EXHAUST SYSTEM-DESCRIPTION

Fig. 1: Identifying Exhaust System Components
Courtesy of CHRYSLER LLC

1 - FLEX JOINT
2 - BAND CLAMP
3 - RESONATOR/PIPE ASSEMBLY
4 - MUFFLER/PIPE ASSEMBLY
5 - REAR MUFFLER SUPPORTS
6 - MIDPIPE SUPPORT
7 - OXYGEN SENSOR
8 - CATALYTIC CONVERTOR (2.0L/2.4L)
9 - CONNECTOR PIPE (2.7L)

The exhaust system on the 2.0L/2.4L engine models consists of a front mounted catalytic converter, resonator/pipe assembly, muffler/pipe assembly, band clamps and support isolators. The upstream oxygen sensor is located in the exhaust manifold. The downstream oxygen sensor is located in the catalytic converter.
The exhaust system on the 2.7L engine model consists of front and rear bank catalytic converters, cross-under pipe, connector pipe, resonator/pipe assembly, muffler/pipe assembly, band clamps and support isolators. The upstream oxygen sensors are located in the front and rear exhaust manifolds. The downstream oxygen sensors are located in the cross-under pipe.

Resonators, mufflers and exhaust pipes are tuned to each powertrain combination.

**DIAGNOSIS AND TESTING**

**RESTRICTION CHECK**

Exhaust system restriction can be checked by measuring back pressure using the scan tool and PEP module pressure tester.
WARNING: The normal operating temperature of the exhaust system is very high. Therefore, never work around or 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.

1. Disconnect and remove the upstream (before catalytic converter) oxygen sensor. Refer to REMOVAL.
2. Install the Exhaust Back Pressure Fitting Adapter CH8519.
3. Connect the Low Pressure Sensor (15 psi) CH7063 to the back pressure fitting.
4. Following the PEP module instruction manual, connect all required cables to the scan tool and PEP module. Select the available menu options on the scan display screen for using the digital pressure gauge function.
5. Apply the park brake and start the engine.
6. With transmission in Park or Neutral, raise engine speed to 2000 RPM. Monitor the pressure readings on the scan. Back pressure should not exceed specified limit. Refer to specification in EXHAUST BACK PRESSURE LIMITS.

NOTE: For applications with dual catalytic converters, repeat test on opposite converter using the previous steps.

7. If pressure exceeds maximum limits, inspect exhaust system for restricted component. For further catalytic converter inspection procedures, see INSPECTION. Replace component(s) as necessary.

EXHAUST BACK PRESSURE LIMITS

<table>
<thead>
<tr>
<th>Exhaust Back Pressure Limit (Max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle in Park/Neutral (no load) @2000 RPM</td>
</tr>
</tbody>
</table>

LEAK TESTING
WARNING: The normal operating temperature of the exhaust system is very high. Therefore, never work around or 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.

1. Raise and support vehicle.

   CAUTION: The air pressure must not exceed 4 psi, otherwise engine damage can occur.

2. Connect Tool 8404-EC or 8404-ECT, Exhaust Cone to an adjustable air pressure regulator.
3. Attach shop air to the air pressure regulator.
4. Adjust the air pressure regulator to 4 psi.
5. Insert Tool 8404-EC or 8404-ECT, Exhaust Cone into the vehicle tail pipe.
6. If the vehicle is equipped with dual exhaust, use Tool 8404-EC or 8404-ECT, Exhaust Cone with equipped attached plug. Plug one side of the dual exhaust pipe. Pressurize the other as described.
7. Apply a mixture of liquid dish soap and water to the following areas:
   - All welded joints from 6 inches rearward of the downstream O2 sensor forward
   - O2 sensor seal points
   - O2 sensor boss welds
   - Flange/joint connection(s)
   - Exhaust manifold to cylinder head connection(s)
   - EGR solenoid gasket base and tube seal points (if equipped)
8. Watch for the liquid/soapy water to bubble.
9. Use the following definitions to help determine if system or component repair/replacement is necessary:

   Type 1 Leak is defined as a leak where very small foam like bubbles
mm (.039 in.) or less appear. Any Type 1 or greater leaks found in welded joints, O2 sensor seal points or O2 sensor boss welds must be repaired or the component must be replaced.

