

## 2008 Ford Mustang

### 2008 ENGINE Exhaust System - Mustang

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### Exhaust System - Mustang

## SPECIFICATIONS

### TORQUE SPECIFICATIONS

| Description                                       | Nm | lb-ft |
|---------------------------------------------------|----|-------|
| Catalytic converter-to-exhaust manifold studs     | 40 | 30    |
| Exhaust clamp nuts                                | 48 | 35    |
| Exhaust coupler nuts <sup>a</sup>                 | -  | -     |
| Exhaust isolator bracket bolts                    | 25 | 18    |
| Exhaust manifold stud-to-catalytic converter nuts | 40 | 30    |
| Rear isolator shield bolt                         | 25 | 18    |

<sup>a</sup> Refer to the procedure.

## DESCRIPTION AND OPERATION

### EXHAUST SYSTEM

**CAUTION:** When repairing exhaust system or removing exhaust components, disconnect all heated oxygen sensors (HO2S) at the wiring connectors to prevent damage to the HO2S and wiring harness. Refer to ELECTRONIC ENGINE CONTROLS article for location of the heated oxygen sensors.

**CAUTION:** Do not use oil or grease-based lubricants on the isolators. They may cause deterioration of the rubber.

**CAUTION:** Oil or grease-based lubricants on the isolators may cause the exhaust hanger isolator to separate from the exhaust hanger bracket during vehicle operation.

**NOTE:** Exhaust fasteners are of a torque prevailing design. Use only new fasteners with the same part number as the original. Torque values must be used as specified during reassembly to make sure of correct retention of exhaust components.

The exhaust system:

- contains a one-piece catalytic converter assembly.
- has one muffler assembly (4.0L).

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- has a LH muffler assembly and a RH muffler assembly (4.6L and 5.4L).
- has muffler brackets with isolators at the front and rear of the muffler, bolted to the body.
- has 2 upstream heated oxygen sensors (HO2S) mounted to the catalytic converters (4.0L).
- has one upstream HO2S mounted to the LH exhaust manifold and one mounted to the RH catalytic converter (4.6L and 5.4L).
- production muffler and tailpipe assembly is a one-piece design exhaust system.

## DIAGNOSTIC TESTS

### EXHAUST SYSTEM

#### Special Tools

| Illustration                                                                                  | Tool Name                                   | Tool Number          |
|-----------------------------------------------------------------------------------------------|---------------------------------------------|----------------------|
| <br>ST1137-A | Electronic Vibration Analyzer or equivalent | 100-F027 (014-00344) |

#### Inspection and Verification

1. Verify the customer concern.
2. Visually inspect the components of the exhaust system and related controls that may affect exhaust gas quality or loss of power.
3. Visually inspect for obvious signs of mechanical damage. Refer to the following chart.

#### VISUAL INSPECTION CHART

| Mechanical                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Exhaust pipe pinched or crushed</li><li>• Damaged muffler</li><li>• Broken or damaged exhaust hanger brackets</li><li>• Damaged catalytic converter</li><li>• Cracked exhaust manifold</li><li>• Loose or damaged heat shields</li></ul> |

4. Verify that the exhaust system is installed correctly, with clamps correctly located and tightened to specification.
5. If the fault is not visually evident, determine the symptom. Go to **Symptom Chart - Exhaust System** or Go to **Symptom Chart - Noise, Vibration and Harshness (NVH)**.

#### Symptom Chart - Exhaust System

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#### Symptom Chart - Exhaust System

| Condition                                                                                                                                                                                 | Possible Sources                                                                                                                                                                                                                                                                                           | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>Vehicle has low or no power - vehicle performance complaint</li><li>Burning smell - usually occurs at idle, with possible traces of smoke</li></ul> | <ul style="list-style-type: none"><li>Exhaust pipe pinched or crushed</li><li>Damaged catalytic converter</li><li>Loose obstruction in exhaust</li><li>Restricted exhaust (possible frozen condensate in muffler)</li><li>Foreign material caught in exhaust system</li><li>Missing heat shields</li></ul> | <ul style="list-style-type: none"><li>INSPECT the exhaust components for damage. REPAIR or INSTALL new components as necessary. TEST the system for normal operation. If the concern is still present, REFER to the <b><u>Introduction - Gasoline Engines</u></b> article.</li><li>CHECK drain holes for debris. PARK the vehicle inside to thaw. TEST the vehicle for normal operation. If the concern is still present, REFER to the <b><u>Introduction - Gasoline Engines</u></b> article.</li><li>INSPECT the exhaust system for debris or missing heat shields. REPAIR or INSTALL new components as necessary. TEST the system for normal operation after the repair.</li></ul> |
| <ul style="list-style-type: none"><li>Odor - described as a sulfur or rotten egg smell</li><li>Visible rust on surface of exhaust pipes</li></ul>                                         | <ul style="list-style-type: none"><li>Catalytic converter</li><li>Excessive sulfur content in fuel</li><li>Rich fuel conditions</li><li>Misfire conditions</li><li>Catalytic converter/exhaust system</li></ul>                                                                                            | <ul style="list-style-type: none"><li>At times, a slight sulfur smell is normal for catalytic converters. The cause is the sulfur content in the gasoline being used. ADVISE the customer no repair is required.</li><li>REFER to the <b><u>Introduction - Gasoline Engines</u></b> article.</li><li>Surface rust is a characteristic of materials used on exhaust systems. Exposure to heat or road salt may result in surface rust. INSPECT for perforations. If there are</li></ul>                                                                                                                                                                                               |

|  |  |                                           |
|--|--|-------------------------------------------|
|  |  | no perforations, the condition is normal. |
|--|--|-------------------------------------------|

Symptom Chart - Noise, Vibration and Harshness (NVH)

**NOTE:** Noise, vibration and harshness (NVH) symptoms should be identified using the diagnostic tools that are available. For a list of these tools, an explanation of their uses and a glossary of common terms, refer to **NOISE, VIBRATION AND HARSHNESS** article. Since it is possible any one of multiple systems may be the cause of a symptom, it may be necessary to use a process of elimination type of diagnostic approach to pinpoint the responsible system. If this is not the causal system for the symptom, refer back to **NOISE, VIBRATION AND HARSHNESS** article for the next likely system and continue diagnosis.

