

EXHAUST SYSTEM

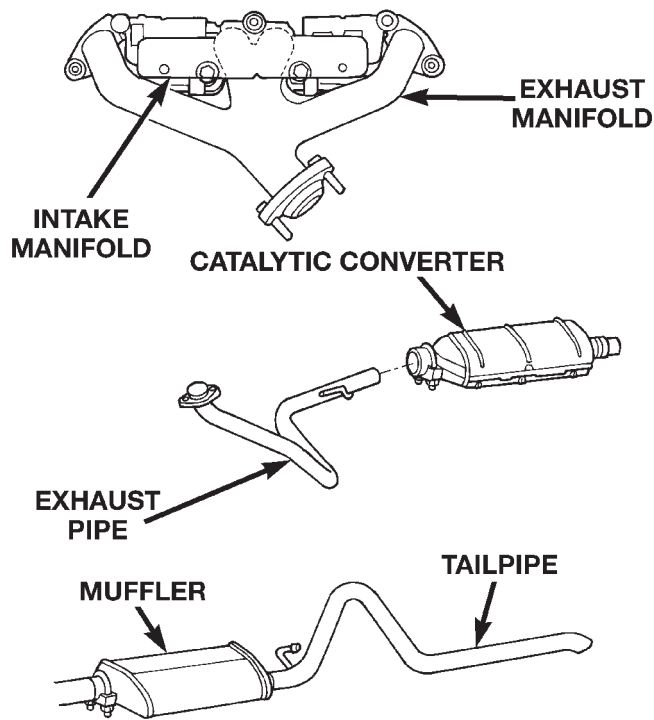
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GENERAL INFORMATION

EXHAUST SYSTEM

The basic exhaust system consists of an engine exhaust manifold, exhaust pipe with oxygen sensor, catalytic converter with oxygen sensor, muffler and exhaust tailpipe (Fig. 1).



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Fig. 1 Exhaust System—2.5L/4.0L

The exhaust system uses a single muffler with a catalytic converter consisting of dual ceramic monoliths.

The 4.0L engines use a seal between the engine exhaust manifold and exhaust pipe to assure a tight seal and strain free connections.

The exhaust system must be properly aligned to prevent stress, leakage and body contact. If the system contacts any body panel, it may amplify objectionable noises originating from the engine or body.

When inspecting an exhaust system, critically inspect for cracked or loose joints, stripped screw or bolt threads, corrosion damage and worn, cracked or broken hangers. Replace all components that are badly corroded or damaged. **DO NOT** attempt to repair.

When replacement is required, use original equipment parts (or their equivalent). This will assure proper alignment and provide acceptable exhaust noise levels.

CAUTION: Avoid application of rust prevention compounds or undercoating materials to exhaust system floor pan exhaust heat shields. Light over spray near the edges is permitted. Application of coating will result in excessive floor pan temperatures and objectionable fumes.

CATALYTIC CONVERTER

The stainless steel catalytic converter body is designed to last the life of the vehicle. Excessive heat can result in bulging or other distortion, but excessive heat will not be the fault of the converter. If unburned fuel enters the converter, overheating may occur. If a converter is heat-damaged, correct the cause of the damage at the same time the converter is replaced. Also, inspect all other components of the exhaust system for heat damage.

Unleaded gasoline must be used to avoid contaminating the catalyst core.

