

DT11

Engine Mount

**Uniform
Procedures For
Collision Repair
UPCR**



1. Description

This procedure describes the diagnosis and replacement of engine mounts. Inspection requirements are also included.



2. Purpose

The purpose of this procedure is to provide industry-accepted requirements for performing high-quality replacement of engine mounts. This procedure is intended for use by professionals who are qualified through training and experience.



3. Referenced Documents

The following documents are considered part of this procedure by reference.

3.1 Procedures

- DT01 Engine
- EL11 Troubleshooting
- HM01 Hazardous Materials
- ME01 Three-Dimensional Measuring
- PS01 Personnel Safety

3.2 Other Information

- Equipment-specific information
- Vehicle-specific dimension specifications
- Vehicle-specific repair information



4. Equipment And Material Requirements

4.1 Equipment

The use of this equipment is included in this procedure:

- engine hoist
- universal support fixture
- engine support adapters
- vacuum pump and gauge

4.2 Measuring Equipment

Use measuring equipment as described in **ME01**.



5. Damage Analysis

5.1 General Damage

Inspect engine mounts for these conditions:

- visible damage
- improper previous repairs
- evidence that the engine block has shifted
- rubber separated from the mount plate
- fasteners that cannot be torqued to the vehicle maker's recommendations
- fluid leakage, if applicable

Inspect for engine and drivetrain misalignment. Plan to replace any damaged or worn engine mounts. Verify the availability of replacement parts. Check all mounts. If one mount is damaged, there may be damage to others. Some vehicle makers recommend replacement of engine mounts in sets.

5.2 Hydraulic Or Electronic Engine Mounts

Inspect hydraulic or electronic engine mounts for these conditions:

- fluid leaks
- visible damage
- damaged or pinched vacuum hoses
- improper connections
- damaged electrical parts (see **EL11**)
- improper previous repairs

Follow the vehicle maker's recommended troubleshooting procedures for hydraulic or electronic engine mounts.



6. Personnel Safety

6.1 General Safety

General safety information is in **PS01**.

6.2 Safety With Engine Lifting

To prevent injury when lifting an engine:

- Use the proper tools, and follow the equipment and vehicle makers' recommendations.
- Properly support the engine.



7. Environmental Safety

7.1 Engine Fluids

Collect and properly dispose of hydraulic fluid, if applicable.

Hazardous material safety information is in **HM01**.



8. Vehicle Protection

8.1 Engine And Adjacent Parts

To prevent damage to the engine, engine mounts, and adjacent parts:

- Ensure that the engine is properly supported during service.
- Use the proper tools, and follow the equipment and vehicle makers' recommendations.
- Torque all fasteners following the vehicle maker's recommendations.
- Replace any worn parts and one-time fasteners.
- Reinstall or replace any shims.
- Protect adjacent parts while lifting the engine or replacing parts.

(cont'd)



8. Vehicle Protection (cont'd)

8.2 Electronic Parts

To protect computers and other sensitive parts from damage:

- Follow the vehicle maker's recommendations for recording and resetting electronic memories.
- Ensure that the ignition is in the LOCK position, and the key is removed.
- Disconnect and isolate the negative battery cable, and disarm the passive restraint system. Follow the vehicle maker's recommendations.
- Protect modules, connectors, and wiring from dirt, heat, static electricity, and moisture.
- Loosen or remove any wiring harnesses or electrical parts that could be damaged during the repair process.



9. Repair Procedure

9.1 Removal

To remove engine mounts:

- 1. Remove the hood, if required.
- 2. Remove the parts required for access to the engine mounts and proper installation of the support fixture and adapters.
- 3. Remove the engine mount through-bolts.
- 4. Attach an engine hoist and raise the engine enough to allow removal of the engine mount brackets, if required. Follow the vehicle maker's recommendations for lift points.
- 5. Remove the engine mount fasteners and the engine mounts. Note the location of any shims. Plan to replace any one-time fasteners.
- 6. Remove the engine mount bracket fasteners and the engine mount brackets, if applicable.

9.2 Installation

To install replacement engine mounts:

- 1. Install the engine mount brackets. Torque the fasteners to the vehicle maker's recommendations.
- 2. Install the engine mounts and fasteners. Some vehicle makers may require the installation of new fasteners. Install shims in their original locations. Follow the vehicle maker's recommendations.
- 3. Torque the fasteners to the vehicle maker's recommendations.
- 4. Lower the engine, if required.

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9. Repair Procedure (cont'd)

- 5. Reinstall the engine mount through-bolts loosely. Jounce the vehicle three or four times to allow the engine mounts to adjust to their normal operating position. Torque the through-bolts to the vehicle maker's recommendations.
- 6. Verify that the engine is properly aligned. Adjust, following the vehicle maker's recommendations.
- 7. Reinstall all parts removed for access.
- 8. Reinstall and align the hood.



10. Use Of Recycled (Salvage) Parts

10.1 Condition Of Salvage Parts

Do not install salvage engine mounts having any of these defects:

- evidence of wear or previous damage
- damaged mounting locations

Do not use salvage fasteners.



11. Inspection And Testing

11.1 Inspection Of Replaced Engine Mounts

After replacement of the engine mount, inspect for these conditions:

- fasteners torqued to the vehicle maker's recommendations
- proper engine and drivetrain alignment
- proper manifold vacuum, if applicable

Road-test the vehicle to check for these conditions:

- improper engine and drivetrain performance
- noise and vibrations

Correct any defects.