Symptom Chart - Noise, Vibration and Harshness (NVH)

| Condition                                                                                                             | Possible Sources                                                                     | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Rattle, squeaks or buzz type noise - from the bottom of the vehicle</li> </ul> | <ul style="list-style-type: none"> <li>Loose or damaged heat shield</li> </ul>       | <ul style="list-style-type: none"> <li>INSPECT the exhaust system for loose or missing heat shields or foreign material trapped between the heat shields and the exhaust system components. If any heat shields are loose, INSTALL worm gear clamp 7L5Z-5A231-AA and tighten to 7 Nm (62 lb-in). If the heat shields are missing, INSTALL new heat shields or exhaust system components as necessary. If a rattle, noise or buzz condition persists, INSTALL a new heat shield or component as necessary. TEST the system for normal operation after the repair.</li> </ul> |
|                                                                                                                       | <ul style="list-style-type: none"> <li>Loose or damaged exhaust isolators</li> </ul> | <ul style="list-style-type: none"> <li>VERIFY that the exhaust isolators are correctly installed. INSPECT the exhaust isolators for wear or damage. INSTALL new isolators as necessary. TEST the system for normal operation after the repair.</li> <li>INSPECT the exhaust system components for damage or</li> </ul>                                                                                                                                                                                                                                                      |

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|                                                                                                              |                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                              | <ul style="list-style-type: none"><li>• Damaged exhaust isolator hanger bracket</li><li>• Loose or damaged catalytic converter or muffler</li><li>• Exhaust grounded to chassis</li></ul> | <p>broken hangers. INSTALL new components as necessary. CHECK for loose or damaged exhaust hanger brackets or fasteners. TIGHTEN the bolts to specification or INSTALL new components as necessary. TEST the system for normal operation after the repair.</p> <ul style="list-style-type: none"><li>• MOVE the exhaust system to simulate the bouncing action of the vehicle, checking for exhaust-to-body contact while moving the exhaust system. Using a rubber mallet, TAP on the exhaust components to duplicate the noise concern. Lightly TAP on the muffler, then the catalytic converter. DETERMINE if there are loose or broken baffles in the muffler or a loose or broken element in the catalytic converter. REPAIR or INSTALL new components as necessary. TEST the system for normal operation after the repair.</li><li>• INSPECT for signs of exhaust components-to-body contact. If necessary, CARRY OUT the <b><u>Exhaust System Alignment</u></b>.</li></ul> |
| <ul style="list-style-type: none"><li>• Drone or clunk type noise - from the bottom of the vehicle</li></ul> | <ul style="list-style-type: none"><li>• Loose or damaged exhaust isolators</li><li>• Exhaust grounded to chassis</li></ul>                                                                | <ul style="list-style-type: none"><li>• INSPECT the exhaust isolators for wear or damage. INSTALL new isolators as necessary. TEST the system for normal operation after the repair.</li><li>• INSPECT for signs of exhaust components-to-body contact. If necessary, CARRY OUT the <b><u>Exhaust System Alignment</u></b>.</li><li>• INSPECT the entire exhaust</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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|                                                                                                                                                                                          |                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>Whistles, boom, hum or ticking type noise - noise tends to change as the engine warms. The noises are often accompanied by exhaust fumes</li></ul> | <ul style="list-style-type: none"><li>Exhaust system leak</li></ul>                                                                        | <p>system for leaks. CHECK for punctures, loose or damaged clamps/fasteners, gaskets, sensors or broken welds. EXAMINE the chassis for grayish-white or black exhaust soot, which indicates exhaust leakage at that point. To magnify a small leak, have an assistant hold a rag over the tailpipe outlet while listening for a leak. REPAIR or INSTALL new components as necessary. TEST the system for normal operation after the repair.</p>                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                          | <ul style="list-style-type: none"><li>Catalytic converter</li><li>Exhaust muffler/resonator drain hole enlarged due to corrosion</li></ul> | <ul style="list-style-type: none"><li>MOVE the exhaust system to simulate the bouncing action of the vehicle, checking for exhaust-to-body contact while moving the exhaust system. Using a rubber mallet, TAP on the exhaust components to duplicate the noise concern. Lightly TAP on the muffler and the catalytic converter. DETERMINE if there are loose or broken baffles in the muffler, or a loose or broken element in the catalytic converter. REPAIR or INSTALL new components as necessary. TEST the system for normal operation after the repair.</li><li>CONFIRM the drain holes are the noise source. INSTALL new components as necessary. TEST the system for normal operation after the repair.</li></ul> |
| <ul style="list-style-type: none"><li>Hissing or rushing</li></ul>                                                                                                                       |                                                                                                                                            | <ul style="list-style-type: none"><li>CHECK the exhaust system for leaks. Using a rubber mallet, TAP on the exhaust components to duplicate the noise concern. Lightly TAP on the muffler and the</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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|                                                                                                                                              |                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| noise - high frequency sound. Vehicle performance is unaffected                                                                              | <ul style="list-style-type: none"><li>Exhaust system. Exhaust flow through pipes</li></ul>                                                                                                                                      | catalytic converter. DETERMINE if there are loose or broken baffles in the muffler, or a loose or broken element in the catalytic converter. REPAIR or INSTALL new components as necessary. TEST the system for normal operation after the repair.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <ul style="list-style-type: none"><li>Pinging noise - occurs when exhaust system is hot, engine turned off</li></ul>                         | <ul style="list-style-type: none"><li>Catalytic converter/exhaust system</li></ul>                                                                                                                                              | <ul style="list-style-type: none"><li>Cool down pinging is a result of the exhaust system expanding and contracting during heating and cooling. This is a normal condition.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <ul style="list-style-type: none"><li>Vibration - occurs at idle and at low speeds. Also accompanied by a clunk or buzz type noise</li></ul> | <ul style="list-style-type: none"><li>Loose or damaged exhaust isolator</li><li>Loose or damaged exhaust isolator hanger brackets</li><li>Damper broken or out of position</li><li>Exhaust system grounded to chassis</li></ul> | <ul style="list-style-type: none"><li>INSPECT the exhaust isolators for wear or damage. INSTALL new isolators as necessary. TEST the system for normal operation after the repair.</li><li>INSPECT the exhaust isolator hanger brackets for wear or damage. INSTALL or REPAIR as necessary. TEST the system for normal operation after the repair.</li><li>CHECK for the correct damper orientation. RELOCATE to the correct position and tighten the nuts to specification. INSPECT for missing or damaged damper. INSTALL new components as necessary. TEST the system for normal operation after the repair.</li><li>CARRY OUT the <b><u>Exhaust System Alignment</u></b>.</li></ul> |
| <ul style="list-style-type: none"><li>Engine drumming noise - normally accompanied by vibration</li></ul>                                    | <ul style="list-style-type: none"><li>Damaged or misaligned exhaust system.</li></ul>                                                                                                                                           | <ul style="list-style-type: none"><li>INSPECT the exhaust system for loose or damaged fasteners, Torca® clamps or isolators. CARRY OUT the <b><u>Exhaust System Alignment</u></b>.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                              |                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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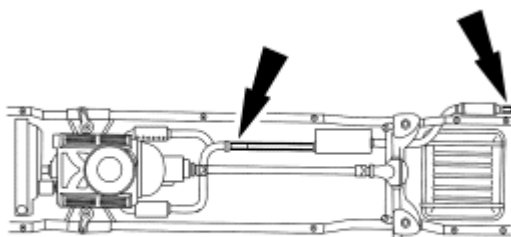
|                                                                                                                                                                                        |                                                                                                                                |                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Sputter type noise - noise worse when cold, lessens or disappears when the vehicle is at operating temperature.</li></ul>                      | <ul style="list-style-type: none"><li>• Damaged or worn exhaust system.</li></ul>                                              | <ul style="list-style-type: none"><li>• INSPECT the exhaust system for leaks or damage. REPAIR as necessary. TEST the system for normal operation after the repair.</li></ul>                                               |
| <ul style="list-style-type: none"><li>• Thumping noise - from the bottom of the vehicle, worse at acceleration.</li></ul>                                                              | <ul style="list-style-type: none"><li>• Misaligned exhaust system</li></ul>                                                    | <ul style="list-style-type: none"><li>• CHECK the exhaust system to chassis clearance. CHECK the exhaust system isolators for damage. REPAIR as necessary. TEST the system for normal operation after the repair.</li></ul> |
| <ul style="list-style-type: none"><li>• Engine vibration - is felt with increases and decreases in engine RPM.</li></ul>                                                               | <ul style="list-style-type: none"><li>• Strain on exhaust system isolators</li></ul>                                           | <ul style="list-style-type: none"><li>• CARRY OUT the <b><u>Exhaust System Alignment</u></b>. REPAIR as necessary. TEST the system for normal operation after the repair.</li></ul>                                         |
| <ul style="list-style-type: none"><li>• Drumming noise - occurs inside the vehicle during idle or high idle, hot or cold. Very low-frequency drumming is very RPM dependent.</li></ul> | <ul style="list-style-type: none"><li>• Exhaust system vibration excites the body resonances inducing interior noise</li></ul> | <ul style="list-style-type: none"><li>• Go to <b><u>Pinpoint Test A</u></b>.</li></ul>                                                                                                                                      |