**Type 2 Leak** is defined as a leak where larger bubbles 8 mm (.031 in.) or greater appear. Any Type 2 or greater leaks found in flange or joint connections, exhaust manifold to cylinder head connections or EGR gasket and tube seal points must be repaired or the components must be replaced.

<table>
<thead>
<tr>
<th>Leak Location</th>
<th>Repair required if results at 4 psi reveal bubble size:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welded joints</td>
<td>Type 1 - 1 mm (.039 in.) or greater</td>
</tr>
<tr>
<td>O2 Sensor seal points</td>
<td>Type 1 - 1 mm (.039 in.) or greater</td>
</tr>
<tr>
<td>O2 Sensor boss welds</td>
<td>Type 1 - 1 mm (.039 in.) or greater</td>
</tr>
<tr>
<td>Flange/joint connections</td>
<td>Type 2 - 8 mm (.031 in.) or greater</td>
</tr>
<tr>
<td>Exhaust Manifold to cylinder head connections</td>
<td>Type 2 - 8 mm (.031 in.) or greater</td>
</tr>
<tr>
<td>EGR gasket and tube seal points</td>
<td>Type 2 - 8 mm (.031 in.) or greater</td>
</tr>
</tbody>
</table>

If a leak is found that matches the above definition, repair or replace the component as necessary.

Once the repair is complete, repeat the procedure to verify that all leaks have been repaired.

**EXCESSIVE EXHAUST SYSTEM NOISE**

<table>
<thead>
<tr>
<th>CONDITION</th>
<th>POSSIBLE CAUSES</th>
<th>CORRECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXCESSIVE EXHAUST NOISE (UNDER HOOD)</td>
<td>1. Exhaust manifold cracked or broken.</td>
<td>1. Replace manifold.</td>
</tr>
<tr>
<td></td>
<td>2. Manifold to cylinder head leak.</td>
<td>2. Tighten manifold and/or replace gasket.</td>
</tr>
<tr>
<td></td>
<td>3. EGR Valve to manifold gasket leakage.</td>
<td>3. Tighten fasteners or replace gasket.</td>
</tr>
<tr>
<td></td>
<td>4. EGR Valve to EGR</td>
<td>4. Tighten fasteners or replace gasket.</td>
</tr>
</tbody>
</table>
### REMOVAL

#### EXHAUST SYSTEM-REMOVAL

<table>
<thead>
<tr>
<th>Issue</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>tube gasket leakage.</td>
<td>replace gasket.</td>
</tr>
<tr>
<td>5. EGR tube to manifold tube leakage.</td>
<td>5. Tighten tube nut.</td>
</tr>
<tr>
<td>6. Exhaust flex-joint to manifold leak.</td>
<td>6. Tighten joint fasteners and/or replace gasket.</td>
</tr>
<tr>
<td>7. Exhaust flex-joint.</td>
<td>7. Replace catalytic converter assembly.</td>
</tr>
<tr>
<td><strong>EXCESSIVE EXHAUST NOISE</strong></td>
<td></td>
</tr>
<tr>
<td>1. Leak at exhaust pipe joints.</td>
<td>1. Tighten clamps at leaking joints.</td>
</tr>
<tr>
<td>2. Burned or rusted out muffler assembly or exhaust pipe.</td>
<td>2. Replace muffler resonator tailpipe assembly or exhaust pipe with catalytic converter assembly.</td>
</tr>
<tr>
<td>3. Burned or rusted out resonator.</td>
<td>3. Replace muffler resonator tailpipe assembly.</td>
</tr>
<tr>
<td>4. Restriction in exhaust system.</td>
<td>4. Perform <strong>RESTRICTION CHECK</strong>. Replace component as necessary.</td>
</tr>
<tr>
<td></td>
<td>5. Replace muffler and converter assemblies. Check fuel injection and ignition systems for proper operation.</td>
</tr>
<tr>
<td>5. Converter material in muffler.</td>
<td></td>
</tr>
</tbody>
</table>

### NOTE:

Some service procedures require the removal of the entire exhaust system in order to gain better access to certain components for removal and installation. The following...
The procedure explains how to remove the entire exhaust system. Refer to specific procedures if replacing individual exhaust components.

