

## DIESEL FUEL INJECTION TROUBLE SHOOTING

CONDITION	POSSIBLE CAUSE	CORRECTION
<b>Engine Won't Start</b>	<ul style="list-style-type: none"> <li>No voltage to fuel solenoid</li> <li>Faulty glow plugs or glow plug controls</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>	<ul style="list-style-type: none"> <li>Check electrical connections</li> <li>Check and/or replace glow plugs or controller</li> <li>Remove restrictions</li> <li>Inspect fuel delivery system</li> <li>Inspect fuel delivery system</li> <li>Replace filter, see FUEL</li> <li>Remove and replace fuel</li> <li>Reset pump timing, see FUEL</li> </ul>
<b>Engine Stalls at Idle</b>	<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>	<ul style="list-style-type: none"> <li>Reset idle adjustment, see TUNE-UP</li> <li>Replace solenoid, see FUEL</li> <li>Remove restrictions</li> <li>Check glow plug system, see FUEL</li> <li>Check and reset timing, see FUEL</li> <li>Check fuel delivery system</li> <li>Check line fittings</li> <li>Remove and replace fuel</li> <li>Remove and replace pump, see FUEL</li> <li>Check solenoid operation, see FUEL</li> </ul>
<b>Engine Starts, Idles Rough WITHOUT Unusual Noise or Smoke</b>	<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>	<ul style="list-style-type: none"> <li>Reset slow idle adjustment, see TUNE-UP</li> <li>Check fittings and/or replace line</li> <li>Remove restrictions</li> <li>Check line fittings</li> <li>Check pump fittings and pump operation</li> <li>Replace nozzle, see FUEL</li> <li>Remove and replace fuel</li> <li>Check fuel delivery system</li> </ul>
<b>Engine Starts and Idles WITH Excessive Noise and/or Smoke</b>	<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>	<ul style="list-style-type: none"> <li>Reset injection pump timing, see FUEL</li> <li>Check fittings on lines</li> <li>Replace nozzle, see FUEL</li> <li>Remove and reinstall properly</li> </ul>
<b>Engine Idles Okay but Misfires Above Idle</b>	<ul style="list-style-type: none"> <li>Plugged fuel filter</li> <li>Incorrect pump timing</li> <li>Incorrect or contaminated fuel</li> </ul>	<ul style="list-style-type: none"> <li>Remove restrictions and/or replace filter</li> <li>Reset injection pump timing, see FUEL</li> <li>Remove and replace fuel</li> </ul>
<b>Engine Will Not Idle</b>	<ul style="list-style-type: none"> <li>Linkage binding or misadjusted</li> <li>Defective injection pump</li> </ul>	<ul style="list-style-type: none"> <li>Remove binding and readjust linkage</li> <li>Replace injection pump, see FUEL</li> </ul>
<b>Fuel Leaks With No Other Engine Malfunction</b>	<ul style="list-style-type: none"> <li>Loose or broken fuel line or connection</li> <li>Internal seal leak in injection pump</li> </ul>	<ul style="list-style-type: none"> <li>Check all fuel line fittings and correct</li> <li>Remove and replace injection pump</li> </ul>
<b>Low Engine Power</b>	<ul style="list-style-type: none"> <li>Restricted air intake</li> <li>Plugged fuel filter</li> <li>Restricted fuel return system</li> <li>Restricted tank-to-pump fuel supply</li> <li>Incorrect or contaminated fuel</li> <li>Restricted fuel tank filter</li> <li>Nozzle or glow plug compression leaks</li> <li>Plugged nozzle</li> </ul>	<ul style="list-style-type: none"> <li>Remove restrictions</li> <li>Remove restriction and/or replace filter</li> <li>Remove restrictions</li> <li>Check fuel delivery system</li> <li>Remove and replace fuel</li> <li>Replace filter</li> <li>Check fittings and replace as required</li> <li>Remove restriction and/or replace nozzle</li> </ul>
<b>"Rapping" Noise From One or More Cylinders</b>	<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</li> <li>Low nozzle opening pressure</li> <li>Filter in nozzle broken or loose</li> </ul>	<ul style="list-style-type: none"> <li>Check fuel delivery system for leaks</li> <li>Check fittings for leaks</li> <li>Inspect nozzle and/or replace</li> <li>Check nozzle operation, see FUEL</li> <li>Remove and replace filter, see FUEL</li> </ul>

# 1982 Fuel Systems

## DIESEL FUEL INJECTION TROUBLE SHOOTING (Cont.)

CONDITION	POSSIBLE CAUSE	CORRECTION
<b>Excessive Combustion Noise With Black Smoke</b>	Incorrect pump timing Incorrect pump housing pressure Defective injection pump	Reset injection pump timing, see FUEL Check pump for internal leaks, FUEL Replace injection pump, see FUEL
<b>Engine Will Not Shut Off With Key</b>	Injection pump fuel solenoid does not return to off position	Check solenoid operation, see FUEL

**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.

## TURBOCHARGER TROUBLE SHOOTING

CONDITION	POSSIBLE CAUSE	CORRECTION
<b>Engine Detonation</b>	Malfunction in spark advance or retard system	Check distributor and ignition, see ELECTRICAL
	EGR system defect	Check EGR system
	Carburetor/throttle body or turbocharger air inlet restrictions	Remove restrictions
	Actuator allows too much boost	Check boost pressure and adjust
<b>Low Engine Power</b>	Defect in carburetor/throttle body power system	Inspect and repair carburetor/throttle body, see FUEL
	Internal turbocharger defect	Replace turbocharger, see FUEL
	Air inlet restriction	Remove restriction in inlet
	Exhaust system restriction	Remove restriction
<b>Engine Noise</b>	Malfunction in spark advance or retard system	Check distributor and ignition, see ELECTRICAL
	EFE system defect	Check EFE system operation
	EGR system defect	Check EGR system
	EFE system defect	Check EFE system
<b>Engine Surges</b>	Loose exhaust system or leak	Check exhaust mounting and connections
	AIR system defect	Check AIR system
	Restricted turbocharger oil supply	Check oil delivery system
	ESC malfunction	Check ESC system
<b>Excessive Oil Consumption (Blue Exhaust Smoke)</b>	Defective vacuum switch	Replace defective switch
	EGR system defect	Check EGR system
	Loose turbocharger bolts on compressor side	Check mounting bolts and tighten
	Leak at turbocharger oil inlet	Check fittings and repair
<b>Excessive Oil Consumption (Blue Exhaust Smoke)</b>	Turbocharger oil drain hose leaks or stopped up	Check drain hose for restrictions or loose fittings
	Turbocharger seals leaking	Replace seals, see FUEL