#### Pinpoint Test

##### PINPOINT TEST A: DRUMMING NOISE

#### A1 CHECK THE EXHAUST SYSTEM

- Key in START position.
- Increase the engine RPM until the noise is the loudest. Note the engine RPM.
- Key in OFF position.



DF1768-A

**Fig. 1: Exhaust System**

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#### Courtesy of FORD MOTOR CO.

- Add approximately 9 kg (20 lb) of weight to the exhaust system. First place the weight at the tail pipe and test, then at the front pipe.
- Key in START position.
- Increase the engine RPM and listen for the drumming noise. Note the engine RPM if the noise occurs.
- Key in OFF position.
- Using a vibration analyzer (VA), determine the amount of vibration that occurs with the drumming noise.
- **Is the noise/vibration reduced or eliminated, or does the noise/vibration occur at a different RPM?**

**YES** : REFER to Exhaust System Alignment. TEST the system for normal operation.

**NO** : CONDUCT a diagnosis on other suspect systems. REFER to NOISE, VIBRATION AND HARSHNESS article.

## GENERAL PROCEDURES

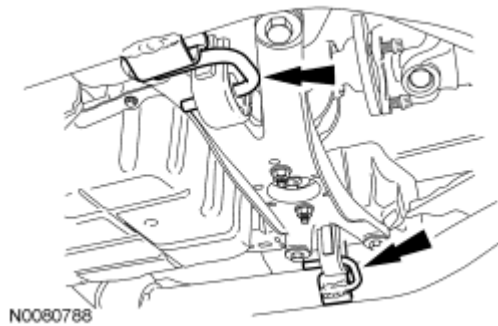
### EXHAUST SYSTEM ALIGNMENT

#### All vehicles

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to JACKING AND LIFTING article.
2. Loosen the muffler-to-intermediate pipe clamp.
3. Loosen the exhaust coupler nuts. Do not tighten the coupler at this time.
4. Loosen the converter-to-manifold nuts. Do not tighten the nuts at this time.
5. Position an adjustable jackstand under the rear of the catalytic converter.
6. Make sure the exhaust system hanger rods are correctly inserted into all of the exhaust isolators.

#### Early build vehicles

7. Using the jackstand, adjust the height of the catalytic converter until the converter hanger rods are centered in the exhaust isolators at the transmission crossmember.

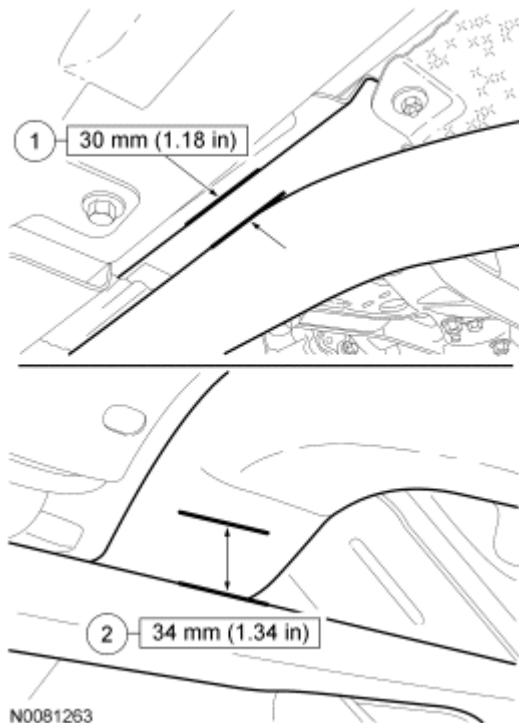


**Fig. 2: Adjusting Height Of Catalytic Converter Until Hanger Rods Are Centered In Exhaust Isolators At Transmission Crossmember Using Jackstand**  
Courtesy of FORD MOTOR CO.

**Late build vehicles**

**NOTE:** The exhaust system clearance must be checked on both the RH and LH side of the catalytic converter and both intermediate pipes (LH and RH).

8. Using the jackstand, adjust the height of the catalytic converter until:
  1. the clearance between the catalytic converter and the floor pan (at the transmission cross member position) is 30 mm (1.18 in).
  2. the clearance between the bottom of the intermediate pipe and the top of the lateral stiffener bar is 34 mm (1.34 in).



