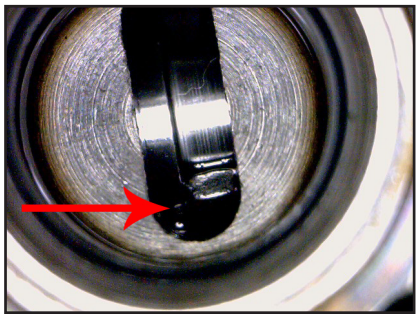
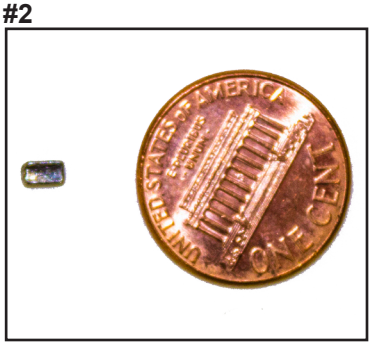
Ford 6.0L Power Stroke Injector Failure Prevention

A common failure mode of the 6.0L Power Stroke injector is a dead misfire from a spool valve stuck in place by a piece of metal. See illustration #1 with a view looking down the injector's high-pressure oil inlet a piece of metal can be seen wedged in a spool valve groove. The removed piece of metal is shown in illustration #2.

#1



#2



Side-by-side with penny for comparison.

The question has been: Where does the metal come from? The source of the metal is the check valve located in the high-pressure oil system prior to the oil rails. On the 2003 model year with the log oil rail, the check valve is located in the oil rail inlet fitting. In the 2004 model year, the wavy rail was introduced and the check valve is located in the high-pressure stand pipe. On later 2005 and up model years, the check valve is located in the oil rail rear support plug.

The check valve has three guide legs, as seen in illustration #3. The guide legs break off, enter the oil rail and make their way into an injector oil inlet.

#3

When an injector is removed the oil inlet and spool valve should be inspected for the presence of metal. If metal is found the check valves should be inspected, replaced as needed, the oil rail flushed and the injector replaced.

When inspecting the check valve, if debris is found on the inlet side of the valve that is an indication of a high-pressure oil pump or filter screen failure.

Improper check valve operation can cause rough engine operation. Ford TSB 08-20-1 outlines the diagnostic procedure.

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12693 Old Virginia Road
Reno, NV 89521
800.648.4720

DIPACODTECH.com