SPECIFICATIONS

Torque Specifications

Description	Nm	lb-ft	lb-in
Catalytic converter-to-exhaust manifold studs	40	30	—
Exhaust clamp nuts	48	35	—
Exhaust coupler nuts[a]	—	—	—
Exhaust isolator bracket bolts	25	18	—

Torque Specifications (Continued)

Description	Nm	lb-ft	lb-in
Exhaust manifold stud-to-catalytic converter nuts	45	35	—
Isolator bolts	25	18	—
Worm gear clamp	7	—	62

a Refer to the procedure in this section.

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DESCRIPTION AND OPERATION

Exhaust System

NOTICE: **When repairing exhaust system or removing exhaust components, disconnect all Heated Oxygen Sensor (HO2S) at the wiring connectors to prevent damage to the HO2S and wiring harness. Refer to Section 303-14 for location of the HO2S.**

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

NOTICE: **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).
- 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 Sensor (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 tail pipe assembly is a one-piece design exhaust system.

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DIAGNOSIS AND TESTING

Exhaust System

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
• Exhaust pipe pinched or crushed • Damaged muffler • Broken or damaged exhaust hanger brackets • Damaged catalytic converter • Cracked exhaust manifold • Loose or damaged heat shields

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 — NVH.

Symptom Chart — Exhaust System

Symptom Chart — Exhaust System

Condition	Possible Sources	Action
• Vehicle has low or no power — vehicle performance complaint	• Exhaust pipe pinched or crushed • Damaged catalytic converter • Loose obstruction in exhaust	• 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 Powertrain Control/Emissions Diagnosis (PC/ED) manual.
	• Restricted exhaust (possible frozen condensate in muffler)	• 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 Powertrain Control/Emissions Diagnosis (PC/ED) manual.
• Burning smell — usually occurs at idle, with possible traces of smoke	• Foreign material caught in exhaust system • Missing heat shields	• 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.
• Odor — described as a sulfur or rotten egg smell	• Catalytic converter • Excessive sulfur content in fuel	• 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.
	• Rich fuel conditions • Misfire conditions	• REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual.

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DIAGNOSIS AND TESTING (Continued)

Symptom Chart — Exhaust System (Continued)

Condition	Possible Sources	Action
• Visible rust on surface of exhaust pipes	• Catalytic converter/exhaust system	• 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 no perforations, the condition is normal.

DIAGNOSIS AND TESTING (Continued)

Symptom Chart — NVH

Symptom Chart — NVH

NOTE: 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 Section 100-04. 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 Section 100-04 for the next likely system and continue diagnosis.

Condition	Possible Sources	Action
• Rattle, squeaks or buzz type noise — from the bottom of the vehicle	• Loose or damaged heat shield	• 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.
	• Loose or damaged exhaust isolators	• 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.
	• Damaged exhaust isolator hanger bracket	• INSPECT the exhaust system components for damage or 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.
	• Loose or damaged catalytic converter or muffler	• 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.

DIAGNOSIS AND TESTING (Continued)

Symptom Chart — NVH (Continued)

Condition	Possible Sources	Action
		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.

DIAGNOSIS AND TESTING (Continued)

Symptom Chart — NVH (Continued)

Condition	Possible Sources	Action
	• Exhaust grounded to chassis	• INSPECT for signs of exhaust components-to-body contact. If necessary, CARRY OUT the Exhaust System Alignment in this section.
• Rattle, buzz, vibration from either the center stack (radio/heater) console, steering wheel, seat, floor pan and/or gearshift area	• One or both of the exhaust hanger isolators on the transmission crossmember (if equipped) is loose in the bracket and/or compressed by misaligned exhaust hanger rod(s)	• REFER to all Technical Service Bulletins (TSBs) that pertain to the exhaust concerns and FOLLOW the procedure outlined.
• Drone or clunk type noise — from the bottom of the vehicle	• Loose or damaged exhaust isolators	• INSPECT the exhaust isolators for wear or damage. INSTALL new isolators as necessary. TEST the system for normal operation after the repair.
	• Exhaust grounded to chassis	• INSPECT for signs of exhaust components-to-body contact. If necessary, CARRY OUT the Exhaust System Alignment in this section.

DIAGNOSIS AND TESTING (Continued)

Symptom Chart — NVH (Continued)

Condition	Possible Sources	Action
• Whistles, boom, hum or ticking type noise — noise tends to change as the engine warms. The noises are often accompanied by exhaust fumes	• Exhaust system leak	• INSPECT the entire exhaust 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.
	• Catalytic converter	• 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.
	• Exhaust muffler/resonator drain hole enlarged due to corrosion	• CONFIRM the drain holes are the noise source. INSTALL new components as necessary. TEST the system for normal operation after the repair.
• Hissing or rushing noise — high frequency sound. Vehicle performance is unaffected	• Exhaust system. Exhaust flow through pipes	• 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 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.