DIAGNOSIS AND TESTING

EXHAUST SYSTEM

EXHAUST SYSTEM DIAGNOSIS CHART

CONDITION	POSSIBLE CAUSE	CORRECTION
EXCESSIVE EXHAUST NOISE OR LEAKING EXHAUST GASES	<ol style="list-style-type: none"> 1. Leaks at pipe joints. 2. Rusted or blown out muffler. 3. Broken or rusted out exhaust pipe. 4. Exhaust pipe leaking at manifold flange. 5. Exhaust manifold cracked or broken. 6. Leak between exhaust manifold and cylinder head. 7. Catalytic converter rusted or blown out. 8. Restriction in exhaust system. 	<ol style="list-style-type: none"> 1. Tighten clamps/bolts at leaking joints. 2. Replace muffler. Inspect exhaust system. 3. Replace exhaust pipe. 4. Tighten/replace flange attaching nuts/bolts. 5. Replace exhaust manifold. 6. Tighten exhaust manifold to cylinder head bolts. 7. Replace catalytic converter assy. 8. Remove restriction, if possible. Replace restricted part if necessary.
When servicing and replacing exhaust system components, disconnect the oxygen sensor connector(s). Allowing the exhaust to hang by the oxygen sensor wires will damage the harness and/or sensor.		

REMOVAL AND INSTALLATION

EXHAUST PIPE

WARNING: IF TORCHES ARE USED WHEN WORKING ON THE EXHAUST SYSTEM, DO NOT ALLOW THE FLAME NEAR THE FUEL LINES.

CAUTION: When servicing exhaust system components, disconnect the oxygen sensor connector. Allowing the exhaust system to hang by the oxygen sensor harness will damage the wiring and/or sensor.

REMOVAL

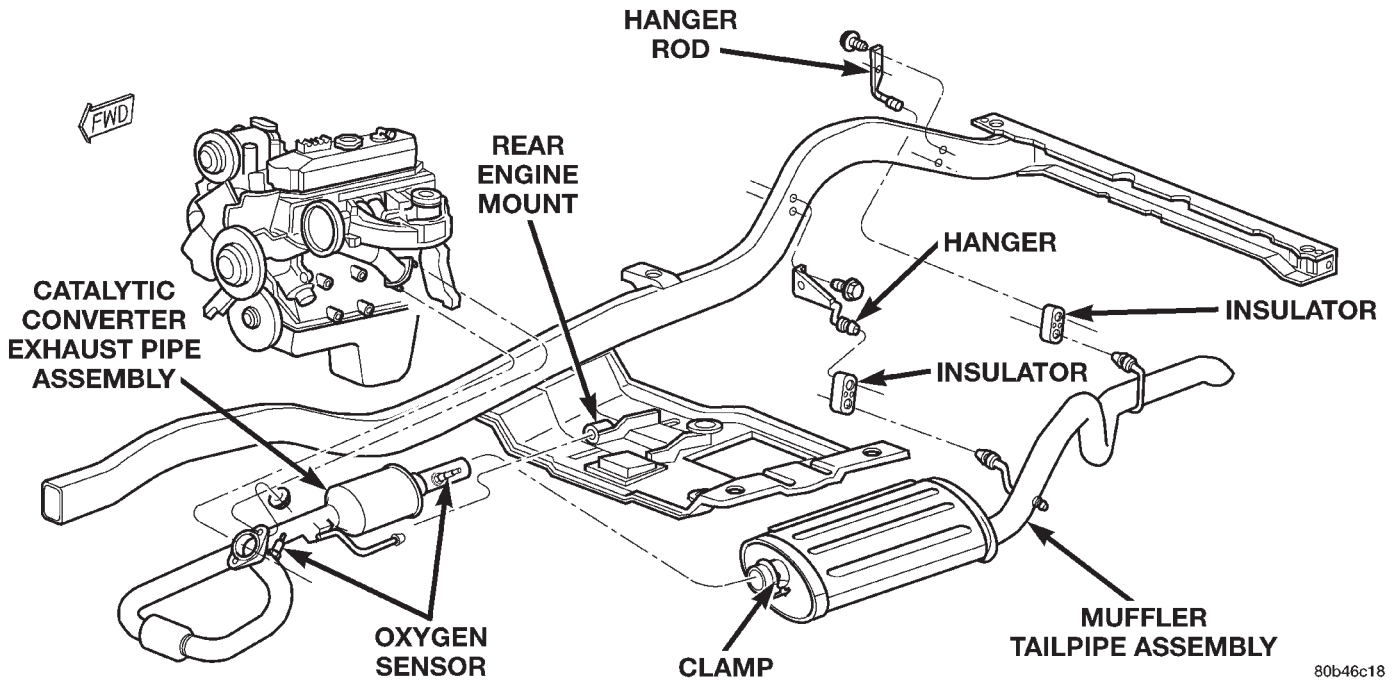
- (1) Raise and support the vehicle.
- (2) Saturate the bolts and nuts with heat valve lubricant (Fig. 2). Allow 5 minutes for penetration.
- (3) Disconnect the oxygen sensor connector (Fig. 3).
- (4) Disconnect the exhaust pipe from the engine exhaust manifold. Discard the seal (4.0L engine, only).
- (5) Support the transmission and remove the rear crossmember.

