

EXHAUST SYSTEM

CONTENTS

	page		page
GENERAL INFORMATION		REMOVAL AND INSTALLATION	
CATALYTIC CONVERTER	1	CATALYTIC CONVERTER/EXHAUST PIPE	3
EXHAUST HEAT SHIELDS	1	MUFFLER AND TAILPIPE ASSEMBLY	4
EXHAUST SYSTEM	1	SPECIFICATIONS	
DIAGNOSIS AND TESTING		TORQUE SPECIFICATIONS	5
EXHAUST SYSTEM	3		

GENERAL INFORMATION

EXHAUST SYSTEM

WARNING: THE NORMAL OPERATING TEMPERATURE OF THE EXHAUST SYSTEM IS VERY HIGH. THEREFORE, NEVER ATTEMPT TO SERVICE ANY PART OF THE EXHAUST SYSTEM UNTIL IT IS COOLED. SPECIAL CARE SHOULD BE TAKEN WHEN WORKING NEAR THE CATALYTIC CONVERTER. THE TEMPERATURE OF THE CONVERTER RISES TO A HIGH LEVEL AFTER A SHORT PERIOD OF ENGINE OPERATION TIME.

The basic exhaust system consists of an engine exhaust manifold, exhaust pipe with oxygen sensor, catalytic converter with oxygen sensor, exhaust heat shield(s), muffler and exhaust tailpipe (Fig. 1) (Fig. 2).

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 (Fig. 2).

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.

EXHAUST HEAT SHIELDS

Exhaust heat shields are needed to protect both the vehicle and the environment from the high temperatures developed by the catalytic converter. The catalytic converter releases additional heat into the exhaust system. Under severe operating conditions, the temperature increases in the area of the converter. Such conditions can exist when the engine misfires or otherwise does not operate at peak efficiency.

DO NOT remove spark plug wires from plugs or by any other means short out cylinders. Failure of the catalytic converter can occur due to a temperature increase caused by unburned fuel passing through the converter.

DO NOT allow the engine to operate at fast idle for extended periods (over 5 minutes). This condition may result in excessive temperatures in the exhaust system and on the floor pan.

GENERAL INFORMATION (Continued)

