HONDA ACCORD POWER-ASSISTED RACK & PINION

Accord CVCC (LX)

DESCRIPTION & OPERATION

Power steering is rack and pinion with the power assist proportional to both vehicle speed and steering load. Power assist is high when vehicle speed is low and reduces as vehicle speed increases. Pump uses a metered orifice and a combination flow control/relief valve to keep pressure below 980 psi (70 kg/cm^2). Power steering fluid is used to lubricate pump bushings.

Valve body is mounted to lower part of rack and pinion housing. A spool valve is attached to steering shaft and supported by needle bearings and thrust washers. These keep spool valve entered. Spool valve movement comes from the thrust produced by one helical gear (pinion) driving another (rack). When steering wheel is turned, spool valve is forced to move up or down. This movement allows fluid (under high pressure) to enter either right or left rack housing, assisting in turning wheels. When steering wheel is no longer turned, spool valve centers itself and stops fluid flow to rack housing. This stops power assist.

The speed sensor is a trochoid rotor hydraulic pump. The sensor is combined with the speedometer drive and mounted in transmission housing. Two internal relief valves connect sensor inlet and outlet. One valve allows fluid to recirculate when vehicle is in reverse and the other relieves low pressure at the inlet while driving at high speed. With engine running and in neutral or PARK, pressure closes the cut-off valve which keeps pressure in reaction chambers at a minimum. When vehicle starts moving, pressure drops and opens the cut-off valve. As pressure rises, plunger resistance to spool valve movement increases. This decreases power assist. When vehicle speed decreases, the reverse happens and increases power assist. This opening and closing of the cut-off valve is very rapid (actually vibrating) making the changing pressures a gradual smooth transition.