**WARNING:** The normal operating temperature of the exhaust system is very high. Therefore, never work around or 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.

1. Raise vehicle on hoist and apply penetrating oil to fasteners that connect the exhaust system to the exhaust manifold (2.0L/2.4L)/cross-under pipe (2.7L).
2. Remove ground strap from muffler.
3. Vehicles equipped with 2.0L/2.4L engines, disconnect downstream oxygen sensor connector.
4. Remove fasteners that attach exhaust system to exhaust manifold (2.0L/2.4L)/cross-under pipe (2.7L).

**CAUTION:** Do not use any tools to remove the rubber isolators - remove by hand only. Soapy water or silicone-based lubricant spray may be used to assist removal/installation of isolators. DO NOT use a petroleum-based lubricant on the isolators, as damage to the rubber material can occur.

5. Remove support isolators from muffler supports.
6. Remove exhaust system from vehicle.

**NOTE:** Band clamps are spot welded to exhaust system. If a band clamp must be replaced, the spot weld must be ground off the exhaust pipe.

**NOTE:** When replacement is required on any component of the
exhaust system, it is most important that original equipment parts (or their equivalent) be used for the following reasons:

To insure proper alignment with other parts in the system.
Provide acceptable exhaust noise levels and does not change exhaust system back pressure that could affect emissions and performance.

INSPECTION

Inspect the exhaust pipes, catalytic converters, muffler and resonators for cracked joints, broken welds and corrosion damage that would result in a leaking exhaust system. Inspect the clamps, support brackets and insulators for cracks and corrosion damage.

INSTALLATION

EXHAUST SYSTEM-INSTALLATION

NOTE: Always work from the front to rear of exhaust system when aligning and tightening exhaust system components.

1. Loosely install fasteners that attach exhaust system to exhaust manifold (2.0L/2.4L)/cross-under pipe (2.7L).
2. Install support isolators to exhaust system supports.
3. Align exhaust system to maintain position and proper clearance with underbody parts. All support isolators should have equal load on them. Tighten fasteners that attach exhaust system to exhaust manifold (2.0L/2.4L)/cross-under pipe (2.7L) to 28 N.m (250 in. lbs.).
4. Vehicles equipped with 2.0L/2.4L engines, reconnect the downstream oxygen sensor connector.
5. Connect ground strap to muffler.
7. Start the engine and inspect for exhaust leaks. Repair exhaust leaks as
necessary.

8. Check the exhaust system for contact with the body panels. Make the necessary adjustments, if needed.

**ADJUSTMENTS**

ADJUSTMENTS

A misaligned exhaust system is usually indicated by a vibration, rattling noise or binding of exhaust system components. These noises are sometimes hard to distinguish from other chassis noises. Inspect exhaust system for broken or loose clamps, heat shields, isolators, and brackets. Replace or tighten as necessary. It is important that exhaust system clearances and alignment be maintained.

Perform the following procedures to align the exhaust system:

1. Loosen clamps and support brackets.
2. Align the exhaust system starting at the front, working rearward.
3. Tighten all clamps and brackets once alignment and clearances are achieved.

**SPECIFICATIONS**

**SPECIFICATION-TORQUE**

**TORQUE SPECIFICATIONS**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>N.m</th>
<th>Ft. Lbs.</th>
<th>In. Lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fastener, Band Clamps</td>
<td>54</td>
<td>40</td>
<td>-</td>
</tr>
<tr>
<td>Fasteners, Body Heat Shield</td>
<td>5</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>Fasteners, Catalytic Converter to Exhaust Manifold Flange</td>
<td>28</td>
<td>-</td>
<td>250</td>
</tr>
<tr>
<td>Fasteners, Cross-Under Pipe (2.0L/2.4L)</td>
<td>28</td>
<td>-</td>
<td>250</td>
</tr>
<tr>
<td>Fasteners, Cross-Under Pipe (2.7L)</td>
<td>28</td>
<td>-</td>
<td>250</td>
</tr>
</tbody>
</table>

**SPECIAL TOOLS**

SPECIAL TOOLS
Fig. 3: Back Pressure Test Adapter - CH8519
Courtesy of CHRYSLER LLC

Fig. 4: Exhaust Cone Tool - 8404-ECT
Courtesy of CHRYSLER LLC
Fig. 5: Pressure Transducer CH7063  
Courtesy of CHRYSLER LLC

CONVERTER-CATALYTIC

DESCRIPTION

WARNING: The normal operating temperature of the exhaust system is very high. Therefore, never work around or 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.

