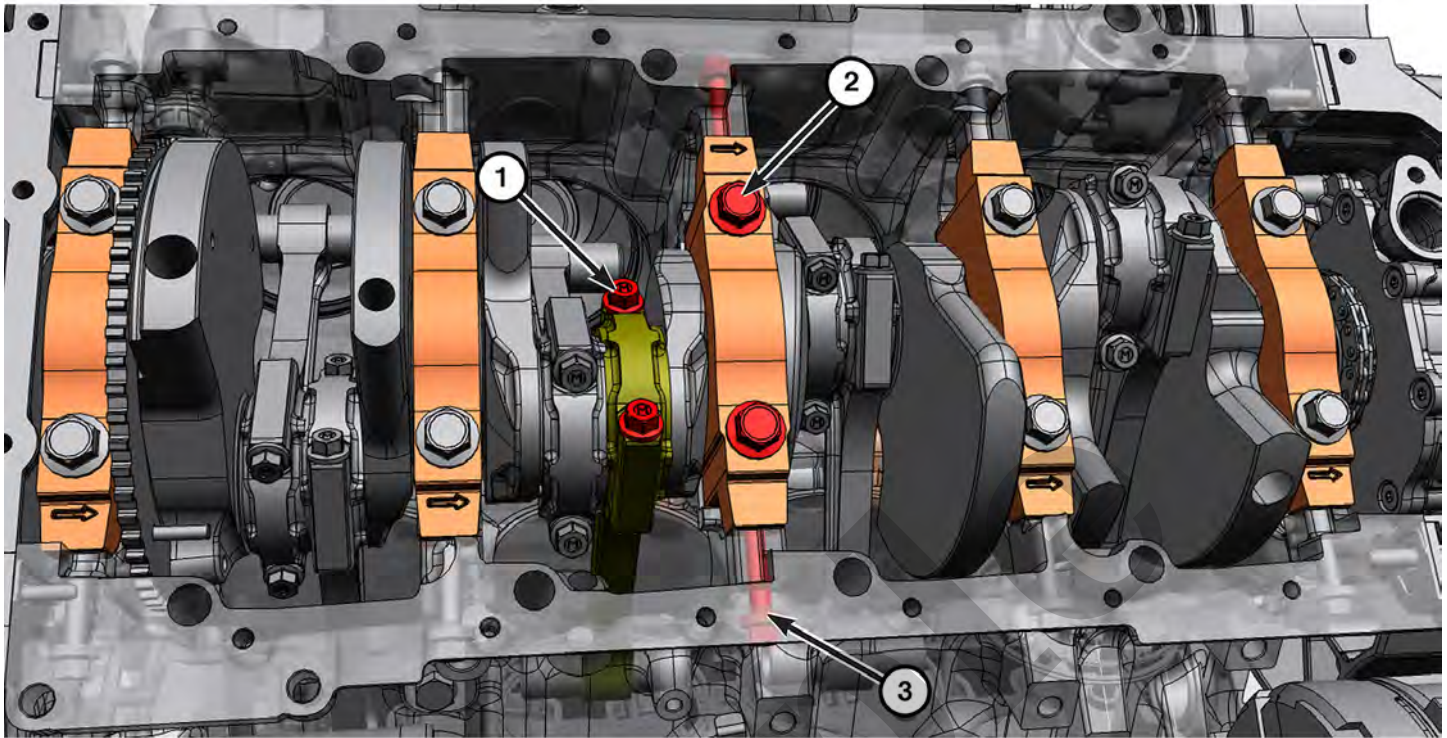


# Your Ultimate Source for OEM Repair Manuals

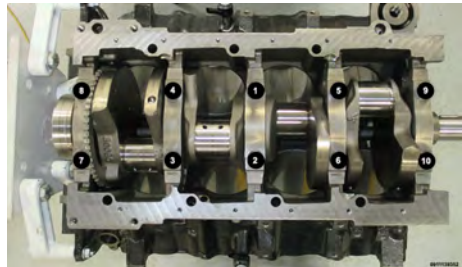
FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