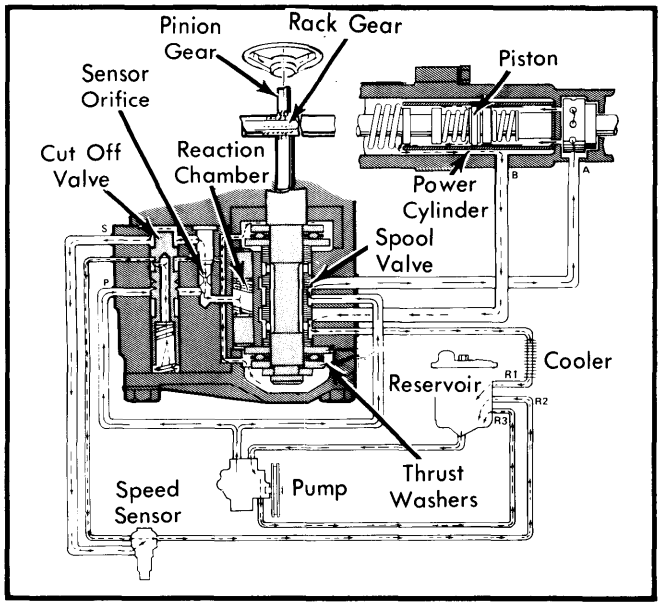

Fig. 2 Sectional View of Power Steering Pump and Power Steering Gear

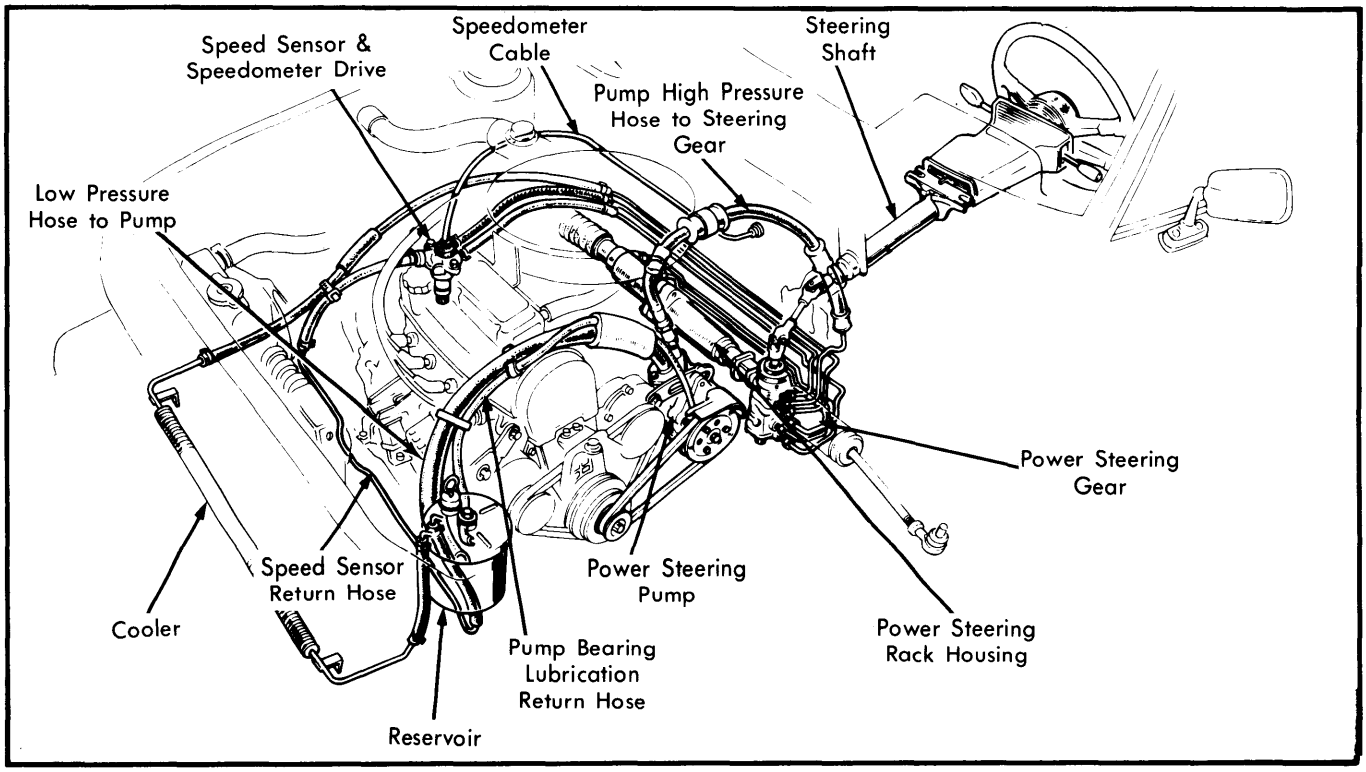

Fig. 1 Power Steering System for Honda Accord Models

HONDA ACCORD POWER-ASSISTED RACK & PINION (Cont.)

GENERAL SERVICE

HYDRAULIC SYSTEM LUBRICANT

Capacity

Reservoir	.85 qts. (.8 liter)
Complete System	2.1 qts. (2 liters)

Fluid Type

CAUTION — *Use only genuine Honda power steering fluid. The use of any other fluids, such as ATF or other manufacturer's power steering fluid, will cause damage to the system.*

BELT TENSION ADJUSTMENT

1) Measure pump belt deflection midway between pulleys. Deflection should be 9/16" at 22 lbs. pressure (13 mm at 10 kg) on used belt or 7/16" at 22 lbs. pressure (11 mm at 10 kg) on a new belt.

2) Replace belt when pump adjusting bolt reaches "bump" on adjusting bracket.

HYDRAULIC SYSTEM PRESSURE CHECK

1) Disconnect outlet hose from pump. Install ressure gauge and valve (07406-0010000). See *Fig. 3*.

