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2012 JEEP Cherokee/Liberty OEM Service and Repair Workshop Manual

Go to manual page

Sample

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1 - Cylinder Head Cover
2 - Cylinder Head

9. Remove the cylinder head cover.
10. Clean the sealing surface of the cylinder head and cover.

INSTALLATION

Follow the removal procedure in reverse for general reassembly of the components on the vehicle. The steps listed below are calling out specific procedures that should be followed during installation.

- The cylinder head cover gasket may be used again, provided no cuts, tears, or deformation have occurred.
- Clean the cylinder head cover and the sealing surface of the cylinder head. Inspect and replace gasket if necessary.

  CAUTION

  Do not use harsh cleaners to clean the cylinder head covers. Severe damage to covers may occur.

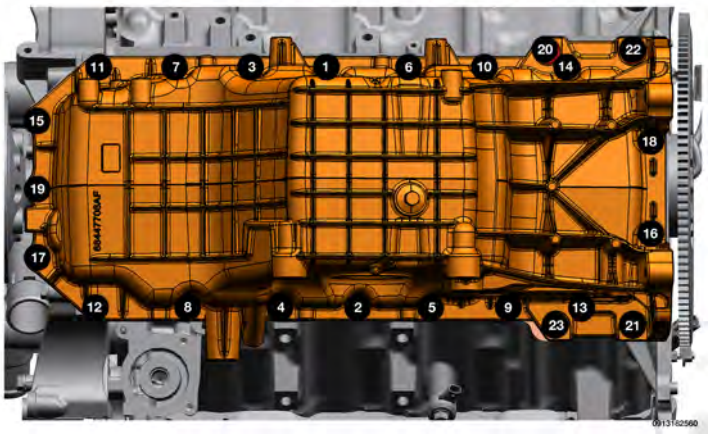
- The cylinder head cover bolts must be tightened in the sequence shown in the torque table below.

  CAUTION

  Do not allow other components including the wire harness to rest on or against the engine cylinder head cover. Prolonged contact with other objects may wear a hole in the cylinder head cover.