(6) Remove the clamp nuts and clamp (Fig. 2). To remove the exhaust pipe from the catalytic converter, apply heat until the metal becomes cherry red. Disconnect the exhaust pipe from the catalytic converter (Fig. 2). Remove the exhaust pipe.

INSTALLATION

- (1) Assemble exhaust pipe to manifold and catalytic converter loosely to permit proper alignment of all parts.
- (2) Use a new clamp and tighten the nuts to 61 N·m (45 ft. lbs.) torque.
- (3) Connect the exhaust pipe to the engine exhaust manifold. Install a new seal between the exhaust manifold and the exhaust pipe (4.0L engine only). Tighten the nuts to 31 N·m (23 ft. lbs.) torque (Fig. 2).
- (4) Install the rear crossmember. Install and tighten the four (4) crossmember to rear mount nuts to 22 N·m (16 ft. lbs.) Install and tighten the crossmember to sill bolts to 42 N·m (31 ft. lbs.) torque. Remove the support from the transmission.
- (5) Coat the oxygen sensor with anti-seize compound. Install the sensor and tighten the nut to 27 N·m (20 ft. lbs.) torque.
- (6) Lower the vehicle.

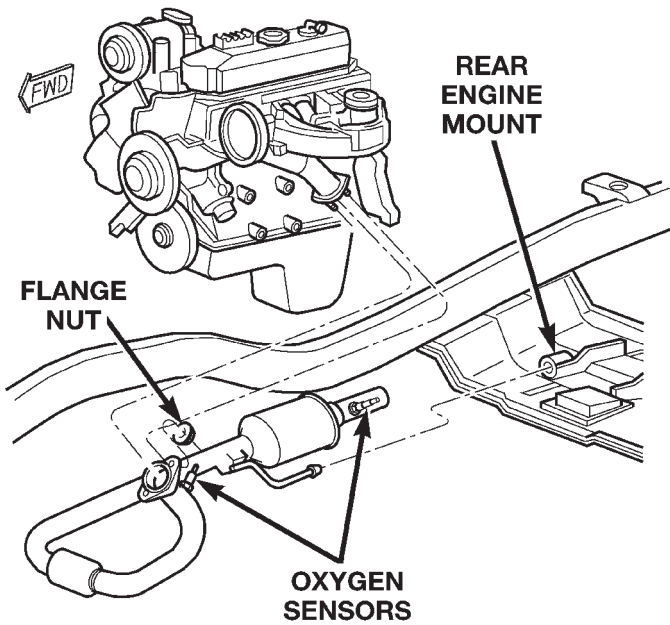
REMOVAL AND INSTALLATION (Continued)



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Fig. 2 Exhaust Pipe Removal—2.5L/4.0L

CAUTION: When servicing exhaust system components, disconnect the oxygen sensor connector. Allowing the exhaust system to hang by the oxygen sensor harness will damage the wiring and/or sensor.