DIAGNOSIS AND TESTING (Continued)

Symptom Chart — NVH (Continued)

Condition	Possible Sources	Action
• Pinging noise — occurs when exhaust system is hot, engine turned off	• Catalytic converter/exhaust system	• Cool down pinging is a result of the exhaust system expanding and contracting during heating and cooling. This is a normal condition.
• Vibration — occurs at idle and at low speeds. Also accompanied by a clunk or buzz type noise	• Loose or damaged exhaust isolator	• INSPECT the exhaust isolators for wear or damage. INSTALL new isolators as necessary. TEST the system for normal operation after the repair.
	• Loose or damaged exhaust isolator hanger brackets	• INSPECT the exhaust isolator hanger brackets for wear or damage. INSTALL or REPAIR as necessary. TEST the system for normal operation after the repair.
	• Damper broken or out of position	• CHECK for the correct damper orientation in this section. 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.
	• Exhaust system grounded to chassis	• CARRY OUT the Exhaust System Alignment in this section.
• Engine drumming noise — normally accompanied by vibration	• Damaged or misaligned exhaust system	• INSPECT the exhaust system for loose or damaged fasteners, Torca® clamps or isolators. CARRY OUT the Exhaust System Alignment in this section.
• Sputter type noise — noise worse when cold, lessens or disappears when the vehicle is at operating temperature	• Damaged or worn exhaust system	• INSPECT the exhaust system for leaks or damage. REPAIR as necessary. TEST the system for normal operation after the repair.
• Thumping noise — from the bottom of the vehicle, worse at acceleration	• Misaligned exhaust system	• 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.
• Engine vibration — is felt with increases and decreases in engine rpm	• Strain on exhaust system isolators	• CARRY OUT the Exhaust System Alignment in this section. REPAIR as necessary. TEST the system for normal operation after the repair.

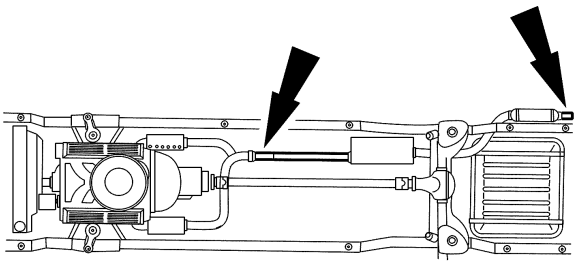
DIAGNOSIS AND TESTING (Continued)

Symptom Chart — NVH (Continued)

Condition	Possible Sources	Action
• Drumming noise — occurs inside the vehicle during idle or high idle, hot or cold. Very low-frequency drumming is very rpm dependent	• Exhaust system vibration excites the body resonances inducing interior noise	• GO to Pinpoint Test A.

Pinpoint Test

PINPOINT TEST A: DRUMMING NOISE

Test Step		Result / Action to Take
A1	**CHECK THE EXHAUST SYSTEM**	
	• Start the engine. • Increase the engine rpm until the noise is the loudest. Note the engine rpm. • Ignition OFF. • 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.  DF1768-A • Start the engine. • Increase the engine rpm and listen for the drumming noise. Note the engine rpm if the noise occurs. • Ignition OFF. • Remove the weight from the exhaust system. • **Is the noise/vibration reduced or eliminated, or does the noise/vibration occur at a different rpm?**	**Yes** REFER to Exhaust System Alignment in this section. TEST the system for normal operation. **No** CONDUCT a diagnosis on other suspect systems. REFER to Section 100-04.

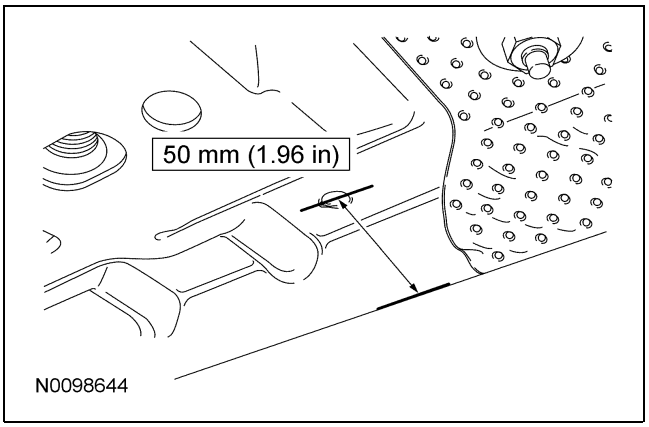
GENERAL PROCEDURES

Exhaust System Alignment

NOTE: Early build vehicles have transmission crossmember isolators.