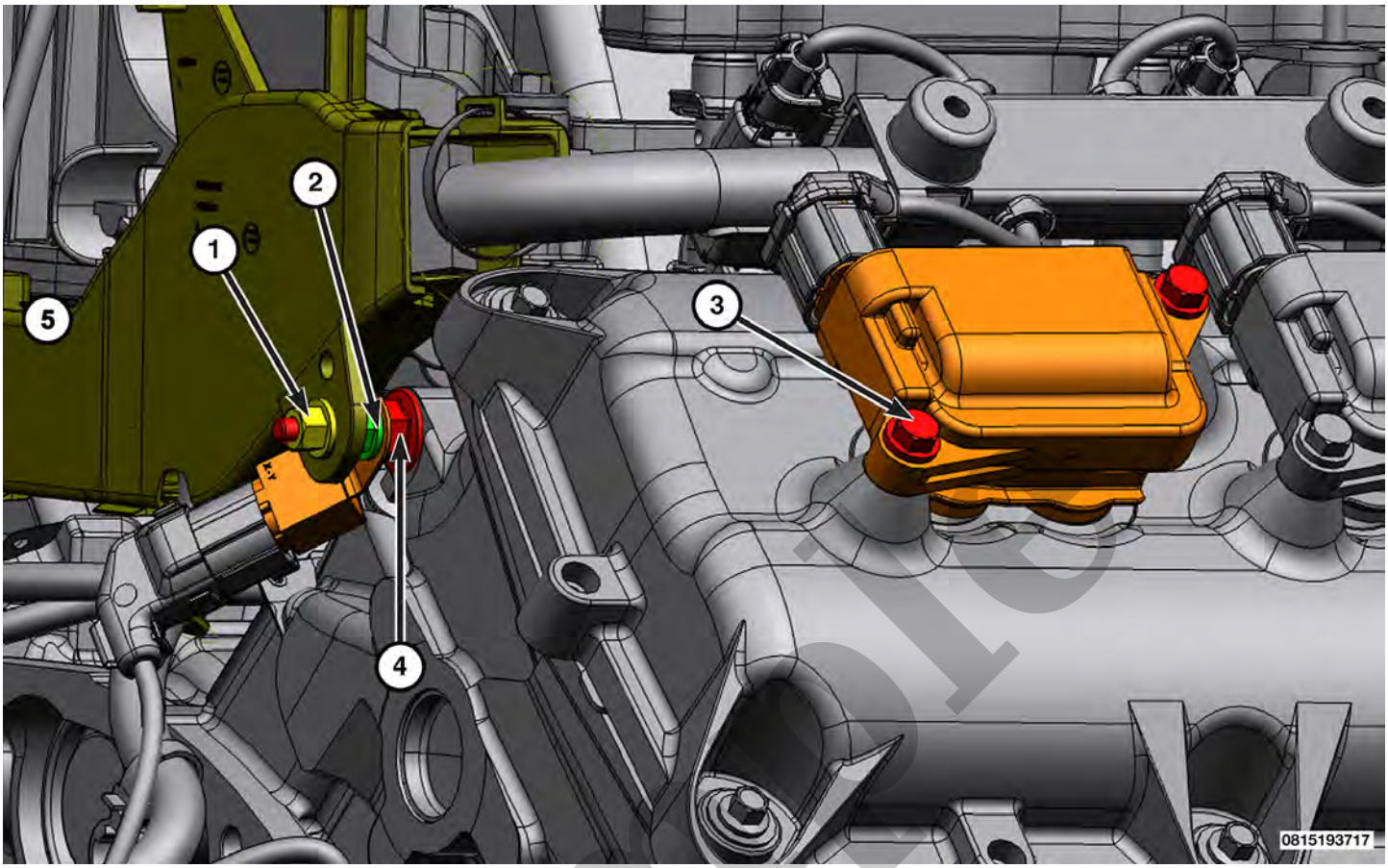
TORQUE SPECIFICATIONS - CYLINDER HEAD

Sample

			
3	Oil Level Indicator Tube Nut	**8 N·m (71 In. Lbs.)**	–
4	Oil Filter Adapter to Engine Block Bolts	**12 N·m (9 Ft. Lbs.)**	–
5	Oil Filter Adapter to Oil Filter Housing	**12 N·m (9 Ft. Lbs.)**	–
6	Oil Filter Housing to Oil Pan Bolts	**25 N·m (18 Ft. Lbs.)**	–
7	Oil Pan Drain Plug	**34 N·m (25 Ft. Lbs.)**	–
8	Oil Pan to Transmission Bolts	**54 N·m (40 Ft. Lbs.)**	–

Sample

TORQUE SPECIFICATIONS - IGNITION - 5.7L



CALLOUT	DESCRIPTION	SPECIFICATION	COMMENT
1	Engine Harness (Trough) Nuts	**11 N·m (8 Ft. Lbs.)**	–
2	Ignition Capacitor Nut	**7 N·m (62 In. Lbs.)**	–
3	Ignition Coil Bolts	**9 N·m (80In. Lbs.)**	–
4	Capacitor to Cylinder Block Stud Bolt	**28 N·m (21Ft. Lbs.)**	–
–	Spark Plugs	**27 N·m (20Ft. Lbs.)**	–

Refer To List:

List 1

- 09 - Engine, 2.0L / Air Intake System / BODY, Air Cleaner / Removal and Installation
- 09 - Engine, 3.6L / Air Intake System / BODY, Air Cleaner / Removal and Installation

Sample

14. If necessary, remove the spark plugs (Refer to 09 - Engine/Ignition Control/SPARK PLUG/Removal and Installation)(Refer To List 7).

INSPECTION:

- Inspect the cylinder head surface flatness using a straightedge and a feeler gauge. If tolerances exceed 0.0508 mm (0.002 in.) replace the cylinder head.
- Inspect the valve springs for damage (broken or cracked). Replace any damaged valve springs.
- Inspect the valve seats for damage. Service the valve seats as necessary.
- Inspect the valve guides for wear (cracks or looseness). If either condition exist, replace the cylinder head.
- Inspect the pushrods. Verify that the oil passages are clear and not obstructing oil flow. Clean or replace plugged, worn or bent pushrods.

CLEANING:

- Clean all of the sealing surfaces of cylinder block and cylinder heads using Mopar® Brake Parts Cleaner or a suitable solvent.

INSTALLATION

1. If removed, install the exhaust manifold to the cylinder head (Refer to Exhaust System/MANIFOLD, Exhaust/Removal and Installation).