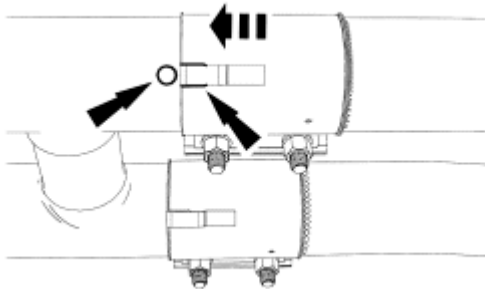
**Fig. 3: Adjusting Height Of Catalytic Converter Using Jackstand With Specifications**  
Courtesy of FORD MOTOR CO.

**All vehicles**

9. Beginning at the front of the vehicle, align the exhaust system in the following sequence.
  1. Hand-tighten all the catalytic converter nuts.
  2. Alternately tighten, in 10 N.m (89 lb-in) increments, the upper catalytic converter-to-manifold nuts to 40 N.m (30 lb-ft).
    - LH upper.
    - RH upper.
  3. Alternately tighten, in 10 N.m (89 lb-in) increments, the lower catalytic converter-to-manifold nuts to 40 N.m (30 lb-ft).
    - LH lower.
    - RH lower.
  4. Verify the intermediate pipe button is fully seated to the bottom of the muffler inlet pipe notch.
    - Tighten the muffler-to-intermediate pipe clamp nuts to 48 N.m (35 lb-ft).

**NOTE:**      **Make sure that the intermediate pipe is inserted into the coupler correctly. Correct installation is achieved when the rearmost end of the coupler terminates in the knurled region of the intermediate pipe.**

5. Slide coupler over catalyst pipe and engage the coupler clip completely over the converter button.
6. Push the muffler forward. The back of the exhaust coupler should be in the crosshatched area on the intermediate pipe.
  - Alternately tighten, in 10 Nm (89 lb-in) increments, the intermediate pipe-to-converter assembly coupling(s) to 48 Nm (35 lb-ft).



**Fig. 4: Locating Crosshatched Area On Intermediate Pipe**  
Courtesy of FORD MOTOR CO.

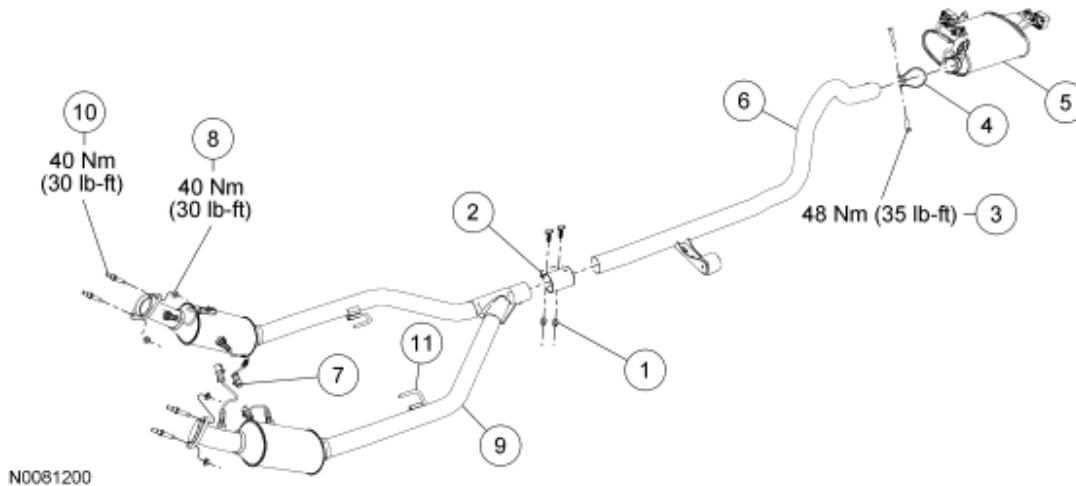
10. Start the engine and check the exhaust system for leaks.

## REMOVAL AND INSTALLATION

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#### EXHAUST SYSTEM - EXPLODED VIEW

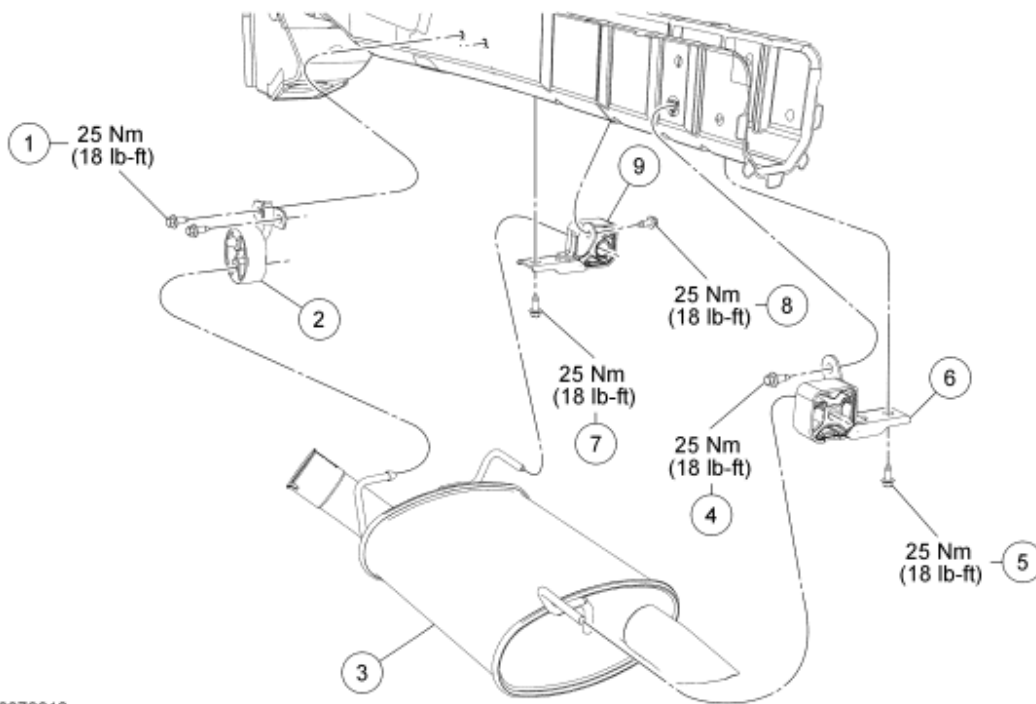


**Fig. 5: Exploded View Of Exhaust System With Torque Specifications - 4.0L (1 Of 2)**  
Courtesy of FORD MOTOR CO.

| Item | Part Number | Description                                                                                |
|------|-------------|--------------------------------------------------------------------------------------------|
| 1    | -           | Exhaust coupler nut (2 required) (part of 5A281)                                           |
| 2    | 5A281       | Exhaust coupler                                                                            |
| 3    | -           | Exhaust clamp nut (part of 5270)                                                           |
| 4    | 5270        | Exhaust clamp                                                                              |
| 5    | 5230        | Muffler                                                                                    |
| 6    | 5A212       | Intermediate pipe                                                                          |
| 7    | -           | Heated oxygen sensor (HO2S) electrical connector                                           |
| 8    | N811485     | Catalytic converter-to-manifold nut (4 required)                                           |
| 9    | 5F250       | Catalytic converter assembly (Y-pipe)                                                      |
| 10   | W709209     | Exhaust manifold stud (4 required)                                                         |
| 11   | -           | Catalytic converter-to-transmission crossmember exhaust isolator hanger (early build only) |