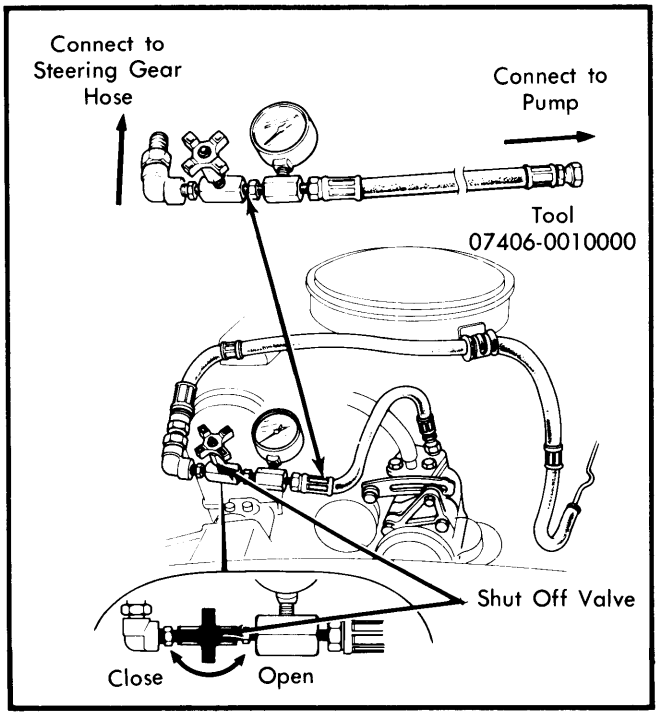

Fig. 3 Pump & System High Pressure Test Showing Tester and Tester Connections

2) With engine running, open valve and turn steering wheel from lock to lock several times until fluid is at operating temperature.

3) Check idle speed and adjust if necessary. Close valve and read pressure gauge.

CAUTION — *Do not keep valve closed for more than 5 seconds or pump could be damaged by overheating.*

4) Pump pressure should be at least 840 psi (60 kg/cm²). If pump pressure is too low, replace pump.

5) Open valve fully and turn steering wheel to full left lock. Read gauge, then turn wheel to full right lock and read gauge. Both readings should be at least 840 psi (60 kg/cm²). A low reading indicates rack and pinion housing or speed sensor is defective. Check speed sensor (as described later), if sensor is OK, replace rack and pinion gears and housing.

SPEED SENSOR CHECK

1) Start engine and let idle. Attach spring tension scale to steering wheel (outer end of spoke). Vehicle should be on a clean dry surface. Turn steering wheel with the tension gauge and record reading.

2) Reading should be no more than 6 lbs. (2.7 kg).

4) If reading is higher than specified, disconnect and plug large diameter hose running from steering gear to speed sensor.

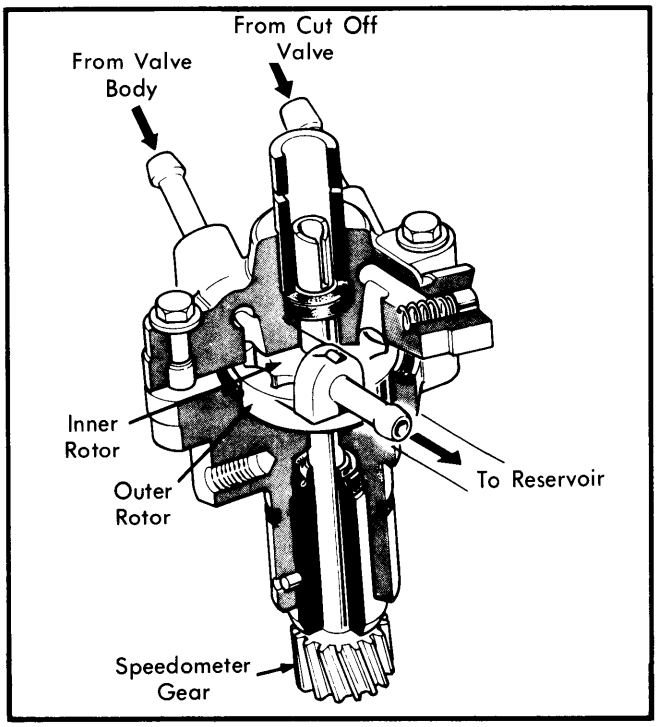

Fig. 4 Sectional View of Speed Sensor

5) Measure pull as described above. If scale reads less than with hose connected, the sensor is defective and should be replaced.