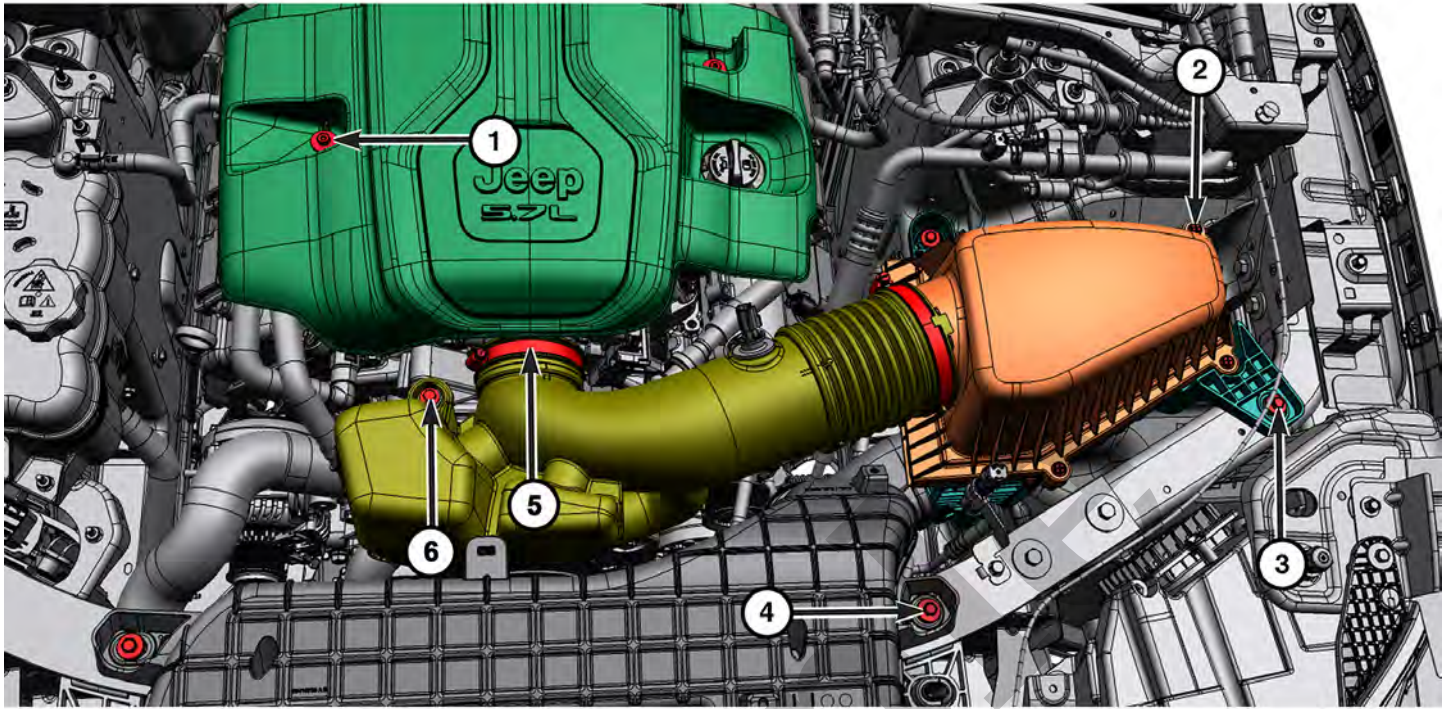
## 2012 JEEP Grand Cherokee OEM Service and Repair Workshop Manual