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Fig. 3 Oxygen Sensor Location—2.5L/4.0L

(7) Start the engine and inspect for exhaust leaks and exhaust system contact with the body panels. Adjust the alignment, if needed.

CATALYTIC CONVERTER

WARNING: IF TORCHES ARE USED WHEN WORKING ON THE EXHAUST SYSTEM, DO NOT ALLOW THE FLAME NEAR THE FUEL LINES.

REMOVAL

- (1) Raise and support the vehicle.
- (2) Remove the clamps from the catalytic converter and muffler connection (Fig. 4).
- (3) Disconnect and remove the oxygen sensor from the catalytic converter.
- (4) Heat the catalytic converter and muffler connection with an oxyacetylene torch until the metal becomes cherry red.
- (5) While the metal is still cherry red, twist the muffler assembly back and forth to separate it from the catalytic converter.
- (6) Disconnect the exhaust pipe from the catalytic converter (Fig. 4). If needed, heat up the pipes to separate.

INSTALLATION

- (1) Connect the catalytic converter to the exhaust pipe and the muffler/tailpipe assy. (Fig. 4). Use a new clamp and tighten the nuts to 61 N·m (45 ft. lbs.) torque.
- (2) Install the muffler onto the catalytic converter until the alignment tab is inserted into the alignment slot.

REMOVAL AND INSTALLATION (Continued)

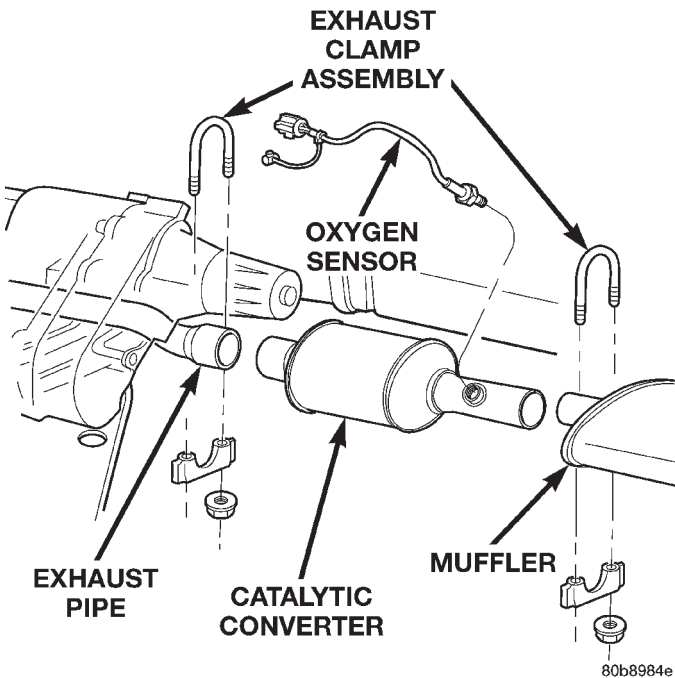


Fig. 4 Catalytic Converter to Muffler and Exhaust Pipe Connection

(3) Install a new clamp at the muffler and catalytic converter connection (Fig. 4). Tighten the clamp nut to 61 N·m (45 ft. lbs.) torque.

(4) Coat the oxygen sensor with anti-seize compound. Install the sensor and tighten the nut to 27 N·m (20 ft. lbs.) torque.

(5) Lower the vehicle.

(6) Start the engine and inspect for exhaust leaks and exhaust system contact with the body panels. Adjust the alignment, if needed.

MUFFLER AND EXHAUST TAILPIPE

All original equipment exhaust systems are manufactured with the exhaust tailpipe welded to the muffler. Service replacement mufflers and exhaust tailpipes are either clamped together or welded together.

WARNING: IF TORCHES ARE USED WHEN WORKING ON THE EXHAUST SYSTEM, DO NOT ALLOW THE FLAME NEAR THE FUEL LINE.