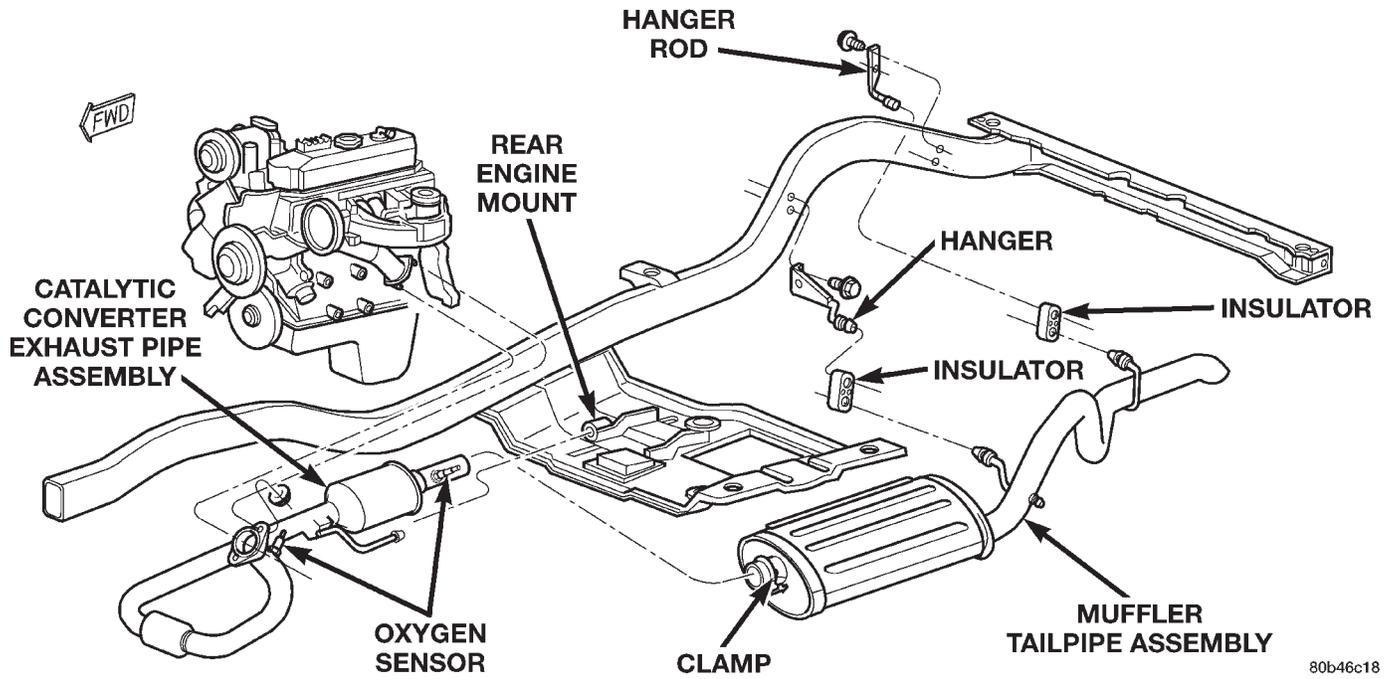


Fig. 1 Exhaust System—2.5L Engine

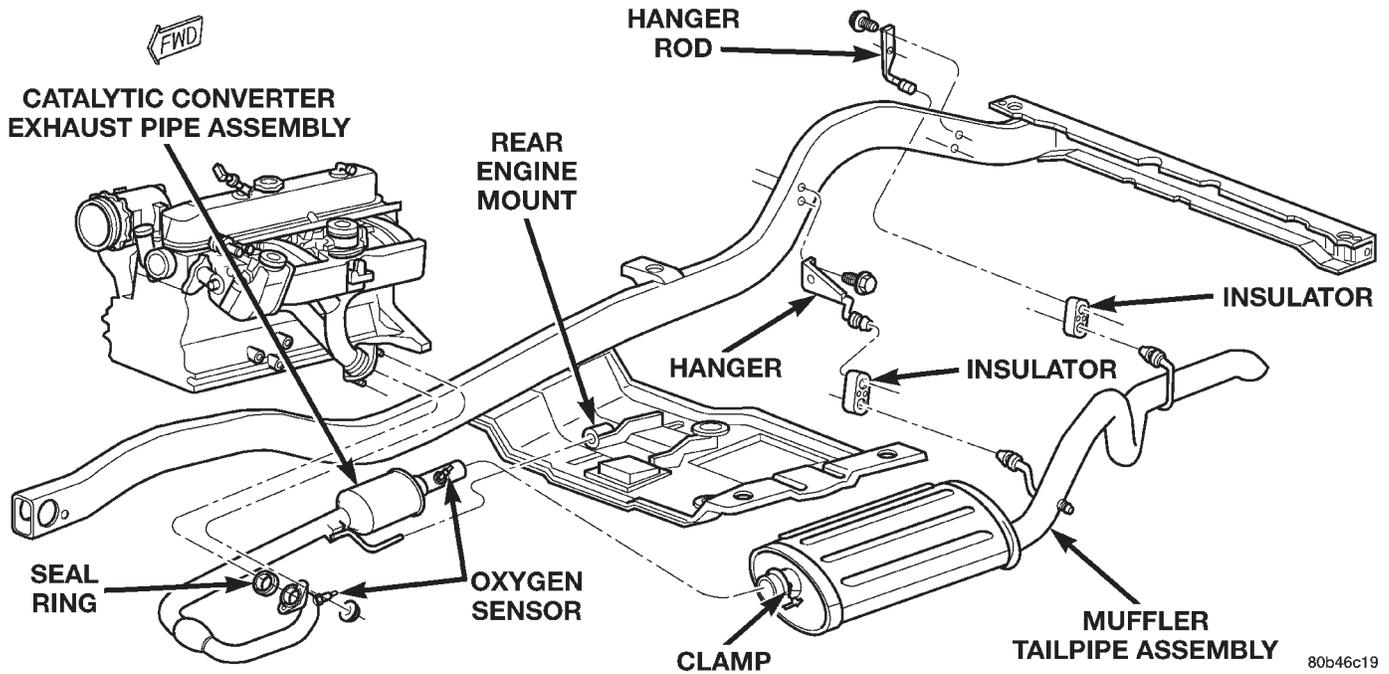


Fig. 2 Exhaust System—4.0L Engine

DIAGNOSIS AND TESTING

EXHAUST SYSTEM

EXHAUST SYSTEM DIAGNOSIS CHART

CONDITION	POSSIBLE CAUSE	CORRECTION
EXCESSIVE EXHAUST NOISE OR LEAKING EXHAUST GASES	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.	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