CAUTION: 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.

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.

REMOVAL

CATALYTIC CONVERTER-REMOVAL-2.0L/2.4L

Fig. 6: Identifying Muffler & Resonator Assembly
Courtesy of CHRYSLER LLC

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ISOLATOR</td>
</tr>
<tr>
<td>2</td>
<td>MUFFLER/RESONATOR ASSEMBLY</td>
</tr>
<tr>
<td>3</td>
<td>CATALYTIC CONVERTER</td>
</tr>
<tr>
<td>4</td>
<td>BAND CLAMP</td>
</tr>
</tbody>
</table>

**WARNING:** The normal operating temperature of the exhaust
system is very high. Therefore, never work around or 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.

1. Raise and support vehicle.
2. Apply penetrating oil to resonator/pipe assembly band clamp (4), and the fasteners that connect the catalytic converter to the exhaust manifold.
3. Remove ground strap from muffler.
4. Loosen band clamp for resonator/pipe assembly (4).

**CAUTION:** Do not use any tools to remove the rubber isolators, remove by hand only. Soapy water or silicone based lubricant spray may be used to assist removal/installation of isolators. DO NOT use a petroleum based lubricant on the isolators, as damage to the rubber material can occur.

5. Remove support isolators from muffler/resonator assembly supports.
6. Remove muffler/resonator pipe as an assembly.

![Diagram of Catalytic Converter](image)
7. Disconnect oxygen sensor connector (1).
8. Remove flange nuts at exhaust manifold.
9. Remove catalytic converter from vehicle (3).
10. Remove and discard gasket.

REMOVAL-FRONT-2.7L

Fig. 8: View Of Front Catalytic Converter - 2.7L
Courtesy of CHRYSLER LLC
1. Disconnect negative battery cable.
2. Disconnect upstream oxygen sensor connector.
3. Remove 3 converter attaching nuts that are visible from the engine compartment.
4. Raise vehicle on hoist.
5. Remove exhaust cross-under pipe. See REMOVAL.
6. Remove remaining bolt attaching converter to exhaust manifold.
7. Remove catalytic converter.
8. Remove and discard gasket.

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.

REMOVAL-3.5L
1. Raise vehicle on hoist and apply penetrating oil to resonator/pipe assembly band clamp (4), and the fasteners that connect the catalytic converter to the exhaust manifold.

2. Remove ground strap from muffler.

3. Loosen band clamp for resonator/pipe assembly (4).

**WARNING:** The normal operating temperature of the exhaust system is very high. Therefore, never work around or 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.

1. CAUTION: Do not use any tools to remove the rubber
isolators, remove by hand only. Soapy water or silicone based lubricant spray may be used to assist removal/installation of isolators. DO NOT use a petroleum based lubricant on the isolators, as damage to the rubber material can occur.

**Fig. 10: Identifying Catalytic Converter - 3.5L**

Courtesy of CHRYSLER LLC

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NUT</td>
</tr>
<tr>
<td>2</td>
<td>CATALYTIC CONVERTER</td>
</tr>
<tr>
<td>3</td>
<td>GASKET</td>
</tr>
<tr>
<td>4</td>
<td>CROSS-UNDER PIPE</td>
</tr>
</tbody>
</table>

4. Remove support isolators (1) from muffler/resonator assembly supports.
5. Remove muffler/resonator pipe (2) as an assembly.
6. Remove flange nuts (1) at cross-under pipe (4).
7. Remove catalytic converter from vehicle (1).
8. Remove and discard gasket (3).