   CAUTION

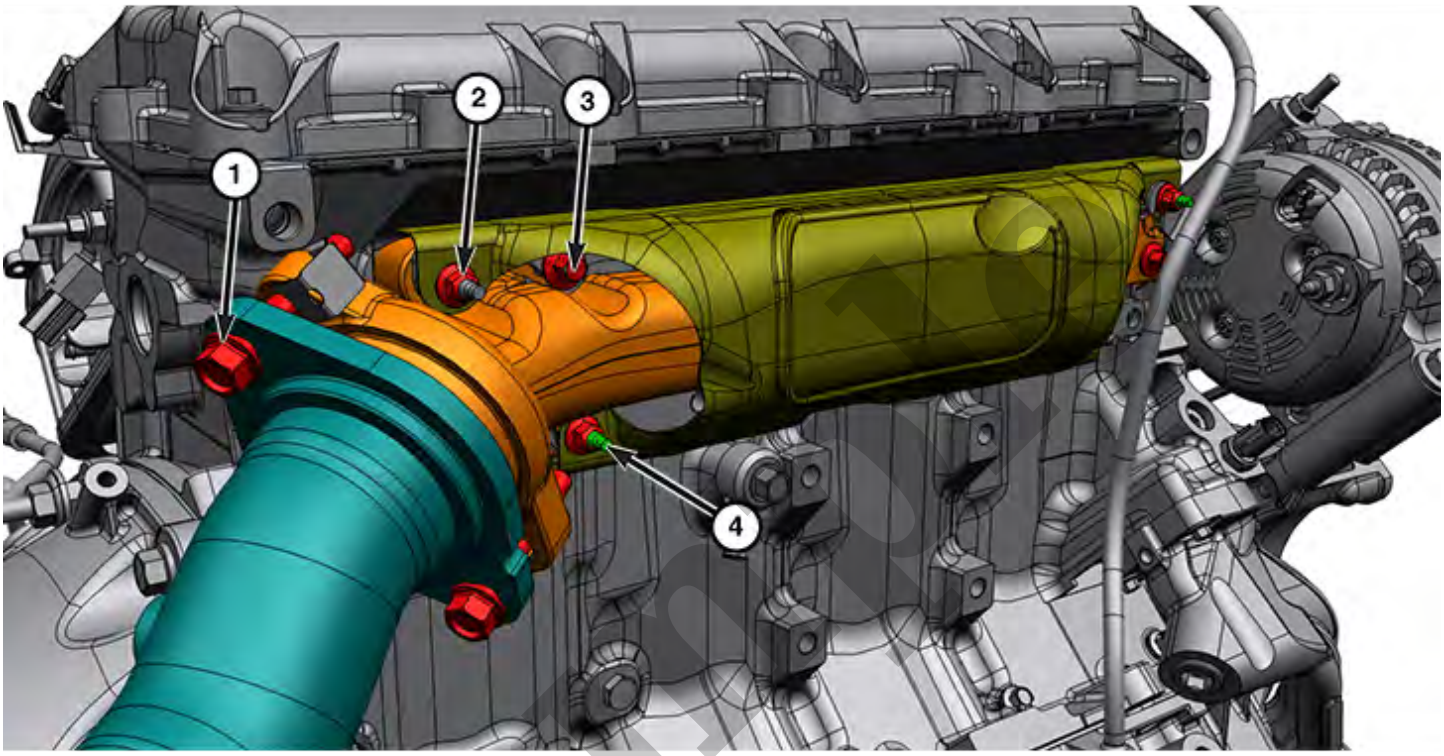
   The cylinder head gaskets are not interchangeable between the left and right sides. They are marked with an “L” and “R” to indicate the left or right side and they are marked “TOP” to indicate which side goes up.

2. Position the new cylinder head gasket onto the cylinder block.
3. Position cylinder head onto the head gasket and cylinder block.
4. The cylinder head bolts must be tightened in the sequence shown in the torque table below.
5. Install the push rods and rocker arm assemblies in their original position (Refer to Engine/Cylinder Head/ROCKER ARM, Valve/Removal and Installation)(Refer To List 6).
6. Install the ignition capacitors (Refer to Engine/Ignition Control/CAPACITOR, Ignition/Removal and Installation)(Refer To List 5).
7. Install the intake manifold (Refer to Engine/Air Intake System/MANIFOLD, Intake/Removal and Installation)(Refer To List 4).