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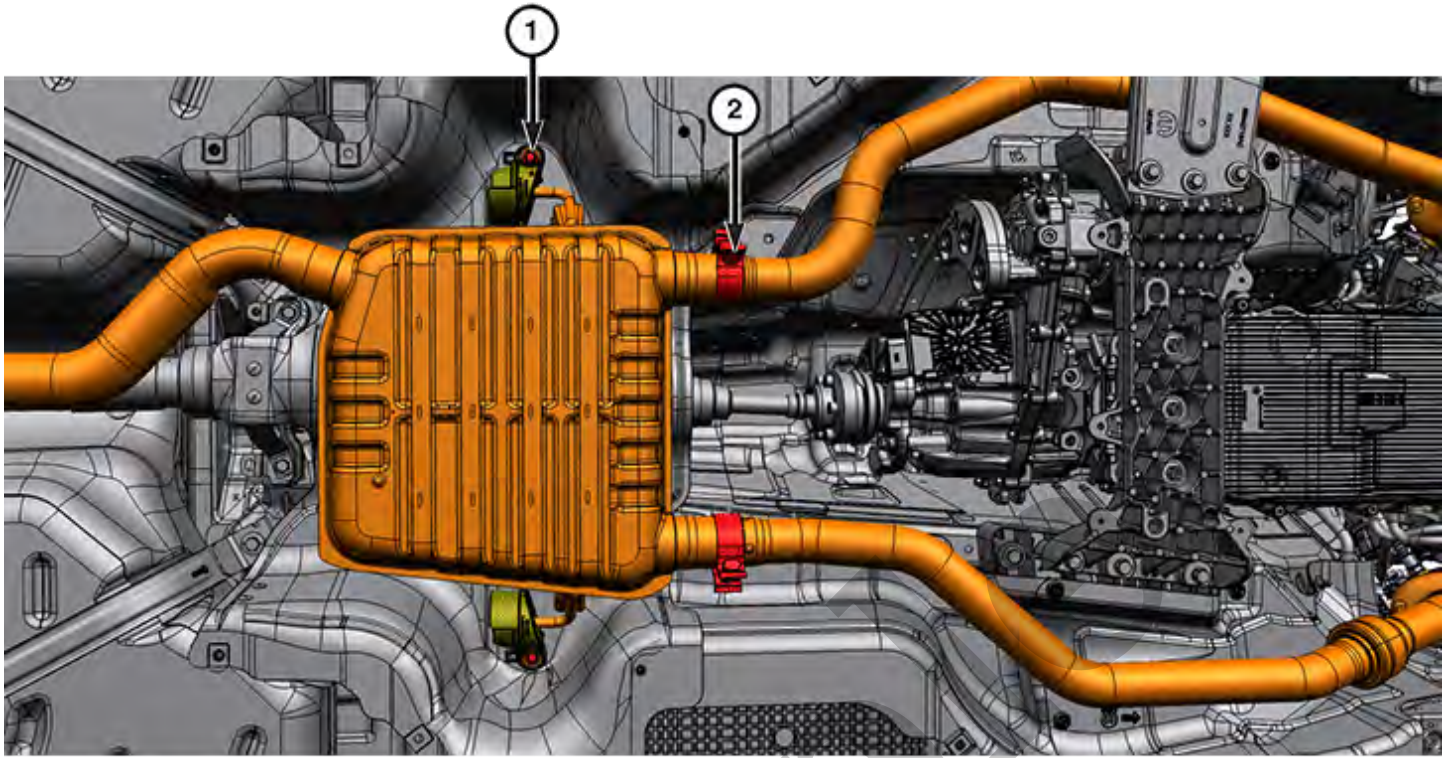
CALLOUT	DESCRIPTION	SPECIFICATION	COMMENTS
1	Connecting Rod Cap Bolts	20 N·m + 90° Turn (15 Ft. Lbs. + 90° Turn)	—
2	Main Bearing Cap Bolts	<b>Torque Procedure</b> <ol style="list-style-type: none"> <li>1. Tighten bolts to 13 N·m ( 10 ft. lbs.)</li> <li>2. Tighten bolts to 28 N·m ( 21 ft. lbs.)</li> <li>3. Rotate an additional 90°</li> </ol>	Tightening Sequence 
3	Main Bearing Cap Cross-Bolts <div>NOTE</div>	<b>Torque Procedure</b> <ol style="list-style-type: none"> <li>1. Tighten bolts to 31 N·m ( 23 ft. lbs.)</li> <li>2. Repeat cross-bolt tightening using the</li> </ol>	Tightening Sequence <div>NOTE</div>



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CALLOUT	DESCRIPTION	SPECIFICATION	COMMENTS
1	Engine Cover Nut	5 N·m (44 In. Lbs.)	–
2	Air Cleaner Body Cover Bolts	4 N·m (35 In. Lbs.)	–
3	Air Cleaner Body Bracket to Frame Bolts	7 N·m (62 In. Lbs.)	–
4	Air Intake to Upper Radiator Support	7 N·m (62 In. Lbs.)	–
5	Clean Air Hose Clamps	4 N·m (35 In. Lbs.)	–
6	Clean Air Hose Bolt	7 N·m (62 In. Lbs.)	–





