




































































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











































Engine Symptom Diagnosis




























Condition	Possible Cause	Action
Engine will not start or is hard to start (Compression too low)	Valve clearance out of adjustment.	Adjust.
	Worn valve guide or poor seating of valve.	Repair or replace.
	Mistimed valve.	Adjust.
	Excessively worn piston rings.	Replace.
	Worn-down cylinder bores.	Replace.
	Too slow starter motor cranking.	Refer to Starting System Diagram .
	Poor seating of spark plugs.	Retighten.
Engine will not start or is hard to start (Plug not sparking)	Fouled spark plugs.	Clean.
	Wet spark plugs.	Clean and dry.
	Defective ignition coils.	Replace.
	Defective CKP sensor.	Replace.
	Defective ECM.	Replace.
	Open-circuited wiring connection.	Repair or replace.
Engine will not start or is hard to start (No fuel reaching the intake manifold)	Clogged fuel filter or fuel hose.	Clean or replace.
	Defective fuel pump.	Replace.
	Defective fuel pressure regulator.	Replace.
	Defective fuel injectors.	Replace.
	Defective fuel pump relay.	Replace.
	Defective ECM.	Replace.
	Open-circuited wiring connection.	Check and repair.
Engine will not start or is hard to start (Incorrect fuel/air mixture)	TP sensor out of adjustment.	Adjust.
	Defective fuel pump.	Replace.
	Defective fuel pressure regulator.	Replace.
	Defective TP sensor.	Replace.
	Defective CKP sensor.	Replace.
	Defective IAP sensor.	Replace.
	Defective ECM.	Replace.
	Defective ECT sensor.	Replace.
	Defective IAT sensor.	Replace.
	Clogged ISC valve air passage way.	Repair or replace.


Engine idles poorly	Valve clearance out of adjustment.	Adjust. 
	Poor seating of valves.	Replace or repair. 
	Defective valve guides.	Replace. 
	Worn down camshafts.	Replace.  
	Too wide spark plug gaps.	Adjust or replace. 
	Defective ignition coils.	Replace. 
	Defective CKP sensor.	Replace.  
	Defective ECM.	Replace. 
	Defective TP sensor.	Replace. 
	Defective fuel pump.	Replace. 
	Imbalanced throttle valve.	Adjust. 
	Damaged or cracked vacuum hose.	Replace.
	Damaged or clogged ISC valve.	Repair or replace. 
	Dirty throttle body.	Clean. 
	ISC incorrect leaning.	Reset learned value. 
Engine stalls often (Incorrect fuel/air mixture)	Defective IAP sensor or circuit.	Repair or replace. 
	Clogged fuel filter.	Clean or replace. 
	Defective fuel pump.	Replace. 
	Defective fuel pressure regulator.	Replace. 
	Defective ECT sensor.	Replace. 
	Defective thermostat.	Replace. 
	Defective IAT sensor.	Replace. 
	Damaged or cracked vacuum hose.	Replace.
	Damaged or clogged ISC valve.	Replace or repair. 
Engine stalls often (Fuel injector improperly operating)	Defective fuel injectors.	Replace. 
	No injection signal from ECM.	Repair or replace.  
	Open or short circuited wiring connection.	Repair or replace. 
	Defective battery or low battery voltage.	Replace or recharge. 
Engine stalls often (Control circuit or sensor improperly operating)	Defective ECM.	Replace. 
	Defective fuel pressure regulator.	Replace. 
	Defective TP sensor.	Replace. 
	Defective IAT sensor.	Replace. 

	Defective CKP sensor.	Replace. 
	Defective ECT sensor.	Replace. 
	Defective fuel pump relay.	Replace. 
	Defective ISC valve.	Replace. 
	ISC incorrect learning.	Reset learned value. 
Engine stalls often (Engine internal parts improperly operating)	Fouled spark plugs.	Clean. 
	Defective CKP sensor or ECM.	Replace.   
	Clogged fuel hose.	Clean.
	Valve clearance out of adjustment.	Adjust. 
	Dirty throttle body.	Clean. 
Noisy engine (Excessive valve chatter)	Too large valve clearance.	Adjust. 
	Weakened or broken valve springs.	Replace. 
	Worn tappet or cam surface.	Replace.  
	Worn or burnt camshaft journal.	Replace.  
Noisy engine (Noise seems to come from piston)	Worn down pistons or cylinders.	Replace.   
	Combustion chamber fouled with carbon.	Clean. 
	Worn piston pins or piston pin bore.	Replace. 
	Worn piston rings or ring grooves.	Replace. 
Noisy engine (Noise seems to come from cam chain)	Stretched cam chain.	Replace.  
	Worn sprockets.	Replace.  
	Cam chain tension adjuster not working.	Repair or replace.  
Noisy engine (Noise seems to come from clutch)	Worn splines of countershaft or sleeve hub.	Replace.   
	Worn teeth of clutch plates.	Replace.  
	Distorted clutch plates, driven and drive.	Replace.  

