

Engine Trouble Shooting

DIESEL ENGINE TROUBLE SHOOTING

NOTE: Diesel engine mechanical diagnosis is the same as gasoline engines for items such as noisy valves, bearings, pistons, etc. The following trouble shooting covers only items pertaining to diesel engines

CONDITION	POSSIBLE CAUSE	CORRECTION
Engine Won't Crank	Bad battery connections or dead batteries Bad starter connections or bad starter	Check connections and/or replace batteries Check connections and/or replace starter
Engine Cranks Slowly, Won't Start	Bad battery connections or dead batteries Engine oil too heavy	Check connections and/or replace batteries Replace engine oil
Engine Cranks Normally, But Will Not Start	Glow plugs not functioning Glow plug control not functioning Fuel not injected into cylinders No fuel to injection pump Fuel filter blocked Fuel tank filter blocked Fuel pump not operating Fuel return system blocked No voltage to fuel solenoid Incorrect or contaminated fuel Incorrect injection pump timing Low compression Injection pump malfunction	Check glow plug system, see FUEL Check glow plug controller, see FUEL Check fuel injectors, see FUEL Check fuel delivery system Replace fuel filter Replace fuel tank filter Check pump operation and/or replace pump Inspect system and remove restriction Check solenoid and connections Replace fuel Re-adjust pump timing, see FUEL Check valves, pistons, rings, see ENGINES Inspect and/or replace injection pump
Engine Starts, Won't Idle	Incorrect slow idle adjustment Fast idle solenoid malfunctioning Fuel return system blocked Glow plugs go off too soon Injection pump timing incorrect No fuel to injection pump Incorrect or contaminated fuel Low compression Injection pump malfunction Fuel solenoid closes in RUN position	Reset idle adjustment, see TUNE-UP Check solenoid and connections Check system and remove restrictions See glow plug diagnosis in FUEL Reset pump timing, see FUEL Check fuel delivery system Replace fuel Check valves, piston, rings, see ENGINES Replace injection pump, see FUEL Check solenoid and connections
Engine Starts/Idles Rough Without Smoke or Noise	Incorrect slow idle adjustment Injection line fuel leaks Fuel return system blocked Air in fuel system Incorrect or contaminated fuel Injector nozzle malfunction	Reset slow idle, see TUNE-UP Check lines and connections Check lines and connections Bleed air from system Replace fuel Test and/or replace nozzles, see FUEL
Engine Starts and Idles Rough Without Smoke or Noise, But Clears After Warm-Up	Injection pump timing incorrect Engine not fully broken in Air in system Injector nozzle malfunction	Reset pump timing, see FUEL Put more miles on engine Bleed air from system Check nozzles, see FUEL
Engine Idles Correctly, Misfires Above Idle	Blocked fuel filter Injection pump timing incorrect Incorrect or contaminated fuel	Replace fuel filter Reset pump timing, see FUEL Replace fuel
Engine Won't Return to Idle	Fast idle adjustment incorrect Internal injection pump malfunction External linkage binding	Reset fast idle, see TUNE-UP Replace injection pump, see FUEL Check linkage and remove binding
Fuel Leaks on Ground	Loose or broken fuel line Internal injection pump seal leak	Check lines and connections Replace injection pump, see FUEL

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DIESEL ENGINE TROUBLE SHOOTING (Cont.)

CONDITION	POSSIBLE CAUSE	CORRECTION
Cylinder Knocking Noise	Injector nozzles sticking open Very low nozzle opening pressure	Test injectors and/or replace, see FUEL Test injectors and/or replace
Loss of Engine Power	Restricted air intake EGR valve malfunction Blocked or damaged exhaust system Blocked fuel tank filter Restricted fuel filter Blocked vent in gas cap Tank-to-injection pump fuel supply blocked Blocked fuel return system Incorrect or contaminated fuel Blocked injector nozzles Low compression	Remove restriction Replace EGR valve Remove restriction and/or replace components Replace filter Remove restriction and/or replace filter Remove restriction and/or replace cap Check fuel lines and connections Remove restriction Replace fuel Remove nozzle and remove blockage, see FUEL Check valves, rings, pistons, see ENGINES
Loud Engine Noise With Black Smoke	Basic timing incorrect EGR valve malfunction Internal injection pump malfunction Incorrect injector pump housing pressure	Reset timing, see FUEL Replace EGR valve Replace injection pump, see FUEL Check pressure and adjust, see FUEL
Engine Overheating	Cooling system leaks Belt slipping or damaged Thermostat stuck closed Head gasket leaking	Check cooling system and repair leaks Check tension and/or replace belt Remove and replace thermostat, see COOLING Replace head gasket
Oil Light on at Idle	Low oil pump pressure Oil cooler or line restricted	Check oil pump operation, see ENGINES Remove restriction and/or replace cooler
Engine Won't Shut Off	Injector pump fuel solenoid does not return fuel valve to OFF position	Remove and check solenoid and replace if needed
VACUUM PUMP DIAGNOSIS		
Excessive Noise	Loose pump-to-drive assembly screws Loose tube on pump assembly Valves not functioning properly	Tighten screws Tighten tube Replace valves
Oil Leakage	Loose end plug Bad seal crimp	Tighten end plug Remove and re-crimp seal