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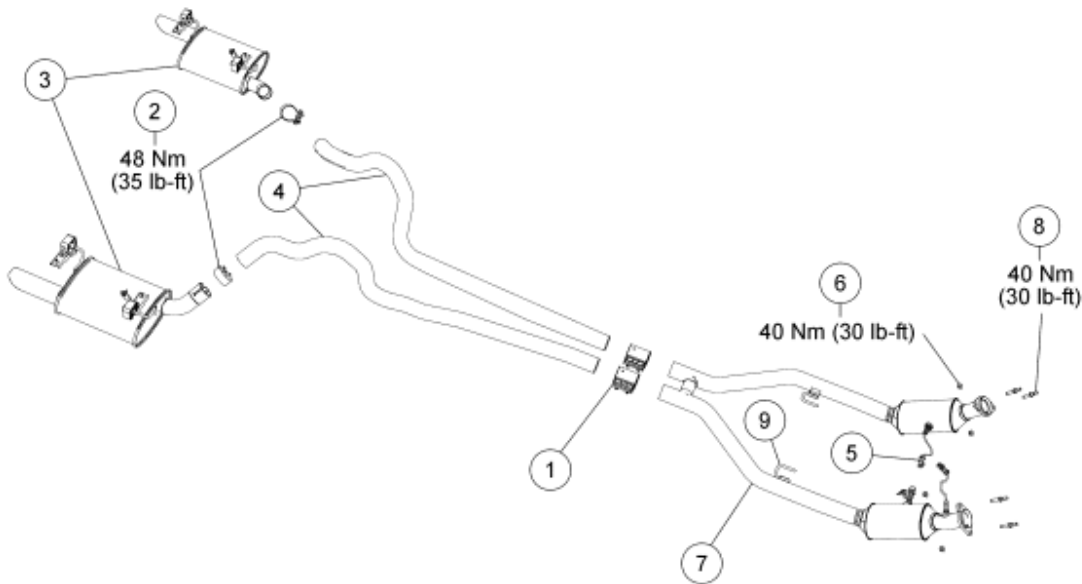
**Fig. 6: Exploded View Of Exhaust System With Torque Specifications - 4.0L (2 Of 2)**  
Courtesy of FORD MOTOR CO.

| Item | Part Number | Description                        |
|------|-------------|------------------------------------|
| 1    | W707079     | RH rear isolator bolt (2 required) |
| 2    | 5A262       | RH rear isolator                   |
| 3    | 5230        | Muffler                            |
| 4    | W707079     | Front isolator top bolt            |
| 5    | W707079     | Front isolator bottom bolt         |
| 6    | 5A246       | Front isolator                     |
| 7    | W707079     | LH rear isolator bottom bolt       |
| 8    | W707079     | LH rear isolator top bolt          |
| 9    | 5A246       | LH rear isolator                   |

**NOTE:** 4.6L shown, 5.4L similar.

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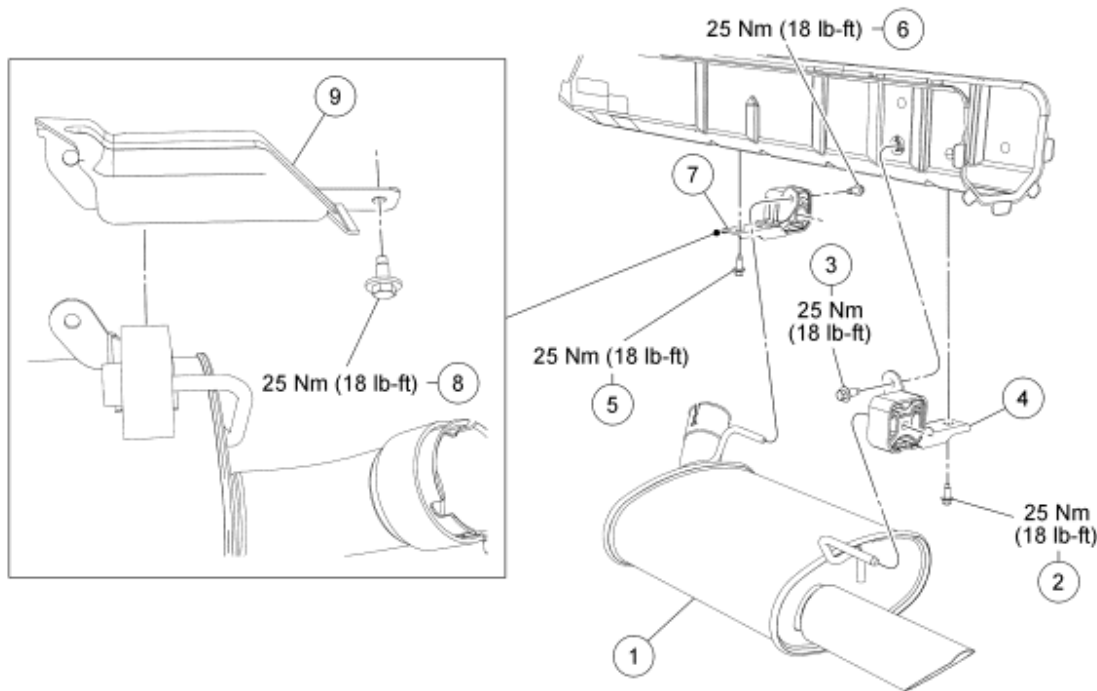
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**Fig. 7: Exploded View Of Exhaust System With Torque Specifications - V8 Engines (1 Of 2)**  
Courtesy of FORD MOTOR CO.

