

N - REMOVE/INSTALL/OVERHAUL

1993 Jeep Cherokee

1993 ENGINE PERFORMANCE

Chrysler Corp. Removal, Overhaul & Installation

Jeep; Cherokee, Grand Cherokee, Grand Wagoneer, Wrangler

INTRODUCTION

Removal, overhaul and installation procedures are covered in this article. If component removal and installation is primarily an unbolt and bolt-on procedure, only a torque specification may be furnished.

IGNITION SYSTEM

DISTRIBUTOR

CAUTION: Base ignition timing is not adjustable on any 2.5L, 4.0L or 5.2L engine. Base ignition timing and timing advance are controlled by the PCM. Since a conventional timing light can not be used to adjust distributor after installation, ensure distributor is returned to its original position.

Removal (2.5L & 4.0L)

1) Disconnect negative battery cable. Remove distributor cap. Rotate engine crankshaft until distributor rotor is pointing toward cylinder No. 1 of distributor cap and engine is at TDC.

2) Scribe mark on distributor and adjacent component as reference to indicate rotor and distributor housing position when reinstalling distributor. Disconnect camshaft position sensor harness connector. Remove distributor hold-down nut. Lift distributor from engine.

Installation (2.5L & 4.0L)

1) Position distributor in engine. Ensure "O" ring is properly seated on distributor. Replace "O" ring if cracked or nicked. Carefully engage distributor driven gear with camshaft drive gear so when distributor is installed properly, rotor aligns with reference mark.

2) Install distributor cap. Check all high tension wires for good connections. Install hold-down nut. Connect camshaft position sensor wiring harness connector.

Removal (5.2L)

1) Disconnect negative battery cable. Remove distributor cap. Rotate engine crankshaft until distributor rotor is pointing toward cylinder No. 1 of distributor cap and engine is at TDC.

2) Scribe mark on distributor and adjacent component as reference to indicate rotor and distributor housing position when reinstalling distributor. Disconnect camshaft position sensor harness connector. Remove distributor hold-down nut. Lift distributor from engine.

Installation (5.2L)

NOTE: If engine has been rotated since distributor removal, return engine to TDC.

1) Clean mounting surface. Oil "O" ring on distributor housing. Position distributor in engine. Ensure "O" ring is properly

seated on distributor. Replace "O" ring if cracked or nicked. Carefully engage distributor driven gear with camshaft drive gear so when distributor is installed properly, rotor aligns with reference mark.

2) Install hold-down clamp and bolt but do not tighten. Rotate distributor housing until rotor is aligned with CYL. NO. 1 mark on camshaft position sensor. Tighten hold-down bolt to 200 INCH Lbs. (22.5 N.m).

3) Install distributor cap. Check all high tension wires for good connections. Connect camshaft position sensor wiring harness connector.

CAMSHAFT POSITION SENSOR

Removal & Installation (2.5L & 4.0L)

Remove distributor. See DISTRIBUTOR. Remove rotor. Scribe mark on distributor driven gear and distributor shaft for reassembly reference. Using pin punch, drive out distributor roll pin. Lightly tap on end of distributor shaft until gear and thrust washer are removed. Remove distributor shaft from housing. Unbolt and remove camshaft position sensor. To install, reverse removal procedure.

Removal & Installation (5.2L)

Disconnect negative battery cable. Remove distributor cap. Disconnect camshaft position sensor connector from harness connector. Remove distributor rotor. Lift and remove sensor from distributor. To install, reverse removal procedure.

CRANKSHAFT POSITION SENSOR

Removal (2.5 & 4.0L)

Disconnect sensor connector from main harness connector. Connector is located near rear of intake manifold. Raise and support vehicle. Remove sensor mounting bolts. Remove sensor. Sensor is mounted on transmission bellhousing.

Installation (2.5 & 4.0L)

To install, reverse removal procedure. Use only proper mounting bolt. Any other replacement bolt will cause improper sensor alignment. On Wrangler with 4.0L engine and automatic transmission, ensure paper self-adhesive spacer on end of sensor is replaced if old sensor is being reused. Paper spacer is used to set proper depth. Once engine is started, paper spacer wears away.

