

1981 Fuel Systems

DIESEL FUEL INJECTION TROUBLE SHOOTING

CONDITION	POSSIBLE CAUSE	CORRECTION
▶ Engine cranks but will not start	<ol style="list-style-type: none"> 1) Incorrect starting procedure. 2) No voltage to fuel solenoid. 3) Faulty glow plugs or glow plug control system. 4) Plugged fuel return system. 5) No fuel to nozzles. 6) No fuel to injection pump. 7) Clogged fuel tank filter. 8) Incorrect or contaminated fuel. 9) Incorrect pump timing. 	<ol style="list-style-type: none"> 1) Use proper procedure. 2) Test and repair. 3) Check and repair. 4) Locate and correct. 5) Bleed each line at nozzle fitting. 6) Check engine fuel pump. Check for plugged filter. Possible faulty injection pump. 7) R & R tank, check filter. 8) Flush system. 9) Set pump timing.
▶ Engine starts but stalls at idle	<ol style="list-style-type: none"> 1) Incorrect slow idle adjustment. 2) Faulty fast idle solenoid. 3) Plugged fuel return system. 4) Glow plugs turn off too soon. 5) Incorrect pump timing. 6) Limited fuel to injection pump. 7) Air in injection lines to nozzles. 8) Incorrect or contaminated fuel. 9) Faulty injection pump. 10) Fuel solenoid closes in RUN position. 	<ol style="list-style-type: none"> 1) Adjust idle screw. 2) Test and repair. 3) Locate and repair. 4) Test and replace as necessary. 5) Set pump timing. 6) Check fuel pump, lines. Repair or replace. 7) Bleed lines at nozzles. 8) Flush system. 9) Remove and exchange. 10) Ignition switch out of adjustment or electrical malfunction.
▶ Engine starts, idles rough WITHOUT unusual noise or smoke:	<ol style="list-style-type: none"> 1) Incorrect slow idle adjustment. 2) Leaking injection line. 3) Plugged fuel return line. 4) Air in lines to nozzles. 5) Air in injection pump. 6) Faulty nozzle. 7) Improper or contaminated fuel. 8) Uneven fuel distribution. 	<ol style="list-style-type: none"> 1) Adjust slow idle screw on injection pump. 2) Locate and correct. 3) Locate and correct. 4) Loosen lines at nozzles and bleed air. 5) Stop engine and allow air to rise to top of pump. Start engine and allow it to idle for several minutes. 6) Replace any nozzle that doesn't affect idle quality. 7) Flush system. 8) Replace nozzles one at a time until normal idle is achieved.

DIESEL FUEL INJECTION TROUBLE SHOOTING (Cont.)

CONDITION	POSSIBLE CAUSE	CORRECTION
▶ Engine starts and idles WITH excessive noise and/or smoke:	<ol style="list-style-type: none"> 1) Incorrect pump timing. 2) Air in injection lines to nozzles. 3) Faulty nozzle(s). 4) Improperly installed high pressure lines. 	<ol style="list-style-type: none"> 1) Set pump timing. 2) Loosen at nozzles and bleed air. 3) Perform idle quality test by loosening one nozzle line fitting at a time. Replace any nozzle not affecting idle quality. 4) Check line routing — Firing order is 1 8 4 3 6 5 7 2.
▶ Engine idles correctly, but misfires above idle:	<ol style="list-style-type: none"> 1) Plugged fuel filter. 2) Incorrect pump timing. 3) Incorrect or contaminated fuel. 	<ol style="list-style-type: none"> 1) Replace filter. 2) Set pump timing. 3) Flush system.
▶ Engine will not return to idle:	<ol style="list-style-type: none"> 1) Linkage binding or misadjusted. 2) Defective injection pump. 	<ol style="list-style-type: none"> 1) Free up linkage. Adjust or replace as required. 2) Remove pump for repair.
▶ Fuel leaks on ground, no other engine malfunction:	<ol style="list-style-type: none"> 1) Loose or broken fuel line or connection. 2) Internal seal leak in injection pump. 	<ol style="list-style-type: none"> 1) Check entire fuel system. 2) Replace injection pump seals.
▶ Low engine power:	<ol style="list-style-type: none"> 1) Restricted air intake. 2) Plugged fuel filter. 3) Restricted fuel return system. 4) Restricted fuel supply from tank to pump. 5) Incorrect or contaminated fuel. 6) Restricted fuel tank filter. 7) Compression leaks at nozzles or glow plugs. 8) Plugged nozzle(s). 	<ol style="list-style-type: none"> 1) Check air cleaner. 2) Replace filter. 3) Locate and correct. 4) Locate and correct. 5) Flush system. 6) Remove tank, check filter. 7) Locate and correct. If nozzle leaks, replace carbon stop and compression seals. 8) Locate, repair or replace.
▶ "Rapping" noise from one or more cylinders:	<ol style="list-style-type: none"> 1) Air in fuel system. 2) Air in high pressure lines. 3) Nozzle sticking in open position; low nozzle opening pressure. 4) Filter in nozzle broken or loose. 	<ol style="list-style-type: none"> 1) Locate and correct. 2) Bleed lines at nozzles. 3) Identify faulty nozzle and replace. 4) Replace nozzle.
▶ Excessive combustion noise with black smoke:	<ol style="list-style-type: none"> 1) Incorrect pump timing. 2) Incorrect pump housing pressure. 3) Defective injection pump. 	<ol style="list-style-type: none"> 1) Set pump timing. 2) Check housing pressure. 3) Replace pump.
▶ Engine will not shut off with key:	<ol style="list-style-type: none"> 1) Injection pump fuel solenoid does not return to OFF position. 	<ol style="list-style-type: none"> 1) Check electrical system for malfunction. Remove pump top cover and check for sticking solenoid.