| Item | Part Number        | Description                                                                                |
|------|--------------------|--------------------------------------------------------------------------------------------|
| 1    | 5A281              | Exhaust coupler                                                                            |
| 2    | 5270               | Exhaust clamps                                                                             |
| 3    | 5230 RH/ 5232 LH   | Mufflers                                                                                   |
| 4    | 5A212 RH/ 5A213 LH | Intermediate pipes                                                                         |
| 5    | -                  | Heated oxygen sensor (HO2S) electrical connectors                                          |
| 6    | N811485            | Catalytic converter-to-manifold nut (4 required)                                           |
| 7    | 5F250              | Catalytic converter assembly (H-pipe)                                                      |
| 8    | W709209            | Exhaust manifold stud (4 required)                                                         |
| 9    | -                  | Catalytic converter-to-transmission crossmember exhaust isolator hanger (early build only) |

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**Fig. 8: Exploded View Of Exhaust System With Torque Specifications - V8 Engines (2 Of 2)**  
Courtesy of FORD MOTOR CO.

| Item | Part Number      | Description                |
|------|------------------|----------------------------|
| 1    | 5230 RH/ 5232 LH | Muffler                    |
| 2    | W707079          | Front isolator bottom bolt |
| 3    | W707079          | Front isolator top bolt    |
| 4    | 5A246            | Front isolator             |
| 5    | W707079          | Rear isolator bottom bolt  |
| 6    | W707079          | Rear isolator top bolt     |
| 7    | 5A246            | Rear isolator              |
| 8    | W707079          | Rear isolator shield bolt  |
| 9    | 5J267            | Rear isolator shield       |

1. For additional information, refer to the procedures.

### CATALYTIC CONVERTER - 4.0L

#### REMOVAL AND INSTALLATION

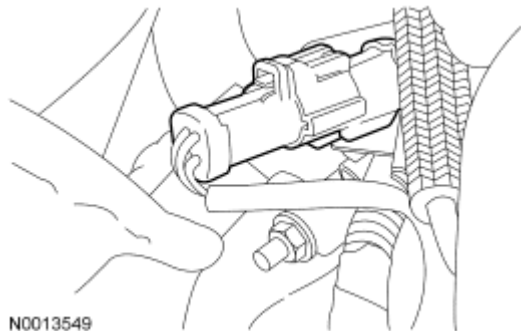
**NOTE:** Early build vehicles are equipped with catalytic converter-to-transmission crossmember exhaust isolator hangers.

All vehicles

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING AND LIFTING** article.
2. Using a jackstand, support the muffler.
3. Loosen the exhaust coupler and disconnect the intermediate pipe from the catalytic converter assembly. Discard the exhaust coupler.
  - To install, tighten to 48 Nm (35 lb-ft).
  - Alternately tighten, in 10 Nm (89 lb-in) increments.

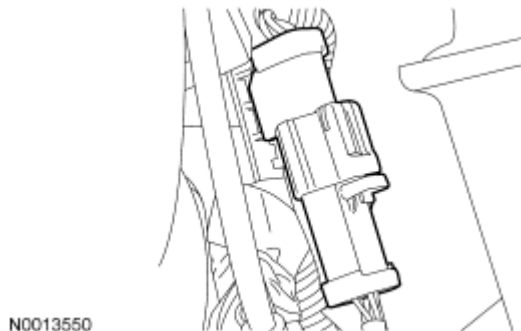
**CAUTION:** When repairing the exhaust system or removing exhaust components, disconnect all heated oxygen sensors (HO2S) and catalyst monitor sensors at the wiring connectors to prevent damage to the sensors and wiring harnesses.

4. Disconnect the RH and LH HO2S electrical connectors.



**Fig. 9: Locating HO2S Electrical Connectors**  
Courtesy of FORD MOTOR CO.

5. Disconnect the RH and LH catalyst monitor sensor electrical connectors.

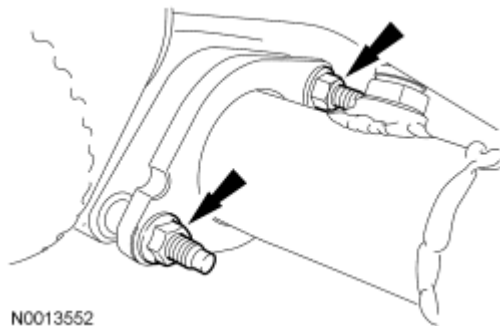


**Fig. 10: Locating Catalyst Monitor Sensor Electrical Connectors**  
Courtesy of FORD MOTOR CO.

6. Using a jackstand, support the catalytic converter.

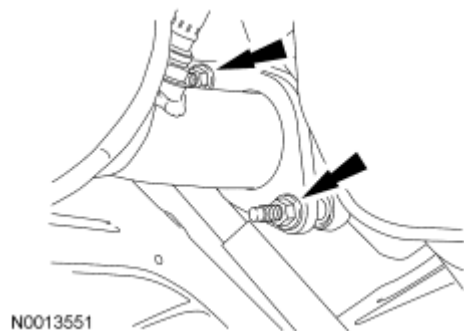
**NOTE:** Hand-tighten all the catalytic converter nuts.

7. Remove and discard the 2 RH catalytic converter-to-exhaust manifold nuts.
  - To install, tighten to 40 N.m (30 lb-ft).



**Fig. 11: Locating RH Catalytic Converter-To-Exhaust Manifold Nuts**  
Courtesy of FORD MOTOR CO.

8. Remove and discard the 2 LH catalytic converter-to-exhaust manifold nuts.
  - To install, tighten to 40 N.m (30 lb-ft).



**Fig. 12: Locating LH Catalytic Converter-To-Exhaust Manifold Nuts**  
Courtesy of FORD MOTOR CO.

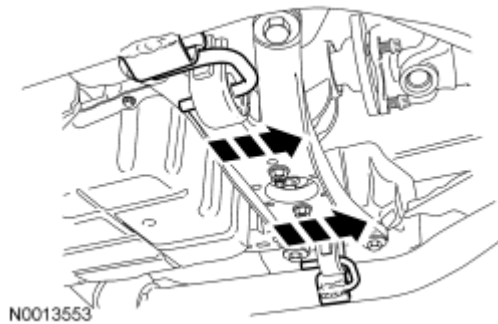
#### **Late build vehicles**

9. Remove the jackstand and the catalytic converter.

#### **Early build vehicles**

**NOTE:** Make sure not to damage the manifold outlet flare, the converter inlet flare or the studs.

10. Remove the jackstand and the catalytic converter assembly.



**Fig. 13: Removing Catalytic Converter Assembly**  
Courtesy of FORD MOTOR CO.

**All vehicles**

11. Remove and discard the 4 catalytic converter-to-exhaust manifold studs.
  - To install, tighten to 40 Nm (30 lb-ft).

**NOTE:** Using a Scotch Brite® pad, clean the mating surfaces of the manifold outlet flare and the catalytic converter inlet flare, at the catalytic converter outlet flare and the muffler inlet pipe. Keep foreign materials out of the catalytic converters.