Removal (5.2L)

1) Remove spark plug cable loom and spark plug wires from mounting stud on rear of right valve cover. Remove right exhaust manifold heat shield. Disconnect hoses from EGR valve. Disconnect connector and hoses at EGR transducer.

2) Remove EGR valve. Disconnect connector at Oil Pressure Sending (OPS) unit. Using appropriate socket, remove OPS unit. Remove EGR tube. Disconnect crankshaft connector from harness connector. Remove crankshaft position sensor.

Installation (5.2L)

To install, reverse removal procedure. Replace all EGR valve and tube gaskets. Coat OPS unit threads with sealant before installing.

FUEL SYSTEM

FUEL SYSTEM PRESSURE RELEASE

WARNING: ALWAYS relieve fuel pressure before disconnecting any fuel injection-related component. DO NOT allow fuel to contact engine or electrical components.

1) Disconnect negative battery cable. Loosen fuel filler cap to release tank pressure. Remove protective cap from pressure test port on fuel rail. Using appropriate fuel pressure gauge/hose with gauge removed, place gauge end of hose into approved gasoline container.

2) To release pressure, screw other end of hose onto pressure test port. After pressure is released, remove hose from test port and install protective cap.

FUEL RAILS & INJECTORS

Removal & Installation (2.5L & 4.0L)

1) Relieve fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Remove and tag injector wiring harness connectors from each injector. Disconnect vacuum hose from fuel pressure regulator.

2) Disconnect fuel supply and fuel return lines. Remove fuel rail mounting bolts. On automatic transmission vehicles, it may be necessary to remove throttle line pressure cable and bracket.

3) Gently rock fuel rail until all injectors clear intake manifold. Remove injector retaining clips and remove injectors. To install, reverse removal procedure. Ensure fuel injectors are properly seated in intake manifold.

CAUTION: The left and right fuel rails are replaced as an assembly. DO NOT attempt to separate rail halves at connecting hoses. DO NOT attempt to install a clamping device of any kind to hose(s). When removing fuel rail assembly, be careful not to bend or kink connecting hoses.

Removal (5.2L)

1) Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Disconnect negative battery cable. Remove air duct at throttle body. Remove throttle body from intake manifold. See THROTTLE BODY. Remove air conditioning compressor-to-intake manifold support bracket (if equipped).

2) Disconnect fuel injector wiring connectors (injector connectors are numerically tagged for installation reference). Remove vacuum line from fuel pressure regulator. Remove EVAP canister purge solenoid/bracket assembly from intake manifold.

3) Disconnect 2 rear fuel rail fuel lines, and remove remaining fuel rail mounting bolts. Gently rock and pull on left fuel rail and then right fuel rail until injectors start to clear intake manifold. Repeat procedure until injectors clear intake manifold, and remove fuel rail with injectors attached. Remove injector-to-fuel rail clips.

Installation (5.2L)

1) Lubricate injector "O" rings with a drop of clean engine oil. Install injectors and clips into fuel rail receiver cups. Ensure injectors and clips are fully seated. Position fuel rail/injector assembly on intake manifold openings. Using care not to tear "O" rings, guide each injector into intake manifold. Push right and then left fuel rail down until injectors are bottomed on injector shoulder.

2) To complete installation, reverse removal procedure. Connect negative battery cable, and check for leaks.

FUEL PUMP

NOTE: Fuel tank removal is not necessary when removing fuel pump module on Cherokee and Grand Cherokee.

Removal & Installation (Cherokee)

1) Relieve fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Remove fuel tank filler cap. Drain fuel tank until fuel level is below 1/4 full. Raise and support vehicle. Disconnect fuel gauge sending unit connector.

2) Disconnect fuel tank vent hose and return hoses from fuel pump/fuel gauge sending unit. Using drift punch and hammer, carefully remove fuel pump lock ring counterclockwise. Remove fuel pump/fuel gauge sending unit and "O" ring. To install, reverse removal procedure.

Removal & Installation (Grand Cherokee)

Drain and remove fuel tank. See FUEL TANK. Fuel pump module lock nut is threaded onto fuel tank. Remove fuel pump module lock nut. Remove pump. To install, reverse removal procedure. Ensure new gasket is installed.