**REMOVAL-2.0L DIESEL**
1. Raise and support vehicle on hoist.
2. Apply penetrating oil to muffler and resonator assembly band clamp (4), and the fasteners that connect the catalytic converter to the exhaust manifold.
3. Remove ground strap from muffler.
4. Loosen band clamp for resonator/pipe assembly (4).

**CAUTION:** Do not use any tools to remove the rubber.
isolators, remove by hand only. Soapy water or silicone based lubricant spray may be used to assist removal/installation of isolators. DO NOT use a petroleum based lubricant on the isolators, as damage to the rubber material can occur.

5. Remove support isolators from muffler/resonator assembly supports.
6. Remove muffler and resonator assembly.

Fig. 12: View Of Catalytic Converter - 2.0L Diesel
Courtesy of CHRYSLER LLC

<table>
<thead>
<tr>
<th>1 - TURBOCHARGER CLAMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - BOLT</td>
</tr>
<tr>
<td>3 - CATALYTIC CONVERTER</td>
</tr>
<tr>
<td>4 - GASKET</td>
</tr>
</tbody>
</table>

7. Remove turbocharger to catalytic converter clamp (1).
8. Remove catalytic converter bracket bolt (2).
9. Remove catalytic converter (3).
10. Remove and discard gasket (4).

REMOVAL-REAR 2.7L
Fig. 13: View Of Catalytic Converter - Rear 2.7L
Courtesy of CHRYSLER LLC

1 - NUT
2 - HEAT SHIELD
3 - CATALYTIC CONVERTER - REAR
4 - STUD
5 - GASKET

**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.
1. Disconnect negative battery cable.
2. Raise vehicle on hoist.
3. Remove entire exhaust system from vehicle. See REMOVAL.
4. Remove exhaust cross-under pipe. See REMOVAL.
5. Disconnect upstream oxygen sensor.
6. Remove nuts attaching converter to exhaust manifold.
7. Remove exhaust manifold heat shield.
8. Remove catalytic converter.
9. Remove and discard gasket.

**INSPECTION**

**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.

Check catalytic converter for a flow restriction. See DIAGNOSIS AND TESTING. Exhaust System Restriction Check for procedure.

Visually inspect the catalytic converter element by using a borescope or equivalent. Remove oxygen sensor(s) and insert borescope. If borescope is not available, remove converter and inspect element using a flashlight. Inspect element for cracked or melted substrate.

**NOTE:** Before replacing a catalytic converter, determine the root cause of failure. Most catalytic converter failures are caused by air, fuel or ignition problems. Refer to Appropriate Diagnostic Information for test procedures.
INSTALLATION

INSTALLATION-3.5L

Fig. 14: Identifying Catalytic Converter - 3.5L
Courtesy of CHRYSLER LLC

1 - NUT
2 - CATALYTIC CONVERTER
3 - GASKET
4 - CROSS-UNDER PIPE

NOTE: Always work from the front to rear of exhaust system when aligning and tightening exhaust system components.

1. Clean cross-under to catalytic converter sealing surfaces.
2. Position new gasket (3) on cross-under pipe (4).
3. Loosely attach catalytic converter to cross-under pipe (4).
4. Loosely install muffler/resonator assembly (2) to catalytic converter (2).
5. Install support isolators to muffler supports.
6. Align exhaust system to maintain position and proper clearance with underbody parts. All support isolators should have equal load on them. Tighten fasteners attaching catalytic converter to exhaust manifold to 28 N.m (250 in. lbs.).
7. Tighten resonator/pipe assembly band clamp (4) to 54 N.m (40 ft. lbs.).
8. Connect ground strap to muffler.
9. Lower vehicle.
10. Start the engine and inspect for exhaust leaks. Repair exhaust leaks as necessary.
11. Check the exhaust system for contact with the body panels. Make the necessary adjustments, if needed.
1. Clean manifold to converter sealing surfaces.
2. Position new gasket on converter inlet flange.
3. Ensure exhaust manifold heat shield is in position, and loosely install converter with lower attaching bolt to exhaust manifold.
4. Lower vehicle.
5. Install 3 nuts attaching converter to manifold. Tighten nuts to 28 N.m (250 in. lbs.).
6. Reconnect upstream oxygen sensor.
7. Raise vehicle.
8. Tighten remaining attaching bolt to 28 N.m (250 in. lbs.).
9. Install cross-under pipe. See INSTALLATION.
10. Lower vehicle.
11. Connect negative battery cable.
12. Start the engine and inspect for exhaust leaks. Repair exhaust leaks as necessary.
13. Check the exhaust system for contact with the body panels. Make the necessary adjustments, if needed.