	Worn clutch release bearing.	Replace. 
	Weakened clutch dampers.	Replace the primary driven gear.  
	Worn or rubbing primary gears.	Replace.   
Noisy engine (Noise seems to come from crankshaft)	Rattling bearing due to wear.	Replace.  
	Worn or burnt big-end bearings.	Replace. 
	Worn or burnt journal bearings.	Replace. 
Noisy engine (Noise seems to come from transmission)	Worn or rubbing gears.	Replace. 
	Worn splines.	Replace. 
	Worn or rubbing primary gears.	Replace.   
	Worn bearings.	Replace.  
Noisy engine (Noise seems to come from water pump)	Too much play on pump shaft bearing.	Replace. 
	Worn or damaged impeller shaft.	Replace. 
	Worn or damaged mechanical seal.	Replace. 
	Contact between pump case and impeller.	Replace. 
Engine runs poorly in high speed range (Defective engine internal/electrical parts)	Weakened valve spring.	Replace. 
	Worn camshafts.	Replace.  
	Valve timing out of adjustment.	Adjust. 
	Too narrow spark plug gaps.	Adjust. 
	Ignition not advanced sufficiently due to poorly working timing advance circuit.	Replace ECM. 
	Defective ignition coils.	Replace. 
	Defective CKP sensor.	Replace.  
	Defective ECM.	Replace. 
	Clogged air cleaner element.	Replace. 
	Clogged fuel hose, resulting in inadequate fuel supply to injector.	Clean and prime.
	Defective fuel pump.	Replace. 

Engine runs poorly in high speed range (Defective air flow system)	Defective TP sensor.	Replace. 
	Defective STP sensor or STVA.	Replace.  
	Clogged air cleaner element.	Replace. 
	Sucking air from throttle body joint.	Repair or replace.
	Defective ECM.	Replace. 
Engine runs poorly in high speed range (Defective control circuit or sensor)	Unbalancing throttle valve synchronization.	Adjust. 
	Defective ISC valve.	Replace. 
	Low fuel pressure.	Repair or replace.
	Defective TP sensor.	Replace. 
	Defective IAT sensor.	Replace. 
Engine lacks power (Defective engine internal/electrical parts)	Defective CKP sensor.	Replace.  
	Defective GP switch.	Replace. 
	Defective IAP sensor.	Replace. 
	Defective ECM.	Replace. 
	TP sensor out of adjustment.	Adjust. 
	Defective STP sensor or STVA.	Replace.  
	Loss of valve clearance.	Adjust. 
	Weakened valve springs.	Replace. 
	Valve timing out of adjustment.	Adjust. 
	Worn piston rings or cylinders.	Replace. 
	Poor seating of valves.	Repair. 
	Fouled spark plugs.	Replace. 
	Incorrect spark plugs.	Adjust or replace. 
	Clogged fuel injectors.	Replace. 
	TP sensor out of adjustment.	Adjust. 
	Clogged air cleaner element.	Replace. 
	Unbalancing throttle valve synchronization.	Adjust. 
	Sucking air from throttle valve or vacuum hose.	Retighten or replace.
	Too much engine oil.	Drain out excess oil.
	Defective fuel pump or ECM.	Replace.  
	Defective CKP sensor and ignition coils.	Replace.   

	Defective STP sensor or STVA.	Replace.  
Engine lacks power (Defective control circuit or sensor)	Low fuel pressure.	Repair or replace.
	Defective TP sensor.	Replace. 
	Defective IAT sensor.	Replace. 
	Defective CKP sensor.	Replace.  
	Defective GP switch.	Replace. 
	Defective IAP sensor.	Replace. 
	TP sensor out of adjustment.	Adjust. 
	Defective ECM.	Replace. 
	Unbalancing throttle valve synchronization.	Adjust. 
	Defective STP sensor or STVA.	Replace.  
Engine overheats (Defective engine internal parts)	Heavy carbon deposit on piston crown.	Clean.
	Not enough oil in the engine.	Add oil. 
	Defective oil pump or clogged oil circuit.	Replace or clean. 
	Sucking air from intake pipes.	Retighten or replace.
	Use of incorrect engine oil.	Change. 
	Defective cooling system.	Refer to Engine Cooling Symptom Diagnosis .
Engine overheats (Lean fuel/air mixture)	Short-circuited IAP sensors/lead wire.	Repair or replace. 
	Short-circuited IAT sensor/lead wire.	Repair or replace. 
	Sucking air from intake pipe joint.	Repair or replace.
	Defective fuel injectors.	Replace. 
	Defective ECT sensor.	Replace. 
Engine overheats (Other factors)	Ignition timing is too advanced due to defective timing advance system (ECT sensor, GP switch, CKP sensor or ECM).	Replace.
	ISC valve incorrect learning.	Reset learned value. 
Dirty or heavy exhaust smoke	Too much engine oil.	Check with inspection window, drain out excess oil.
	Worn piston rings or cylinders.	Replace. 
	Worn valve guides.	Replace. 
	Scored or scuffed cylinder walls.	Replace.  
	Worn valve stems.	Replace. 
	Defective stem seal.	Replace. 

Worn oil ring side rails.	Replace. 
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