STEERING SHAFT MOVEMENT CHECK

1) With engine not running, turn steering wheel to left and then to right. Steering wheel cover should move closer to or further away from turn signal cover. See *Fig. 5*.

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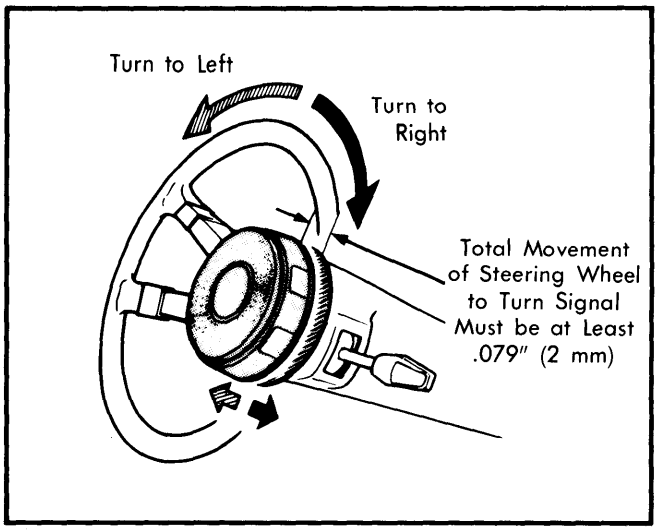

Fig. 5 Checking Steering Shaft Movement

2) Movement of steering wheel should be at least .079" (2 mm) for proper spool valve operation.

3) If the steering wheel moves only in or only out, but not both, loosen the 3 bolts in the steering shaft connector. Adjust shaft and make sure that shaft slides freely in column. Retighten bolts.

4) If adjustment does not allow correct movement of steering wheel, replace rack and pinion gears.

REMOVAL & INSTALLATION

STEERING GEAR

Removal – **1)** Disconnect tie rods from steering knuckles. Disconnect exhaust pipe at manifold.

2) On manual transmission models only, disconnect shift linkage by driving out pin. Remove cross (center) member. Disconnect shift lever torque arm from transmission.

3) On automatic transmission models only, remove center engine mount and transmission splash guard. Disconnect control cable from transmission.

4) Disconnect the following lines from power steering gear:

- Hose to right side of power cylinder.
- Hose to left side of power cylinder.
- Hose from power steering pump.
- Hose to power steering cooler.
- Hose to speed sensor.
- Hose from speed sensor.

5) Turn steering wheel to full left and remove bottom bolt in steering shaft connector. Remove steering gear brackets.

6) Lower steering gear to pull pinion out of connector, then move to right until left tie rod drops out of subframe. Remove steering gear to left.

Installation – To install steering gear, reverse removal procedure.

STEERING PUMP

Removal – **1)** Drain fluid from system. Disconnect inlet and outlet hoses at pump. Remove power steering belt by loosening the pump pivot and adjusting bolts.

2) Remove pump mounting bolts, bracket and power steering pump.

Installation – **1)** Install pump, bracket and bolts. Fill reservoir with new fluid, to the full mark on dipstick.

CAUTION – *Use only genuine Honda power steering fluid. The use of other fluids, such as ATF or other manufacturer's power steering fluid, will cause damage to the system.*

2) Start engine and let run at fast idle while turning the steering wheel lock to lock several times to bleed air from system.

SPEED SENSOR

Removal – **1)** Lift speedometer cable boot up to gain access to retaining clip. Remove retaining clip and pull out cable.

2) Disconnect and plug speed sensor hoses, back off speedometer gear set bolt. Lift speed sensor out.

Installation – After installing new sensor, turn steering wheel from lock to lock several times (engine idling), to bleed air from system.

OVERHAUL

NOTE – *Power steering pump, steering gear and speed sensor cannot be overhauled. These items must be replaced as an assembly. Steering pump shaft seal can be replaced.*

POWER STEERING PUMP SHAFT SEAL

1) Remove power steering pump belt. Remove pump pulley. Remove old seal. Coat new seal and pump shaft with clean fluid and install seal on pump shaft. Be careful not to scratch or damage inner part of seal.