INSTALLATION-REAR-2.7L

Fig. 17: View Of Catalytic Converter - Rear 2.7L
1. Clean manifold to converter sealing surfaces.
2. Position new gasket on converter inlet flange.
3. Install converter to exhaust manifold.
4. Install exhaust manifold heat shield into position.
5. Install nuts attaching converter to manifold. Tighten nuts to 28 N.m (250 in. lbs.).
6. Connect upstream oxygen sensor.
7. Install cross-under pipe. See INSTALLATION.
8. Install exhaust system on vehicle. See INSTALLATION.
9. Lower vehicle.
10. Connect negative battery cable.
11. Start the engine and inspect for exhaust leaks. Repair exhaust leaks as necessary.
12. Check the exhaust system for contact with the body panels. Make the necessary adjustments, if needed.

CATALYTIC CONVERTER - INSTALLATION - 2.0L/2.4L
Fig. 18: Identifying Catalytic Converter - 2.0/2.4L
Courtesy of CHRYSLER LLC

| 1 - OXYGEN SENSOR ELECTRICAL CONNECTOR |
| 2 - FLANGE NUTS |
| 3 - CATALYTIC CONVERTER - 2.0/2.4L |

**NOTE:** Always work from the front to rear of exhaust system when aligning and tightening exhaust system components.

1. Clean manifold to converter sealing surfaces.
2. Position new gasket on exhaust manifold.

**NOTE:** If catalytic converter is being replaced, transfer downstream oxygen sensor to new converter.

3. Loosely attach catalytic converter to exhaust manifold.
4. Loosely install resonator/pipe and muffler/pipe assembly to catalytic converter outlet pipe.
5. Install support isolators to muffler supports.
6. Align exhaust system to maintain position and proper clearance with underbody parts. All support isolators should have equal load on them. Tighten fasteners attaching catalytic converter to exhaust manifold to 28 N.m (250 in. lbs.).
7. Tighten resonator/pipe assembly band clamp to 54 N.m (40 ft. lbs.).
8. Connect ground strap to muffler.
9. Lower vehicle.
10. Start the engine and inspect for exhaust leaks. Repair exhaust leaks as necessary.
11. Check the exhaust system for contact with the body panels. Make the necessary adjustments, if needed.
INSTALLATION-2.0L DIESEL

Fig. 20: View Of Catalytic Converter - 2.0L Diesel
Courtesy of CHRYSLER LLC

1 - TURBOCHARGER CLAMP
2 - BOLT
3 - CATALYTIC CONVERTER
4 - GASKET

NOTE: Always work from the front to rear of exhaust system when aligning and tightening exhaust system components.

1. Clean cross-under to catalytic converter sealing surfaces.
2. Position new gasket (4) turbocharger clamp (1) on Catalytic converter (3).
3. Loosely attach catalytic converter to Turbocharger.
4. Install catalytic converter mounting bolt (2)
5. Loosely install muffler/resonator assembly (2) to catalytic converter (3).
6. Install support isolators to muffler supports.
7. Align exhaust system to maintain position and proper clearance with underbody parts. All support isolators should have equal load on them.
8. Tighten turbocharger clamp to 28 N.m (250 in. lbs.). Tighten resonator/pipe assembly band clamp (4) to 54 N.m (40 ft. lbs.). Tighten catalytic converter bolt to 54 N.m (40 ft. lbs.).
9. Connect ground strap to muffler.
10. Lower vehicle.
11. Start the engine and inspect for exhaust leaks. Repair exhaust leaks as necessary.
12. Check the exhaust system for contact with the body panels. Make the necessary adjustments, if needed.

