

## DIESEL FUEL INJECTION TROUBLE SHOOTING

CONDITION & POSSIBLE CAUSE	CONDITION & POSSIBLE CAUSE
<p><b>Engine Cranks but Will Not Start</b></p> <ul style="list-style-type: none"> <li>• Incorrect starting procedure.</li> <li>• No voltage to fuel solenoid.</li> <li>• Faulty glow plugs or glow plug control system.</li> <li>• Plugged fuel return system.</li> <li>• No fuel to nozzles.</li> <li>• No fuel to injection pump.</li> <li>• Clogged fuel tank filter.</li> <li>• Incorrect or contaminated fuel.</li> <li>• Incorrect pump timing.</li> </ul> <p><b>Engine Starts but Stalls at Idle</b></p> <ul style="list-style-type: none"> <li>• Incorrect slow idle adjustment.</li> <li>• Faulty fast idle solenoid.</li> <li>• Plugged fuel return system.</li> <li>• Glow plugs turn off too soon.</li> <li>• Incorrect pump timing.</li> <li>• Limited fuel to injection pump.</li> <li>• Air in injection lines to nozzles.</li> <li>• Incorrect or contaminated fuel.</li> <li>• Faulty injection pump.</li> <li>• Fuel solenoid closes in RUN position.</li> </ul> <p><b>Engine Starts, Idles Rough WITHOUT Unusual Noise or Smoke.</b></p> <ul style="list-style-type: none"> <li>• Incorrect slow idle adjustment.</li> <li>• Leaking injection line.</li> <li>• Plugged fuel return line.</li> <li>• Air in lines to nozzles.</li> <li>• Air in injection pump.</li> <li>• Faulty nozzle.</li> <li>• Improper or contaminated fuel.</li> <li>• Uneven fuel distribution.</li> </ul> <p><b>Engine Starts and Idles WITH Excessive Noise and/or Smoke</b></p> <ul style="list-style-type: none"> <li>• Incorrect pump timing.</li> <li>• Air in injection lines to nozzles.</li> <li>• Faulty nozzle.</li> <li>• Improperly installed high pressure lines.</li> </ul>	<p><b>Engine Idles Correctly, but Misfires Above Idle</b></p> <ul style="list-style-type: none"> <li>• Plugged fuel filter.</li> <li>• Incorrect pump timing.</li> <li>• Incorrect or contaminated fuel.</li> </ul> <p><b>Engine Will Not Return to Idle</b></p> <ul style="list-style-type: none"> <li>• Linkage binding or misadjusted.</li> <li>• Defective injection pump.</li> </ul> <p><b>Fuel Leaks on Ground With No Other Engine Malfunction</b></p> <ul style="list-style-type: none"> <li>• Loosen or broken fuel line or connection.</li> <li>• Internal seal leak in injection pump.</li> </ul> <p><b>Low Engine Power</b></p> <ul style="list-style-type: none"> <li>• Restricted air intake.</li> <li>• Plugged fuel filter.</li> <li>• Restricted fuel return system.</li> <li>• Restricted fuel supply from tank to pump.</li> <li>• Incorrect or contaminated fuel.</li> <li>• Restricted fuel tank filter.</li> <li>• Compression leaks at nozzles or glow plugs.</li> <li>• Plugged nozzle.</li> </ul> <p><b>"Rapping" Noise From One or More Cylinders</b></p> <ul style="list-style-type: none"> <li>• Air in fuel system.</li> <li>• Air in high pressure lines.</li> <li>• Nozzle sticking in open position; low nozzle opening pressure.</li> <li>• Filter in nozzle broken or loose.</li> </ul> <p><b>Excessive Combustion Noise With Black Smoke</b></p> <ul style="list-style-type: none"> <li>• Incorrect pump timing.</li> <li>• Incorrect pump housing pressure.</li> <li>• Defective injection pump.</li> </ul> <p><b>Engine Will Not Shut Off With Key</b></p> <ul style="list-style-type: none"> <li>• Injection pump fuel solenoid does not return to off position.</li> </ul>

**NOTE** — For GASOLINE FUEL INJECTION TROUBLE SHOOTING, see the appropriate article under the individual manufacturer in this section. Also see the appropriate article in COMPUTERIZED ENGINE CONTROLS Section.