

YEAR
1991 - 93

MODEL
LEGEND

VIN APPLICATION
See VEHICLES
AFFECTED

BULLETIN NO.
93-006



Cold Engine Knock

SYMPTOM

A metallic knocking noise is heard at 1,200-1,500 rpm when accelerating lightly right after a cold start. This noise disappears when the engine reaches normal operating temperature.

PROBABLE CAUSE

Carbon buildup in the piston ring land causes the ring to bind, allowing the piston to slap against the cylinder wall.

VEHICLES AFFECTED

Sedan

- 1991: All
- 1992: All
- 1993: thru VIN JH4KA7 ... PC005500

Coupe

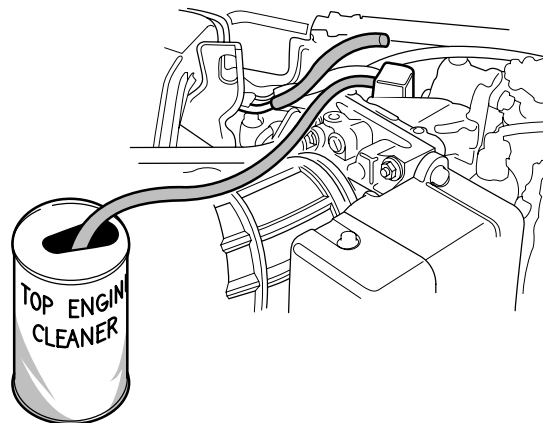
- 1991: All
- 1992: All
- 1993: None

DIAGNOSIS

Use GM Top Engine Cleaner (see REQUIRED MATERIALS) to determine if the knocking is caused by a binding piston ring.

1. Disconnect the No. 21 hose at the base of the throttle body.
2. Connect a long hose to the throttle body base.

3. Start the engine. Keep it running at 800-1,000 rpm, then place the hose in the Top Engine Cleaner. Run the engine until the can is empty, then immediately shut it off.



4. Reinstall the No. 21 hose. Let the car sit for 1 to 2 hours.
5. Test drive the car in a lower gear above 3,000 rpm for five minutes. This will remove the carbon loosened by the cleaner.
6. Allow the engine to cool down completely. Start the cold engine and accelerate lightly.
 - If the symptom still exists, binding rings are not the problem. Isolate and repair the cause using normal procedures.
 - If you do not hear any knocking, proceed with CORRECTIVE ACTION.

CORRECTIVE ACTION

Replace the piston rings with the new ring sets listed under PARTS INFORMATION. Refer to Sections 6 and 7 of the appropriate service manual for the engine disassembly/reassembly procedure.

Disassembly/Reassembly Notes

- Mark the positions of the pistons/rods/caps as they are removed so you can install them in the same positions. The pistons and bearings are individually sized to fit.

- Do not use mechanical carbon removal methods, such as scrapers or wire brushes, to remove carbon from the piston heads and ring grooves. Use only carburetor cleaner or parts dip.
- Do not hone the cylinder walls. The factory surface finish is better than what can be achieved with a hand-held hone.
- Install the ring marked T1 in the top ring groove and the ring marked T2 in the second groove.
- Apply a liberal amount of clean engine oil to the pistons and rod bearings during reassembly.
- Reinstall the original rod bearings.

Inform the car's owner to follow the new car break-in recommendations in the Owner's Manual.

PARTS INFORMATION

Piston Ring Set (6 required)	13011-PY3-003
Cylinder Head Gasket, Left	12251-PY3-003
Cylinder Head Gasket, Right	12261-PY3-003
Intake Manifold Gasket, Left	17106-PY3-003
Intake Manifold Gasket, Right	17105-PY3-003
EGR Pipe Packing	18721-PR7-A01
Air Suction Pipe Packing	18766-PY3-A01

REQUIRED MATERIALS

GM Top Engine Cleaner:

Purchase from any General Motors dealer, GM part number 105002. (This number is for reference only, do not put it in the warranty claim.)

WARRANTY CLAIM INFORMATION

In warranty: The normal warranty applies.

Out of warranty: Any repair performed after warranty expiration may be eligible for goodwill consideration by the District Service Manager. You must request consideration, and get the DSM's decision, before starting work.

Operation number: 111121

Flat rate time: 17.7 hours (includes 0.5 hour for diagnosis)

Failed P/N: 13011-PY3-004

Defect code: 042

Contention code: B07