pressure sealing surfaces are refinished to OE specifications	Does not refinish or laps sealing service	Maintaining less than 2 microns of flatness assures injector long life, high mileage and performance
Control Valve Body & Spool	New spools	Used plungers	Optimal injector operation
Intensifier Body & Plunger	Precision match honed New plungers	Used	Greater durability
Nozzle Assembly	100% flow tested	Not flow tested	Flow testing ensures proper injector performance and emissions

**Motorcraft 6.0L Diesel Fuel Injector**



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