CAUTION: When servicing exhaust system components, disconnect the oxygen sensor connector. Allowing the exhaust system to hang by the oxygen sensor harness will damage the wiring and/or sensor.

REMOVAL

(1) Raise and support the vehicle.

(2) Disconnect front tailpipe hanger from the insulator (Fig. 5).

(3) Remove the front exhaust clamp from the catalytic converter and muffler connection (Fig. 6).

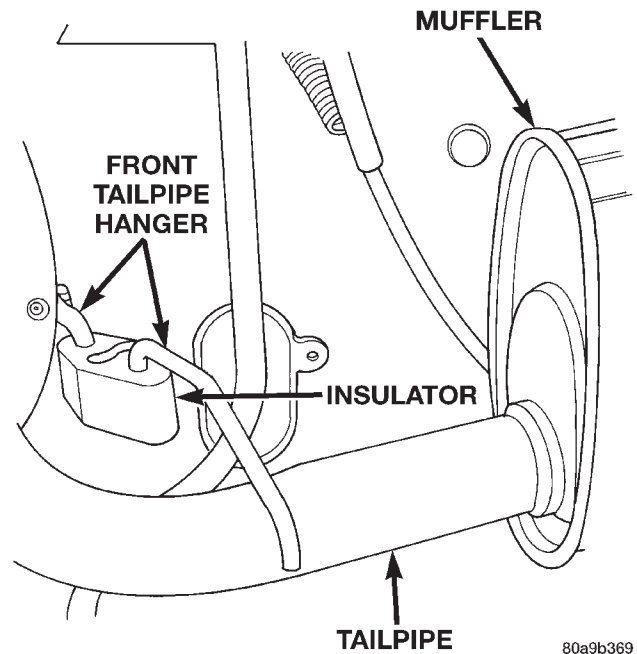


Fig. 5 Front Exhaust Tailpipe Hanger

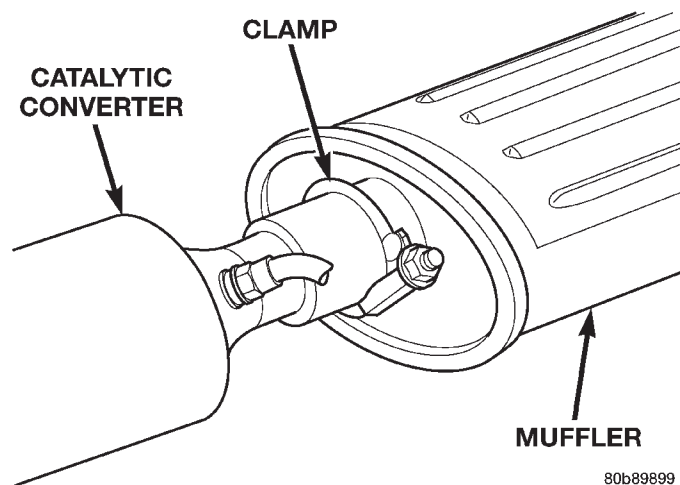


Fig. 6 Catalytic Converter to Muffler Connection

(4) Heat the catalytic converter-to-muffler connection with an oxyacetylene torch until the metal becomes cherry red.

(5) While the metal is still cherry red, remove the exhaust muffler/tailpipe assembly from the catalytic converter.

(6) Slide the muffler/tailpipe assy. rearward and out of the rear exhaust tailpipe mounting bracket (Fig. 7).