**NOTE:** Using a jackstand, support the catalytic converter near the rear outlet while positioning the converter into place. Align the manifold studs into the pipe flange. Make sure not to damage the studs or mating surfaces.

- Make sure to correctly align the catalytic converter to the exhaust manifold before installing the fasteners. The catalytic converter is correctly positioned when the hanger rods are centered in the isolators.

12. To install, reverse the removal procedure.
  - Always install new converter-to-manifold nuts, studs and exhaust coupler.

**CATALYTIC CONVERTER - 4.6L, 5.4L**

**REMOVAL AND INSTALLATION**

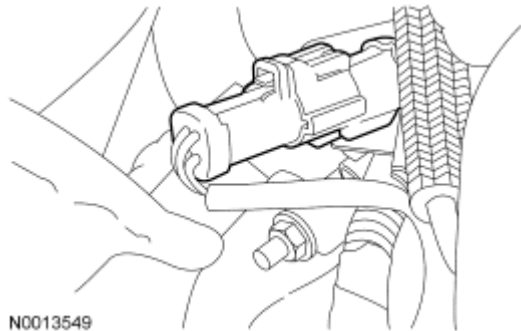
**NOTE:** Early build vehicles are equipped with catalytic converter-to-transmission crossmember exhaust isolator hangers.

**All vehicles**

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING AND LIFTING** article.

**CAUTION:** When repairing the exhaust system or removing exhaust components, disconnect all heated oxygen sensors (HO2S) and catalyst monitor sensors at the wiring connectors to prevent damage to the sensors and wiring harnesses.

2. Disconnect the RH HO2S electrical connector.



**Fig. 14: Locating HO2S Electrical Connectors**  
Courtesy of FORD MOTOR CO.

3. Using a jackstand, support the muffler.
4. Loosen the 2 exhaust couplers and disconnect the intermediate pipes from the catalytic converter assembly. Discard the exhaust couplers.
  - To install, tighten to 48 Nm (35 lb-ft).
  - Alternately tighten, in 10 Nm (89 lb-in) increments.
5. Disconnect the RH and LH catalyst monitor sensor electrical connectors.



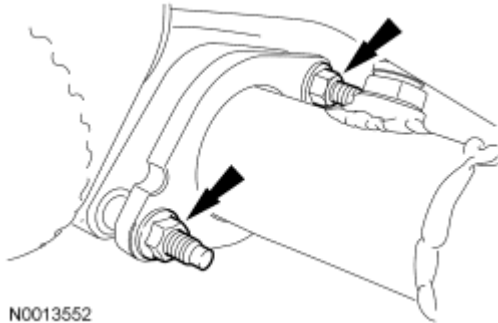
**Fig. 15: Locating Catalyst Monitor Sensor Electrical Connectors**  
Courtesy of FORD MOTOR CO.

6. Using a jackstand, support the catalytic converter.

**NOTE:** Hand-tighten all the catalytic converter nuts.

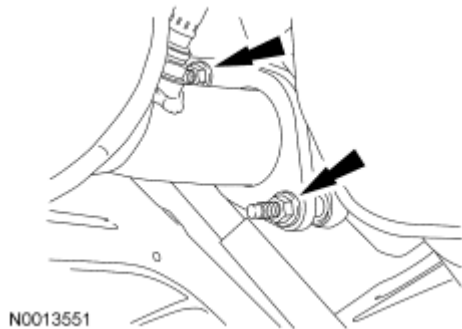
7. Remove and discard the 2 RH catalytic converter-to-exhaust manifold nuts.

- To install, tighten to 40 N.m (30 lb-ft).



**Fig. 16: Locating RH Catalytic Converter-To-Exhaust Manifold Nuts**  
Courtesy of FORD MOTOR CO.

8. Remove and discard the 2 LH catalytic converter-to-exhaust manifold nuts.
  - To install, tighten to 40 N.m (30 lb-ft).



**Fig. 17: Locating LH Catalytic Converter-To-Exhaust Manifold Nuts**  
Courtesy of FORD MOTOR CO.

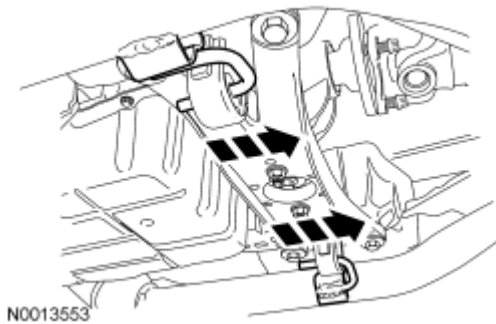
#### **Late built vehicles**

9. Remove the jackstand and catalytic converter.

#### **Early build vehicles**

**NOTE:** Make sure not to damage the manifold outlet flare, the converter inlet flare or the studs.

10. Remove the catalytic converter assembly.



**Fig. 18: Removing Catalytic Converter Assembly**  
Courtesy of FORD MOTOR CO.

### All vehicles

11. Remove and discard the 4 catalytic converter-to-exhaust manifold studs.
  - To install, tighten to 40 Nm (30 lb-ft).

**NOTE:** Using a Scotch Brite® pad, clean the mating surfaces of the manifold outlet flare and the catalytic converter inlet flare, at the catalytic converter outlet flare and the muffler inlet pipe. Keep foreign materials out of the catalytic converters.

**NOTE:** Using a jackstand, support the catalytic converter near the rear outlet while positioning the converter into place. Align the manifold studs into the pipe flange. Make sure not to damage the studs or mating surfaces.

- Make sure to correctly align the catalytic converter to the exhaust manifold before installing the fasteners. The catalytic converter is correctly positioned when the hanger rods are centered in the isolators.

12. To install, reverse the removal procedure.
  - Always install new converter-to-manifold nuts, studs and exhaust couplers.