CATALYTIC CONVERTER/EXHAUST PIPE

WARNING: THE NORMAL OPERATING TEMPERATURE OF THE EXHAUST SYSTEM IS VERY HIGH. THEREFORE, NEVER ATTEMPT TO SERVICE ANY PART OF THE EXHAUST SYSTEM UNTIL IT IS COOLED. SPECIAL CARE SHOULD BE TAKEN WHEN WORKING NEAR THE CATALYTIC CONVERTER. THE TEMPERATURE OF THE CONVERTER RISES TO A HIGH LEVEL AFTER A SHORT PERIOD OF ENGINE OPERATION TIME.

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(s). Allowing the exhaust system to hang by the oxygen sensor harness will damage the wiring and/or sensor.

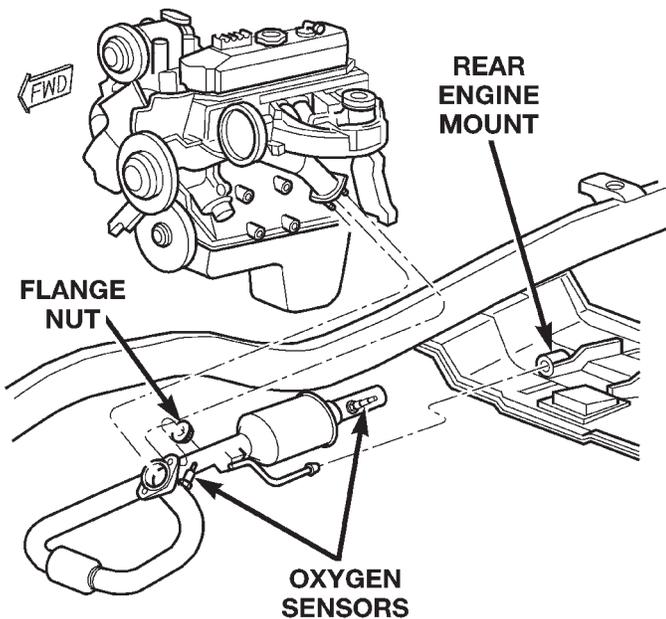
REMOVAL

- (1) Raise and support the vehicle.
- (2) Saturate the studs and nuts with a rust penetrant. Allow 5 minutes for penetration (Fig. 3) (Fig. 4).
- (3) Remove the oxygen sensors from the exhaust pipe and the catalytic converter (Fig. 3) (Fig. 4).
- (4) Disconnect the exhaust pipe from the engine exhaust manifold. Discard the seal (4.0L engine, only) (Fig. 4).
- (5) Support the transmission and remove the rear crossmember.
- (6) Remove the clamp from the catalytic converter and muffler connection.
- (7) Heat the catalytic converter and muffler connection with an oxyacetylene torch until the metal becomes cherry red.
- (8) While the metal is still cherry red, twist the muffler assembly back and forth to separate it from the catalytic converter.

INSTALLATION

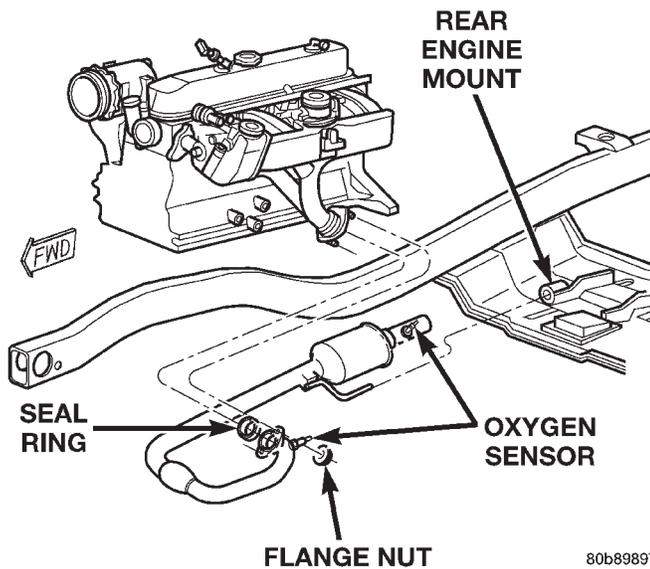
- (1) Assemble catalytic converter and muffler loosely to permit proper alignment of all parts.
- (2) Use a new clamp and tighten the nut to 48 N·m (35 ft. lbs.) torque.