Sample

4	Cylinder Head Cover Stud Bolts	**11 N·m (8 Ft. Lbs.)**	–

TORQUE SPECIFICATION - EXHAUST SYSTEM - 5.7L



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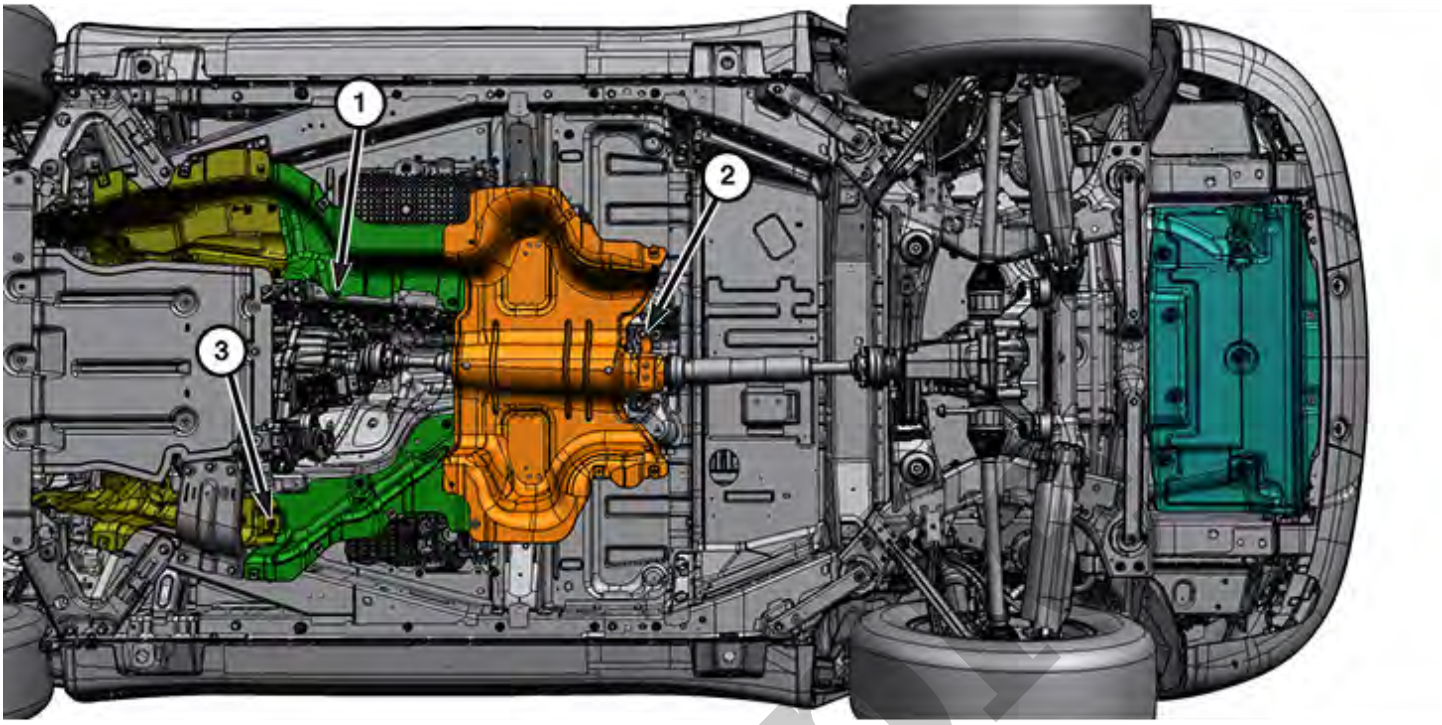
CALLOUT	DESCRIPTION	SPECIFICATION	COMMENT
1	Catalytic Converter To Manifold Bolts	**30 N·m (22 Ft. Lbs.)**	–
2	Exhaust Manifold Heat Shield Nuts	**10 N·m (7 Ft. Lbs.)**	–
3	Exhaust Manifold Bolts	**25 N·m (18 Ft. Lbs.)**	Tightening Sequence - Left Manifold

Sample



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CALLOUT	DESCRIPTION	SPECIFICATION	COMMENT
1	Heat Shield Nuts - Plastic	**5 N·m (44 In. Lbs.)**	–
2	Heat Shield Bolts	**18 N·m (13 Ft. Lbs.)**	–
3	Heat Shield Nuts - Steel	**8 N·m (71 In. Lbs.)**	–
–	Spare Tire Heat Shield To Underbody (Heat Shield Bolts)	**6 N·m (53 In. Lbs.)**	–

