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DETROIT™

Service Information Bulletin

SUBJECT	DATE
Symptom Diagnostics - Noise	October 2016

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0084	EPA07/10/ GHG14 DD Platform	Overhead Engine Noise	New EPA07/10/GHG14 diagnostic procedures.
DDC-SVC-MAN-0191	GHG17 DD Platform	Overhead Engine Noise	GHG17 DD Platform HD rewritten procedure.

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2 Excessive Overhead Engine Noise

Diagnose as follows:

WARNING: PERSONAL INJURY

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

- Always start and operate an engine in a well ventilated area.
- If operating an engine in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system or emission control system.

WARNING: PERSONAL INJURY

To avoid injury before starting and running the engine, ensure the vehicle is parked on a level surface, parking brake is set, and the wheels are blocked.

1. Verify the complaint.
2. Record the engine speed and coolant temperature where the noise is most noticeable.

NOTE: Small scratches and light scoring are considered normal wear for overhead valve train components (camshaft housing, camshaft journals, camshaft lobes, rocker arm shafts, rocker arm bushings and rocker arm rollers).

3. Shut off the engine.

WARNING: PERSONAL INJURY

To avoid injury from hot surfaces, wear protective gloves, or allow engine to cool before removing any component.

4. Remove the rocker cover and adjust the valves and engine brakes; Refer to section "Valve Lash Adjustments".
5. Reinstall the rocker cover and air cleaner.

WARNING: PERSONAL INJURY

To avoid injury before starting and running the engine, ensure the vehicle is parked on a level surface, parking brake is set, and the wheels are blocked.

WARNING: PERSONAL INJURY

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

- Always start and operate an engine in a well ventilated area.
- If operating an engine in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system or emission control system.

WARNING: PERSONAL INJURY

To avoid injury from hot surfaces, wear protective gloves, or allow engine to cool before removing any component.

6. Start the engine again and check for the abnormal noise at the operating conditions recorded in step 2. Is the abnormal ticking or rattling noise still present after adjusting the valves and engine brakes?
    a. Yes; Go to step 7.
    b. No; repairs are complete. Release the vehicle.
7. Shut off the engine.
8. Remove the rocker cover. Using a paint pen, number the exhaust and intake rocker arms with the cylinder position.
9. Remove the exhaust and intake rocker arm shaft assemblies; Refer to section "Removal of the Rocker Shaft Assembly".

NOTE: There are three rockers on the exhaust side; the problem only affects the front two rockers. The brake rocker arm (last in position) does not need to be inspected.

10. Inspect the first two exhaust rocker arms on each cylinder for excessive clearance between the rocker shaft and rocker arm. Refer to section "Valve Lash Adjustments".
11. Inspect the intake rocker arms for excessive clearance on the rocker arm shaft. Refer to section "Valve Lash Adjustments".

NOTE: If any rocker arms have excessive clearance, the rocker arm shaft is the primary failed part (PFP) and must be replaced along with *any* loose rocker arm(s). It is not necessary to replace all of the rocker arms, only the ones with excessive clearance.

12. Do any of the rocker arms have excessive clearance?
    a. Yes; replace the rocker arm shaft and any rocker arms with excessive clearance. Any rocker arms with acceptable clearance can be reinstalled. Refer to section "Installation of the Rocker Shafts".
    b. No; Go to step 13.
13. Repeat steps 10 through 12 for all cylinders. Repair as necessary.

3 Excessive Overhead Engine Noise

Diagnose as follows:

WARNING: PERSONAL INJURY

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

- Always start and operate an engine in a well ventilated area.
- If operating an engine in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system or emission control system.

WARNING: PERSONAL INJURY

To avoid injury before starting and running the engine, ensure the vehicle is parked on a level surface, parking brake is set, and the wheels are blocked.

1. Verify the complaint.
2. Record the engine speed and coolant temperature where the noise is most noticeable.

NOTE: Small scratches and light scoring are considered normal wear for overhead valve train components (camshaft housing, camshaft journals, camshaft lobes, rocker arm shafts, rocker arm bushings and rocker arm rollers).

3. Shut off the engine.

WARNING: PERSONAL INJURY

To avoid injury from hot surfaces, wear protective gloves, or allow engine to cool before removing any component.

4. Remove the rocker cover and adjust the valves and engine brakes; Refer to section "Setting the Valve and Engine Brake Lash".
5. Reinstall the rocker cover and air cleaner.

WARNING: PERSONAL INJURY

To avoid injury before starting and running the engine, ensure the vehicle is parked on a level surface, parking brake is set, and the wheels are blocked.

WARNING: PERSONAL INJURY

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

- Always start and operate an engine in a well ventilated area.
- If operating an engine in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system or emission control system.

WARNING: PERSONAL INJURY

To avoid injury from hot surfaces, wear protective gloves, or allow engine to cool before removing any component.

6. Start the engine again and check for the abnormal noise at the operating conditions recorded in step 2. Is the abnormal ticking or rattling noise still present after adjusting the valves and engine brakes?
    a. Yes; Go to step 7.
    b. No; repairs are complete. Release the vehicle.
7. Shut off the engine.
8. Remove the rocker cover. Using a paint pen, number the exhaust and intake rocker arms with the cylinder position.
9. Remove the exhaust and intake rocker arm shaft assemblies; Refer to section "Removal of the Intake Rocker Shaft Assembly" and Refer to section "Removal of the Exhaust Rocker Shaft Assembly".

NOTE: There are three rockers on the exhaust side; the problem only affects the front two rockers. The brake rocker arm (last in position) does not need to be inspected.

10. Inspect the first two exhaust rocker arms on each cylinder for excessive clearance between the rocker shaft and rocker arm. Refer to section "Setting the Valve and Engine Brake Lash".
11. Inspect the intake rocker arms for excessive clearance on the rocker arm shaft. Refer to section "Setting the Valve and Engine Brake Lash".

NOTE: If any rocker arms have excessive clearance, the rocker arm shaft is the primary failed part (PFP) and must be replaced along with *any* loose rocker arm(s). It is not necessary to replace all of the rocker arms, only the ones with excessive clearance.

12. Do any of the rocker arms have excessive clearance?
    a. Yes; replace the rocker arm shaft and any rocker arms with excessive clearance. Any rocker arms with acceptable clearance can be reinstalled. Refer to section "Installation of the Intake Rocker Shaft Assembly" and Refer to section "Installation of the Exhaust Rocker Shaft Assembly".
    b. No; Go to step 13.
13. Repeat steps 10 through 12 for all cylinders. Repair as necessary.