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CALLOUT	DESCRIPTION	SPECIFICATION	COMMENT
1	Exhaust Isolator Bolts	<b>25 N·m (18 Ft. Lbs.)</b>	-
2	Torca Clamp Nut	<b>48 N·m (35 Ft. Lbs.)</b>	-

## Camshaft Core Hole Plug

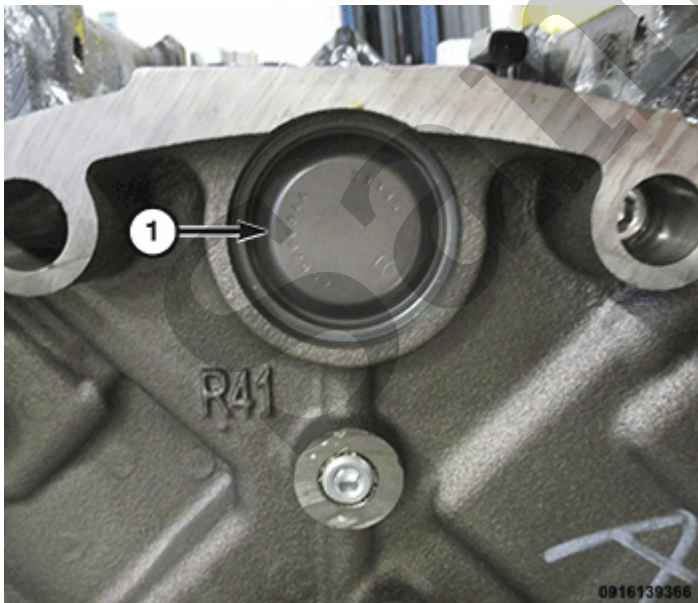
### CAMSHAFT CORE HOLE PLUG

#### REMOVAL

1. Remove the flexplate ([Refer to Transmission and Transfer Case/Automatic/FLEXPLATE/Removal and Installation](#))([Refer To List 1](#)).

#### CAUTION

Do not damage the rear surface of the camshaft or the core plug sealing surface, when removing the core plug.



1 - Camshaft Core Hole Plug

2. Using a suitable sharp punch, punch a small hole in the camshaft core hole plug.
3. Insert a short sheet metal screw into the small hole in the camshaft core hole plug.

Slowly rotate the camshaft while pulling camshaft out.

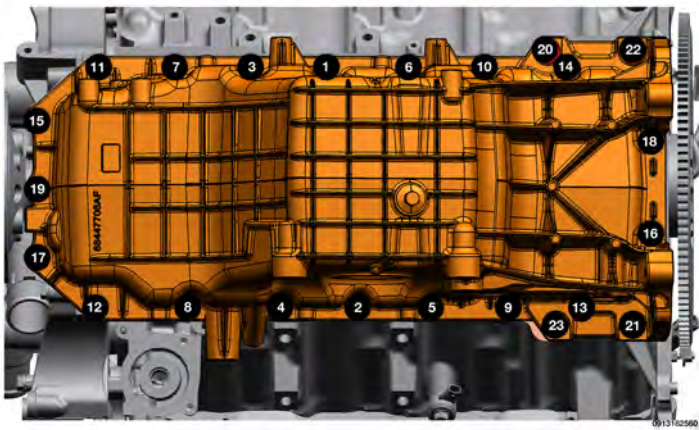
6. Install a long bolt into front of camshaft to aid in removal of the camshaft. Remove camshaft, being careful not to damage cam bearings with the cam lobes.

## INSTALLATION

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

- Lubricate the camshaft lobes and camshaft bearing journals and insert the camshaft. Ensure that the plate is installed on the correct side. The fasteners are flat head fasteners so the top of the head of the fastener should not stick above the front face of the plate after they are torqued. The plate has chamfered fastener holes and the chamfered side should be facing forward to ensure the fasteners are flush or below the front surface.
- Tighten the camshaft thrust plate using the sequence shown in the torque table below.
- The camshaft phaser must be installed before the camshaft end play can be measured.
- Measure camshaft end play ([Refer to Engine - Specifications](#))([Refer To List 4](#)) .
- The Cam/Crank Variation Relearn procedure must be performed using the scan tool anytime there has been a repair/replacement made to a powertrain system, for example: flywheel, valvetrain, camshaft and/or crankshaft sensors or components.