REMOVAL AND INSTALLATION (Continued)



80b89896

Fig. 3 Exhaust Pipe with Catalytic Converter—2.5L Engine



80b89897

Fig. 4 Exhaust Pipe with Catalytic Converter—4.0L Engine

(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.

(4) Install the rear crossmember. Tighten the crossmember-to-sill bolts to 41 N·m (30 ft. lbs.) torque. Remove the support from the transmission.

(5) Coat the oxygen sensors with anti-seize compound. Install the sensors and tighten the nut to 30 N·m (22 ft. lbs.) torque.

(6) Lower the vehicle.

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

MUFFLER AND TAILPIPE ASSEMBLY

WARNING: THE NORMAL OPERATING TEMPERATURE OF THE EXHAUST SYSTEM IS VERY HIGH. THEREFORE, NEVER ATTEMPT TO SERVICE ANY PART OF THE EXHAUST SYSTEM UNTIL IT IS COOLED. SPECIAL CARE SHOULD BE TAKEN WHEN WORKING NEAR THE CATALYTIC CONVERTER. THE TEMPERATURE OF THE CONVERTER RISES TO A HIGH LEVEL AFTER A SHORT PERIOD OF ENGINE OPERATION TIME.

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

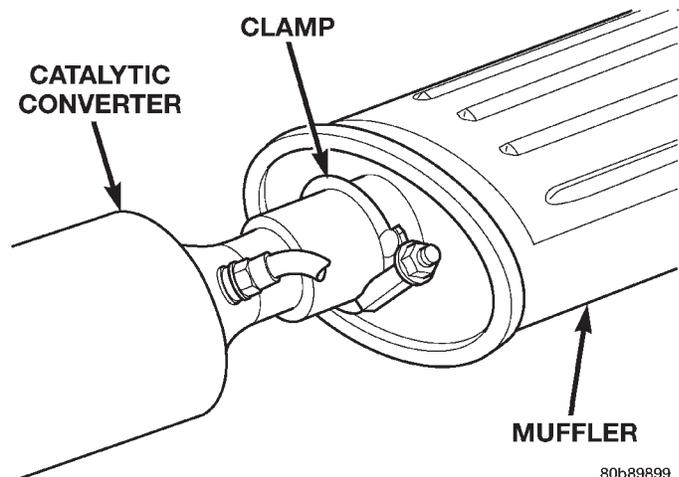
CAUTION: When servicing exhaust system components, disconnect the oxygen sensor connector(s). Allowing the exhaust system to hang by the oxygen sensor harness will damage the wiring and/or sensor.

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.

REMOVAL

(1) Raise the vehicle and support the rear of the vehicle by the side rails and allow the axle to hang free.