(7) Remove the muffler from the exhaust tailpipe:

- To remove an original equipment exhaust muffler/tailpipe combination, cut the exhaust tailpipe

REMOVAL AND INSTALLATION (Continued)

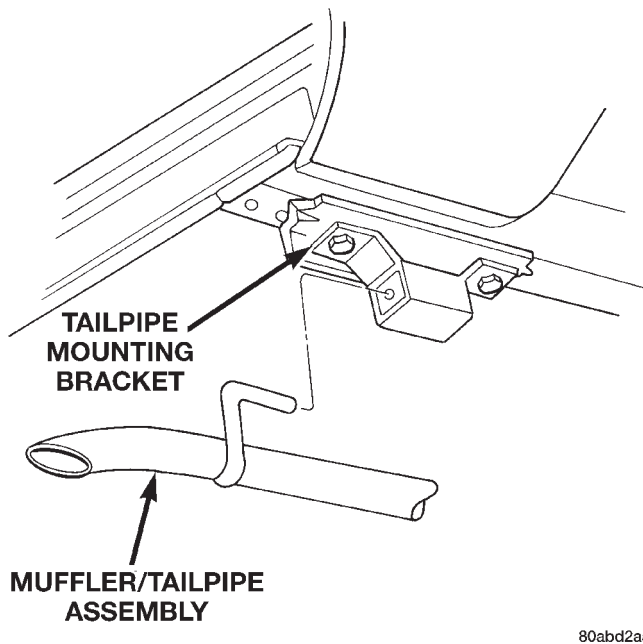


Fig. 7 Rear Exhaust Tailpipe Mounting Bracket

close to the muffler. Collapse the part remaining in the muffler and remove.

- To remove a service exhaust tailpipe/muffler combination, apply heat until the metal becomes cherry red. Remove the exhaust tailpipe/muffler clamp and twist the exhaust tailpipe out of the muffler.

INSTALLATION

- (1) Install the muffler onto the catalytic converter. Install the clamp and tighten the nut finger tight.
- (2) Install the exhaust tailpipe into the rear of the muffler.
- (3) Install the exhaust tailpipe/muffler assembly on the rear exhaust tailpipe mounting bracket. Make sure that the exhaust tailpipe has sufficient clearance from the floor pan.
- (4) Install front tailpipe hanger into the insulator (Fig. 5).
- (5) Align the muffler and tighten the nuts on the muffler-to-catalytic converter clamp to 61 N·m (45 ft. lbs.) torque (Fig. 6).

- (6) Align the tailpipe and install a new clamp at the muffler to tailpipe connection.
- (7) Tighten the muffler to tailpipe clamp to 61 N·m (45 ft. lbs.)
- (8) Lower the vehicle.
- (9) Start the engine and inspect for exhaust leaks and exhaust system contact with the body panels. Adjust the alignment, if needed.

SPECIFICATIONS

TORQUE SPECIFICATIONS

Description	Torque
Catalytic Converter/Exhaust Pipe	
Exhaust Clamp Nut	61 N·m (45 ft. lbs.)
Crossmember to Sill	
Bolts	42 N·m (31 ft. lbs.)
Crossmember to Transmission Mount	
Nuts	22 N·m (16 ft. lbs.)
Exhaust Pipe to Manifold	
Nuts	31 N·m (23 ft. lbs.)
Exhaust Manifold-2.5L Engine	
Bolt #1	41 N·m (30 ft. lbs.)
Exhaust Manifold-2.5L Engine	
Nuts #6&7	31 N·m (23 ft. lbs.)
Exhaust Manifold-4.0L Engine	
Nuts #6&7	31 N·m (23 ft. lbs.)
Bolt #3	33 N·m (24 ft. lbs.)
Intake Manifold-2.5L Engine	
Bolt #2-5	31 N·m (23 ft. lbs.)
Intake & Exhaust Manifold-2.5L Engine	
Bolts #2-5	31 N·m (23 ft. lbs.)
Intake & Exhaust Manifold-4.0L Engine	
Nuts/Bolts #1,2,4,5,8-11	33 N·m (24 ft. lbs.)
Muffler to Catalytic Converter	
Exhaust Clamp Nut	61 N·m (45 ft. lbs.)
Oxygen Sensors	
Nut	27 N·m (20 ft. lbs.)
Rear Tail Pipe Hanger	
Nuts	54 N·m (40 ft. lbs.)