## TORQUE SPECIFICATIONS - VALVE TIMING



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

YOUR CURRENT VEHICLE

## Piston And Connecting Rod Cleaning

### PISTON AND CONNECTING ROD CLEANING

#### PISTON ASSEMBLY

##### CAUTION

DO NOT use a wire wheel or other abrasive cleaning devise to clean the pistons or connecting rods. The pistons have a Moly coating, this coating must not be damaged.

1. Using a suitable cleaning solvent, clean the pistons in warm water and towel dry.
2. Use a wood or plastic scraper to clean the ring land grooves.

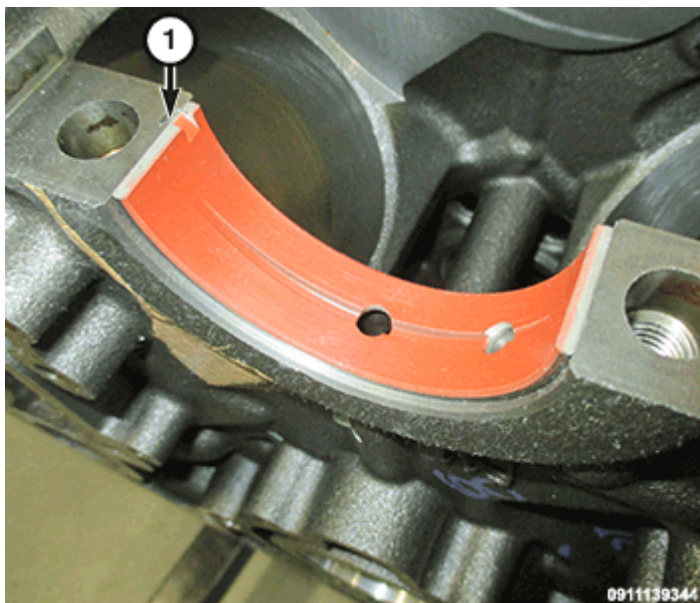
##### CAUTION

Do not remove the piston pin from the piston and connecting rod assembly.



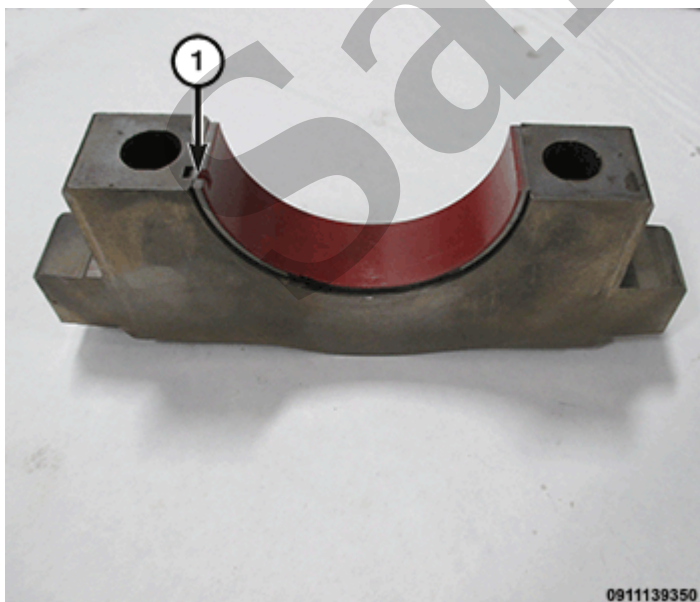
1 - Main Bearing

1. Select the proper main bearings [\(Refer to Engine/Engine Block/Standard Procedure\)](#)(Refer To List 4).



1 - Engine Block

2. Install main bearings in the engine block.



1 - Main Bearing Shell

		<div>2. Tighten bolts to 28 N·m ( 21 ft. lbs.)</div> <div>3. Rotate an additional 90°</div>	
3	<div>Main Bearing Cap Cross-Bolts</div> <div><div>NOTE</div><div>The main cap cross-bolts are torqued after final torque of the main cap bolts.</div></div>	<div>Torque Procedure</div> <div>1. Tighten bolts to 31 N·m ( 23 ft. lbs.)</div> <div>2. Repeat cross-bolt tightening using the sequence shown</div>	<div>Tightening Sequence</div> <div><div>NOTE</div><div>Always use a NEW washer/seal on cross-bolts.</div></div> 