**Fig. 21: Identifying Muffler & Resonator Assembly**

Courtesy of CHRYSLER LLC

<table>
<thead>
<tr>
<th>1 - ISOLATOR</th>
<th>2 - MUFFLER/RESONATOR ASSEMBLY</th>
<th>3 - CATALYTIC CONVERTER</th>
<th>4 - BAND CLAMP</th>
</tr>
</thead>
</table>

**PIPE-CROSS-UNDER**
REMOVAL

CROSS-UNDER PIPE-REMOVAL-2.7L

![Diagram of exhaust system components](image)

**Fig. 22: Identifying Cross-Under Pipe**
Courtesy of CHRYSLER LLC

<table>
<thead>
<tr>
<th>Component Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust Manifold - Rear</td>
<td>1</td>
</tr>
<tr>
<td>Catalytic Converter Attaching Stud</td>
<td>2</td>
</tr>
<tr>
<td>Nuts - Pipe-to-Rear Converter</td>
<td>3</td>
</tr>
<tr>
<td>Cross-Under Pipe</td>
<td>4</td>
</tr>
<tr>
<td>Bolt - Pipe-to-Front Converter</td>
<td>5</td>
</tr>
<tr>
<td>Nut - Pipe-to-Front Converter</td>
<td>6</td>
</tr>
<tr>
<td>Exhaust Manifold - Front</td>
<td>7</td>
</tr>
<tr>
<td>Gasket - Pipe-to-Converter</td>
<td>8</td>
</tr>
</tbody>
</table>

**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.

1. Raise vehicle on hoist.
2. Disconnect downstream oxygen sensor connectors.
3. Remove oil pan to transmission structural collar. Refer to REMOVAL.
4. Disconnect exhaust system pipe from cross-under pipe.
5. Remove fasteners attaching cross-under pipe to catalytic converters.
6. Remove cross-under pipe.

INSTALLATION

CROSS-UNDER PIPE - INSTALLATION - 2.7L

Fig. 23: View Of Cross-Under Pipe
Courtesy of CHRYSLER LLC

1 - EXHAUST MANIFOLD - REAR
2 - CATALYTIC CONVERTER ATTACHING STUD
1. Install new gasket to lower part of rear catalytic converter. If installing new cross-under pipe, transfer oxygen sensors to new pipe.
2. Loosely install cross-under pipe to catalytic converters. Snug nuts up equally using hand pressure.
3. Tighten 2 nuts for cross-under pipe to rear catalytic converter to 28 N.m (250 in. lbs.).
4. Tighten 2 nuts for cross-under pipe to front catalytic converter to 28 N.m (250 in. lbs.).
5. Connect exhaust system pipe to cross-under pipe. Tighten attaching fasteners to 28 N.m (250 in. lbs.)
6. Install oil pan to transmission structural collar. Refer to INSTALLATION.
7. Reconnect downstream oxygen sensor connectors.
8. Lower vehicle.
9. Start the engine and inspect for exhaust leaks. Repair exhaust leaks as necessary.
10. Check the exhaust system for contact with the body panels. Make the necessary adjustments, if needed.

PIPE-EXHAUST-CROSS-UNDER PIPE TO RESONATOR PIPE - 2.7L

REMOVAL

EXHAUST PIPE - CROSS-UNDER PIPE TO RESONATOR PIPE - 2.7L
Fig. 24: Identifying Cross-Under Pipe
Courtesy of CHRYSLER LLC

1 - EXHAUST MANIFOLD - REAR
2 - CATALYTIC CONVERTER ATTACHING STUD
3 - NUTS - PIPE-TO-REAR CONVERTER
4 - CROSS-UNDER PIPE
5 - BOLT - PIPE-TO-FRONT CONVERTER
6 - NUT - PIPE-TO-FRONT CONVERTER
7 - EXHAUST MANIFOLD - FRONT
8 - GASKET - PIPE-TO-CONVERTER

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.
1. Raise vehicle on hoist and apply penetrating oil to resonator/pipe assembly band clamp, and the fasteners that connect the exhaust system to the cross-under pipe.
2. Remove ground strap from muffler.
3. Loosen band clamp for resonator/pipe assembly.
4. Remove support isolators from muffler supports.
5. Remove resonator/pipe and muffler/pipe as an assembly.
6. Remove fasteners that attach exhaust pipe to cross-under pipe.
7. Remove exhaust pipe.