Late build vehicles do not have transmission crossmember isolators.

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to Section 100-02.
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 catalytic converter Y-pipe/H-pipe.
6. Make sure the exhaust system hanger rods are correctly inserted into all of the muffler exhaust isolators and the transmission crossmember isolators (if equipped).
7. Using the jackstand, adjust the height of the LH and RH catalytic converters until there is a 50 mm (1.96 in) clearance between the exhaust pipe and the floor pan (measuring just behind the heat shield).

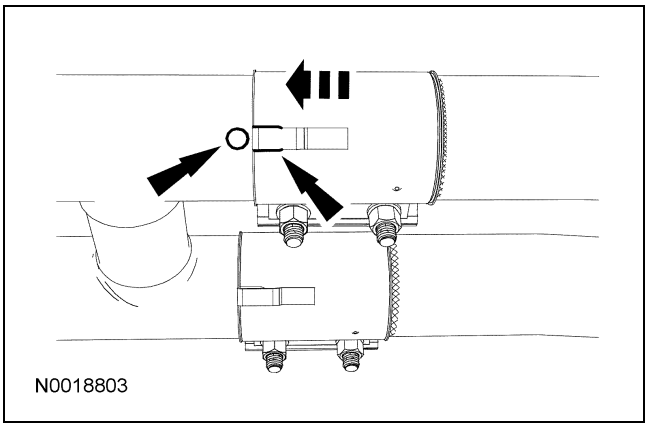


8. Beginning at the front of the vehicle, align the exhaust system in the following sequence.
   1 Evenly tighten all 4 of the catalytic converter-to-exhaust manifold nuts (starting with the lower right, then the lower left, then the upper right, then the upper left) in 10 Nm (89 lb-in) increments until reaching the final torque of the 45 Nm (33 lb-ft).
   2 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 Nm (35 lb-ft).

   3 **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.

   Slide coupler over catalyst pipe and engage the coupler clip completely over the converter button.

   4 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).



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

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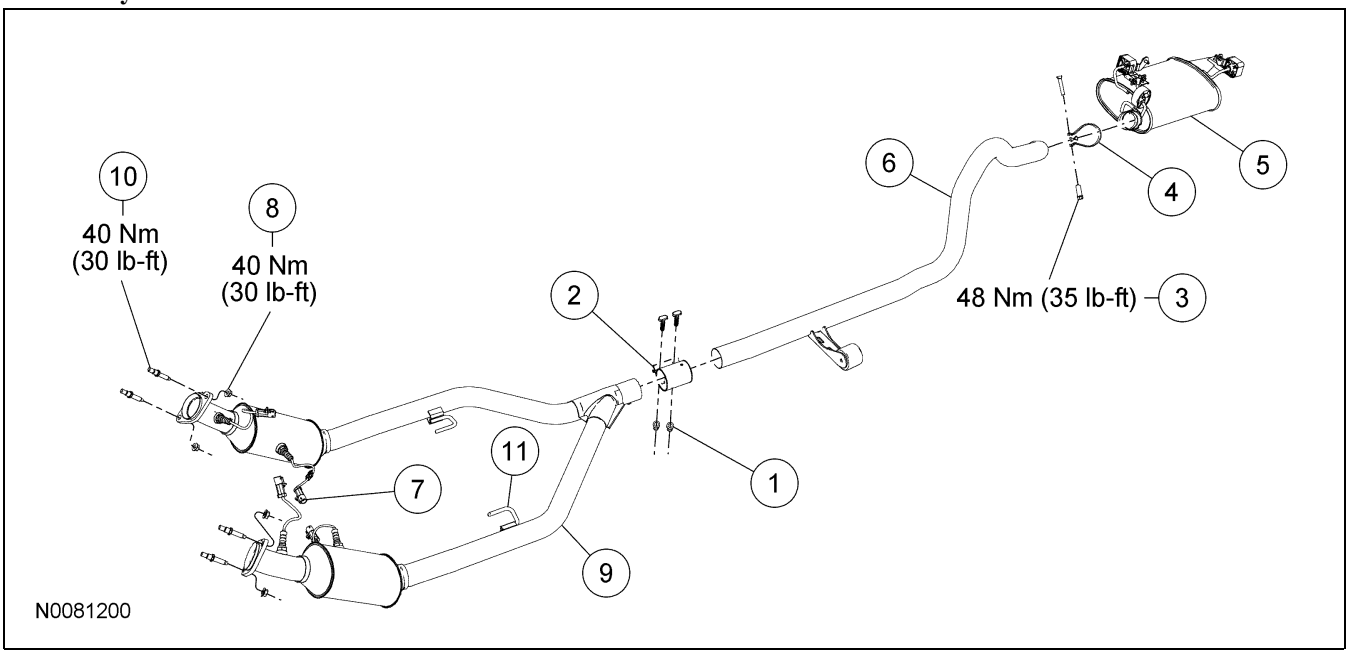
REMOVAL AND INSTALLATION