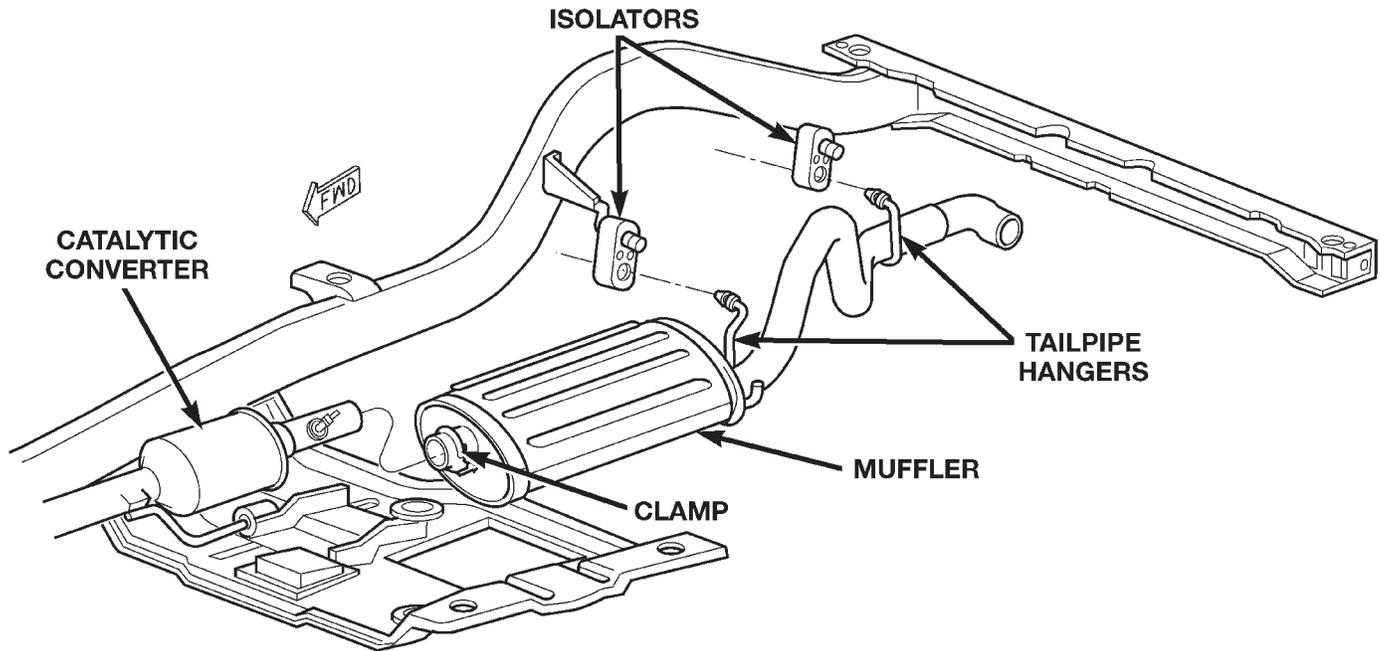
(2) Remove the clamp from the catalytic converter and muffler connection (Fig. 5).



80b89899

Fig. 5 Catalytic Converter to Muffler Connection

REMOVAL AND INSTALLATION (Continued)



80b46c17

Fig. 6 Muffler and Tailpipe Assembly

(3) Remove the tailpipe hangers from the isolators (Fig. 6).

(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, twist the exhaust tailpipe/muffler assembly back and forth to separate it from the catalytic converter.

- To separate an original equipment exhaust tailpipe/muffler combination, cut the exhaust tailpipe 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) Assemble catalytic converter and muffler loosely to permit proper alignment of all parts.

(2) Install the exhaust tailpipe into the rear of the muffler.

(3) Install the exhaust tailpipe/muffler assembly on the rear exhaust tailpipe hanger. Make sure that the exhaust tailpipe has sufficient clearance from the floor pan.

(4) Tighten the nut on the muffler-to-catalytic converter clamp to 48 N·m (35 ft. lbs.) torque.

(5) Insert rods into isolators.

(6) Lower the vehicle.

(7) 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
Crossmember to Sill	
Bolts	41 N·m (30 ft. lbs.)
Exhaust Pipe to Manifold	
Nuts	31 N·m (23 ft. lbs.)
Intake/Exhaust Manifold—2.5L Engine	
Exhaust Manifold Bolt #1	41 N·m (30 ft. lbs.)
Intake/Exhaust Manifold Bolts #2-5	31 N·m (23 ft. lbs.)
Exhaust Manifold Nuts #6&7	31 N·m (23 ft. lbs.)
Intake/Exhaust Manifold—4.0L Engine	
Intake/Exhaust Manifold Nuts/ Bolts #1,2,4,5,8-11	33 N·m (24 ft. lbs.)
Exhaust Manifold Bolt #3	33 N·m (24 ft. lbs.)
Exhaust Manifold Nuts #6&7	31 N·m (23 ft. lbs.)
Muffler to Catalytic Converter	
Clamp Nut	48 N·m (35 ft. lbs.)
Oxygen Sensors	
Nut	30 N·m (22 ft. lbs.)
Power Steering Pump/Tensioner Bracket	
Bolts (to intake)	28 N·m (21 ft. lbs.)
Bolts (to water pump)	48 N·m (35 ft. lbs.)