CAUTION: Do not use any tools to remove the rubber isolators-remove by hand only. Soapy water or silicone-based lubricant spray may be used to assist removal/installation of isolators. DO NOT use a petroleum-based lubricant on the isolators, as damage to the rubber material can occur.

4. Remove support isolators from muffler supports.
5. Remove resonator/pipe and muffler/pipe as an assembly.
6. Remove fasteners that attach exhaust pipe to cross-under pipe.
7. Remove exhaust pipe.

INSTALLATION

EXHAUST PIPE - CROSS-UNDER PIPE TO RESONATOR PIPE - 2.7L
1. Loosely attach exhaust pipe to cross-under pipe.
2. Loosely install resonator/pipe and muffler/pipe assembly to exhaust pipe.
3. Install support isolators to muffler supports.
4. Align exhaust pipe and resonator/muffler pipe assembly to maintain position.

NOTE: Always work from the front to rear of exhaust system when aligning and tightening exhaust system components.
and proper clearance with underbody parts. All support isolators should have equal load on them. Tighten fasteners attaching exhaust pipe to cross-under pipe to 28 N.m (250 in. lbs.).

5. Tighten resonator/pipe assembly band clamp to 54 N.m (40 ft. lbs.).
6. Connect ground strap to muffler.
7. Lower vehicle.
8. Start the engine and inspect for exhaust leaks. Repair exhaust leaks as necessary.
9. Check the exhaust system for contact with the body panels. Make the necessary adjustments, if needed.

MUFFLER

REMOVAL

MUFFLER-REMOVAL

Fig. 26: Identifying Muffler & Resonator Assembly
Courtesy of CHRYSLER LLC

<table>
<thead>
<tr>
<th>1 - ISOLATOR</th>
<th>2 - MUFFLER/RESONATOR ASSEMBLY</th>
<th>3 - CATALYTIC CONVERTER</th>
<th>4 - BAND CLAMP</th>
</tr>
</thead>
</table>

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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.

NOTE: Band clamps are spot welded to exhaust system. If a band clamp must be replaced, the spot weld must be ground off the exhaust pipe.

NOTE: When replacement is required on any component of the exhaust system, it is most important that original equipment parts (or their equivalent) be used.

1. Raise vehicle on hoist and apply penetrating oil to band clamp (4).
2. Remove ground strap from muffler.
3. Loosen band clamp (4).

CAUTION: Do not use any tools to remove the rubber isolators—remove by hand only. Soapy water or silicone based lubricant spray may be used to assist removal/installation of isolators. DO NOT use a petroleum based lubricant on the isolators, as damage to the rubber material can occur.

4. Remove support isolators (1) from muffler supports.
5. Remove the one muffler/resonator assembly (2).

INSTALLATION

MUFFLER-INSTALLATION
1. Position muffler and resonator assembly onto catalytic converter pipe.

2. Install support isolators (1).

3. Align muffler and resonator assembly to maintain position and proper clearance with underbody parts. All support isolators should have equal load on them. Tighten band clamp (4) to 54 N.m (40 ft. lbs.).

4. Connect ground strap to muffler.

5. Lower vehicle.

6. Start the engine and inspect for exhaust leaks. Repair exhaust leaks as necessary.

7. Check the exhaust system for contact with the body panels. Make the necessary adjustments, if needed.

**NOTE:** Always work from the front to rear of exhaust system when aligning and tightening exhaust system components.
RESONATOR

REMOVAL

For removal of the resonator. See **REMOVAL**.

INSTALLATION

For installation of the resonator. See **INSTALLATION**.

SHIELDS-HEAT

DESCRIPTION

The exhaust system heat shields are attached to the under body of the vehicle.

OPERATION

Heat shields are needed to protect both the vehicle and the environment from the high temperatures developed near the catalytic converter.

Avoid application of rust prevention compounds or undercoating materials to exhaust system floor pan heat shields on vehicles so equipped. Light over spray near the edges is permitted. Application of coating will greatly reduce the efficiency of the heat shields resulting in excessive floor pan temperatures and objectionable fumes.