TORQUE SPECIFICATIONS - IGNITION - 5.7L

Sample

Refer To List:

List 1

- 09 - Engine, 2.0L / Fuel System / Standard Procedure
- 09 - Engine, 3.6L / Fuel System / Standard Procedure
- 09 - Engine, 5.7L / Fuel System / Standard Procedure

List 2

- 09 - Engine, 2.0L / Cooling System / Engine Cooling / Standard Procedure
- 09 - Engine, 3.6L / Engine Cooling / Standard Procedure
- 09 - Engine, 5.7L / Engine Cooling / Standard Procedure

List 3

- 09 - Engine, 2.0L / Air Intake System / BODY, Air Cleaner / Removal and Installation
- 09 - Engine, 3.6L / Air Intake System / BODY, Air Cleaner / Removal and Installation
- 09 - Engine, 5.7L / Air Intake System / BODY, Air Cleaner / Removal and Installation

List 4

- 09 - Engine, 2.0L / Air Intake System / MANIFOLD, Intake / Removal and Installation
- 09 - Engine, 3.6L / Air Intake System / MANIFOLD, Intake / Removal and Installation
- 09 - Engine, 5.7L / Air Intake System / MANIFOLD, Intake / Removal and Installation

List 5

- 09 - Engine, 2.0L / Ignition Control / CAPACITOR, Ignition / Removal and Installation
- 09 - Engine, 3.6L / Ignition Control / CAPACITOR, Ignition / Removal and Installation
- 09 - Engine, 5.7L / Ignition Control / CAPACITOR, Ignition / Removal and Installation

List 6

- 09 - Engine, 2.0L / Cylinder Head / ROCKER ARM, Valve / Removal and Installation
- 09 - Engine, 3.6L / Cylinder Head / ROCKER ARM, Valve / Removal and Installation
- 09 - Engine, 5.7L / Cylinder Head / ROCKER ARM, Valve / Removal and Installation

List 7

- 09 - Engine, 2.0L / Ignition Control / SPARK PLUG / Removal and Installation
- 09 - Engine, 3.6L / Ignition Control / SPARK PLUG / Removal and Installation
- 09 - Engine, 5.7L / Ignition Control / SPARK PLUG / Removal and Installation

List 8

- 09 - Engine, 2.0L / Lubrication / Standard Procedure
- 09 - Engine, 3.6L / Lubrication / Standard Procedure
- 09 - Engine, 5.7L / Lubrication / Standard Procedure

Sample

YOUR CURRENT VEHICLE

Cylinder Head Gasket Failure

CYLINDER HEAD GASKET FAILURE

A cylinder head gasket leak can be located between adjacent cylinders or between a cylinder and the adjacent water jacket.

- Possible indications of the cylinder head gasket leaking between adjacent cylinders are:
  - Loss of engine power
  - Engine misfiring
  - Poor fuel economy
- Possible indications of the cylinder head gasket leaking between a cylinder and an adjacent water jacket are:
  - Engine overheating
  - Loss of coolant
  - Excessive steam (white smoke) emitting from exhaust
  - Coolant foaming

CYLINDER-TO-CYLINDER LEAKAGE TEST

To determine if an engine cylinder head gasket is leaking between adjacent cylinders, follow the procedures in the Cylinder Compression Pressure Test in this section. An engine cylinder head gasket leaking between adjacent cylinders will result in approximately a 50 - 70% reduction in compression pressure.