Removal & Installation (Wrangler)

Disconnect negative battery cable. Remove fuel tank. See FUEL TANK. Remove mounting bolts and fuel pump module. To install, reverse removal procedure. Start engine and check for leaks.

FUEL TANK

Removal (Cherokee)

1) Disconnect negative battery cable. Remove fuel tank filler cap. Using an approved fuel storage container, drain fuel tank. Raise and support vehicle. Disconnect fuel fill hose and fill vent hose from filler neck. Disconnect fuel pump module wire connector.

2) Disconnect fuel tank vent hose. Disconnect fuel supply and return hoses from tank. Remove skid plate (if equipped). Remove fuel tank shield. Support fuel tank with transmission jack. Remove support straps. Lower and remove fuel tank.

Installation (Cherokee)

To install, reverse removal procedure. Start engine and check for leaks.

Removal & Installation (Grand Cherokee)

1) Disconnect negative battery cable. Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Raise and support vehicle. Remove fuel tank filler and vent hose at filler tube. Remove rear tow hooks (if equipped). Remove skid plate.

2) Remove trailer hitch (if equipped). Remove exhaust tailpipe heat shield. Disconnect fuel supply line at filter. Disconnect fuel return and vent lines at tank. Disconnect fuel pump module harness connector. Support fuel tank with transmission jack.

3) Remove tank strap nuts and move straps away from tank. Lower right side of tank while feeding fuel hoses through access hole in body. Remove filler hoses from tank. Insert siphon hose and drain tank. Lower and remove tank. To install, reverse removal procedure.

Removal & Installation (Wrangler)

1) Disconnect negative battery cable. Relieve fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Remove fuel tank filler cap, and siphon fuel out of fuel tank. Raise and support vehicle. Remove filler neck shroud. Disconnect filler vent hose and fuel filler hose from tank.

2) Disconnect fuel gauge sending unit connector. Remove tie

straps securing connector harness to fuel supply and return tubes. Disconnect fuel tank vent hose from vent tube.

3) Remove fuel tank shield and skid plate as single assembly. Support fuel tank with floor jack, and remove support strap nuts. Lower fuel tank and remove. To install, reverse removal procedure.

THROTTLE BODY

Removal & Installation (2.5L & 4.0L)

1) Disconnect negative battery cable. Remove air cleaner snorkel from throttle body. Disconnect idle air control motor and throttle position sensor connectors.

2) Disconnect accelerator cable, throttle cable (A/T), and speed (cruise) control cable (if equipped). Remove mounting bolts, throttle body, and gasket. To install, reverse removal procedure.

Removal (5.2L)

1) Remove air duct. Release fuel system pressure. See FUEL SYSTEM PRESSURE RELEASE. Disconnect negative battery cable. Disconnect vacuum hoses and electrical connectors from throttle body.

2) Remove throttle cable, speed control cable and transmission cable (A/T). Remove throttle return spring. Remove fuel intake and return hoses. Remove throttle body mounting screws, and lift throttle body from vehicle. Remove throttle body gasket from intake manifold.

Installation (5.2L)

1) Using a new gasket, install throttle body and tighten mounting screws. Install fuel intake and return hoses using new original-equipment type clamps.

2) Install throttle return spring. Install throttle cable. Install speed control and transmission kickdown cables (if equipped). Install wiring connectors and vacuum hoses. Install air cleaner. Reconnect negative battery cable.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Coolant Temperature Sensor (2.5L & 4.0L)	21 (28)
Crankshaft Position Sensor (2.5L & 4.0L)	15 (19)
Distributor Hold-Down Bolt	17 (23)
Fuel Rail Bolt	20 (27)
Manifold Air Temperature Sensor	20 (27)
Oxygen (O2) Sensor	23 (31)
	INCH Lbs. (N.m)
Coolant Temperature Sensor (5.2L)	60 (7)
Crankshaft Position Sensor (5.2L)	70 (8)
Fuel Filter Strap Bolt	108 (12)
Throttle Body Bolt	108 (12)
Throttle Position Sensor Bolt	60 (7)