### MUFFLER

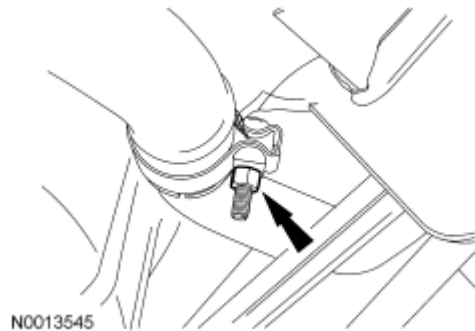
#### REMOVAL

**NOTE:** 4.0L has single muffler, 4.6L and 5.4L have dual mufflers. Repeat steps for both sides, if necessary.

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING AND LIFTING** article.
2. Loosen the exhaust coupler and disconnect the intermediate pipe from the catalytic converter assembly.

Discard the exhaust coupler.

3. Loosen the muffler clamp and disconnect the muffler from the intermediate pipe.



**Fig. 19: Locating Muffler Clamp Nut**  
Courtesy of FORD MOTOR CO.

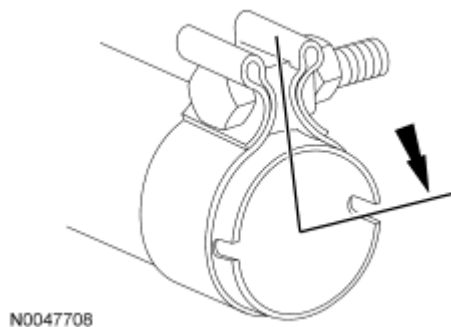
4. Remove the intermediate pipe from the vehicle.
5. Slide the muffler out of the muffler isolators and remove from the vehicle.
  - To install isolators, tighten to 25 N.m (18 lb-ft).
6. Slide the muffler into the isolators.

## INSTALLATION

1. Install the intermediate pipe.

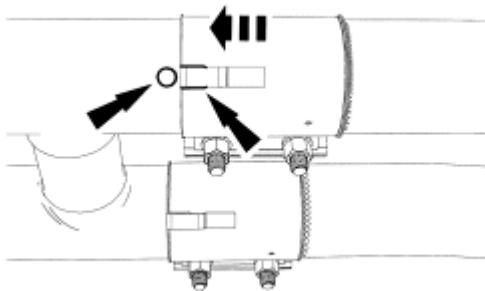
**NOTE:** Install a new exhaust clamp.

2. Connect the intermediate pipe into the muffler.
3. Tighten the exhaust clamp.
  - The exhaust clamp should be installed so that it is up to, but not over, the bottom of the notches.
  - Tighten to 48 Nm (35 lb-ft).



**Fig. 20: Exhaust Clamp Should Be Installed Up To, But Not Over, Bottom Of Notches**  
Courtesy of FORD MOTOR CO.

4. Place the new exhaust coupler over the intermediate pipe. Position the intermediate pipe to the catalytic converter, slide the coupler into position until the converter button is seated into the intermediate pipe notch.
5. Push the muffler forward to fully seat the pipe in the coupler.
  - Verify that the intermediate pipe is inserted into the coupler correctly. Correct installation is achieved when the coupler terminates in the knurled region of the intermediate pipe. The knurled section on the intermediate pipe must be at the coupler lip.



**Fig. 21: Locating Crosshatched Area On Intermediate Pipe**  
Courtesy of FORD MOTOR CO.

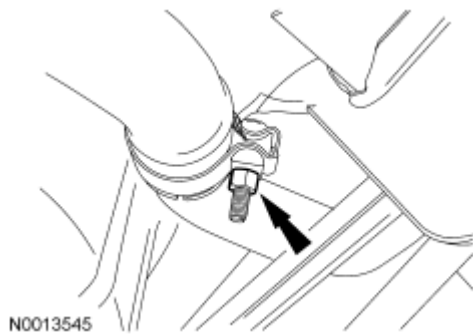
6. Tighten the exhaust coupler nuts.
  - Tighten to 48 Nm (35 lb-ft).
  - Alternately tighten, in 10 Nm (89 lb-in) increments.

## **EXHAUST INTERMEDIATE PIPE**

### **REMOVAL**

**NOTE:**        **4.0L has single intermediate pipe, 4.6L and 5.4L have dual. Repeat steps for both sides, if necessary.**

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to **JACKING AND LIFTING** article.
2. Loosen the exhaust coupler and disconnect the intermediate pipe from the catalytic converter assembly. Discard the exhaust coupler.
3. Loosen the muffler clamp and disconnect the muffler from the intermediate pipe.



**Fig. 22: Locating Muffler Clamp Nut**  
Courtesy of FORD MOTOR CO.

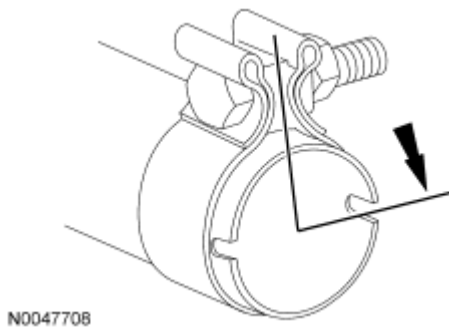
4. Remove the intermediate pipe from the vehicle.

#### INSTALLATION

1. Install the intermediate pipe.

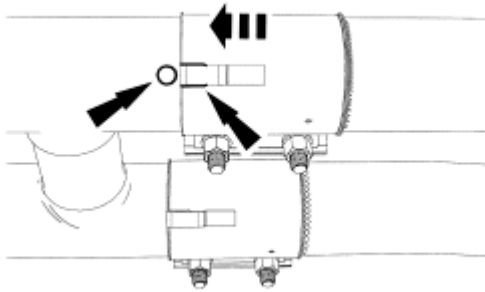
**NOTE:** Install a new exhaust clamp.

2. Connect the intermediate pipe into the muffler.
3. Tighten the exhaust clamp.
  - The exhaust clamp should be installed so that it is up to, but not over, the bottom of the notches.
  - Tighten to 48 Nm (35 lb-ft).



**Fig. 23: Exhaust Clamp Should Be Installed Up To, But Not Over, Bottom Of Notches**  
Courtesy of FORD MOTOR CO.

4. Push the muffler forward to fully seat the pipe in the coupler.
  - Verify that the intermediate pipe is inserted into the coupler correctly. Correct installation is achieved when the coupler terminates in the knurled region of the intermediate pipe. The knurled section on the intermediate pipe must be at the coupler lip.



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**Fig. 24: Locating Crosshatched Area On Intermediate Pipe**  
Courtesy of FORD MOTOR CO.

5. Place the new exhaust coupler over the intermediate pipe. Position the intermediate pipe to the catalytic converter, slide the coupler into position until the converter button is seated into the intermediate pipe notch.
6. Tighten the exhaust coupler nuts.
  - Tighten to 48 Nm (35 lb-ft).
  - Alternately tighten, in 10 Nm (89 lb-in) increments.