CYLINDER-TO-WATER JACKET LEAKAGE TEST

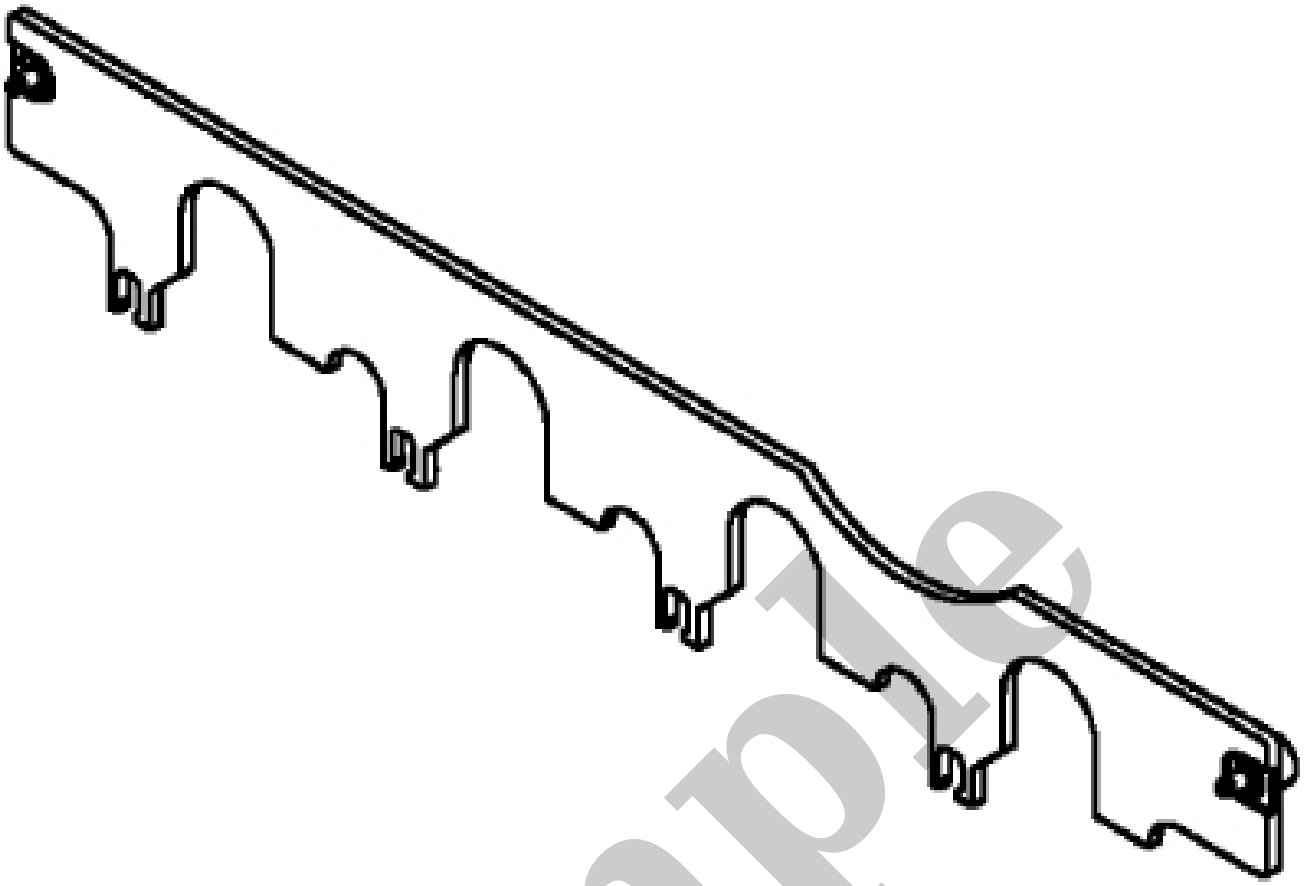
WARNING

Use extreme care when the engine is operating with the coolant pressure cap removed. Failure to follow these instructions may result in possible serious or fatal injury.

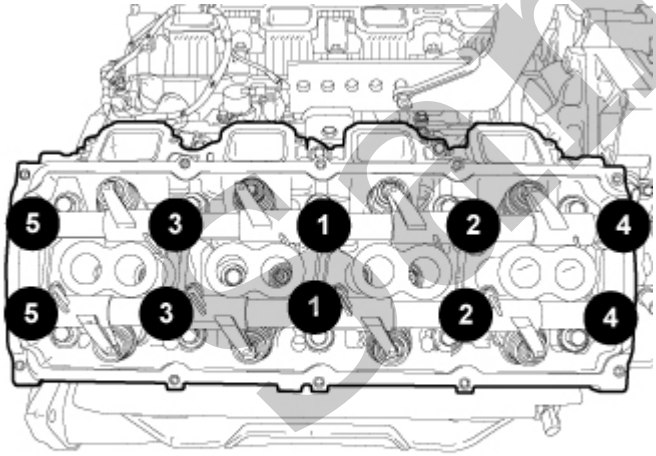
VISUAL TEST METHOD

Sample

Retainer, Push Rod



to secure the push rods.



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3. Using the sequence shown, loosen the rocker shafts retaining bolts.

Example