Exhaust System — Exploded View

Exhaust System — 4.0L



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

(Continued)

Item	Part Number	Description
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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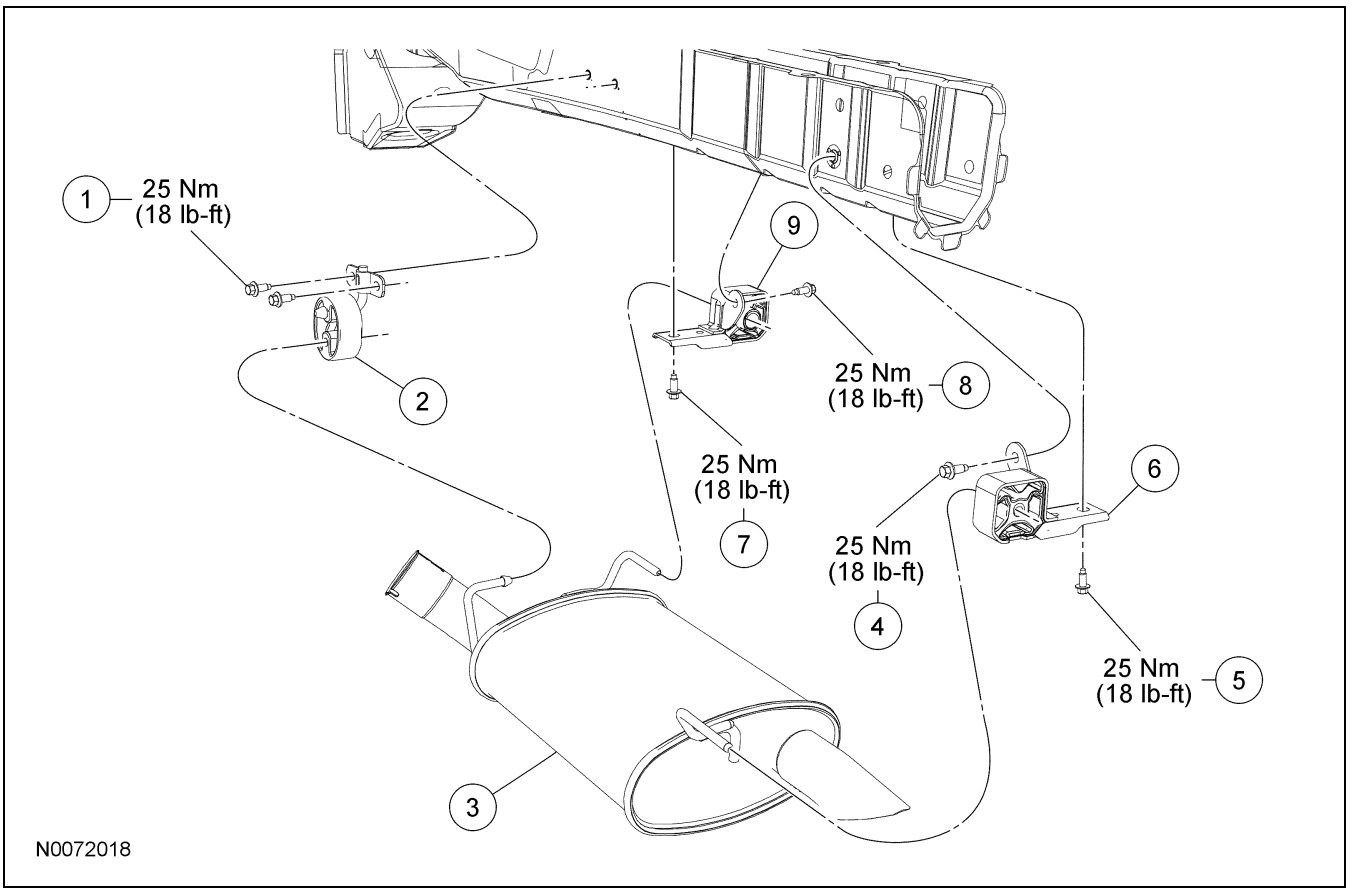
REMOVAL AND INSTALLATION (Continued)



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

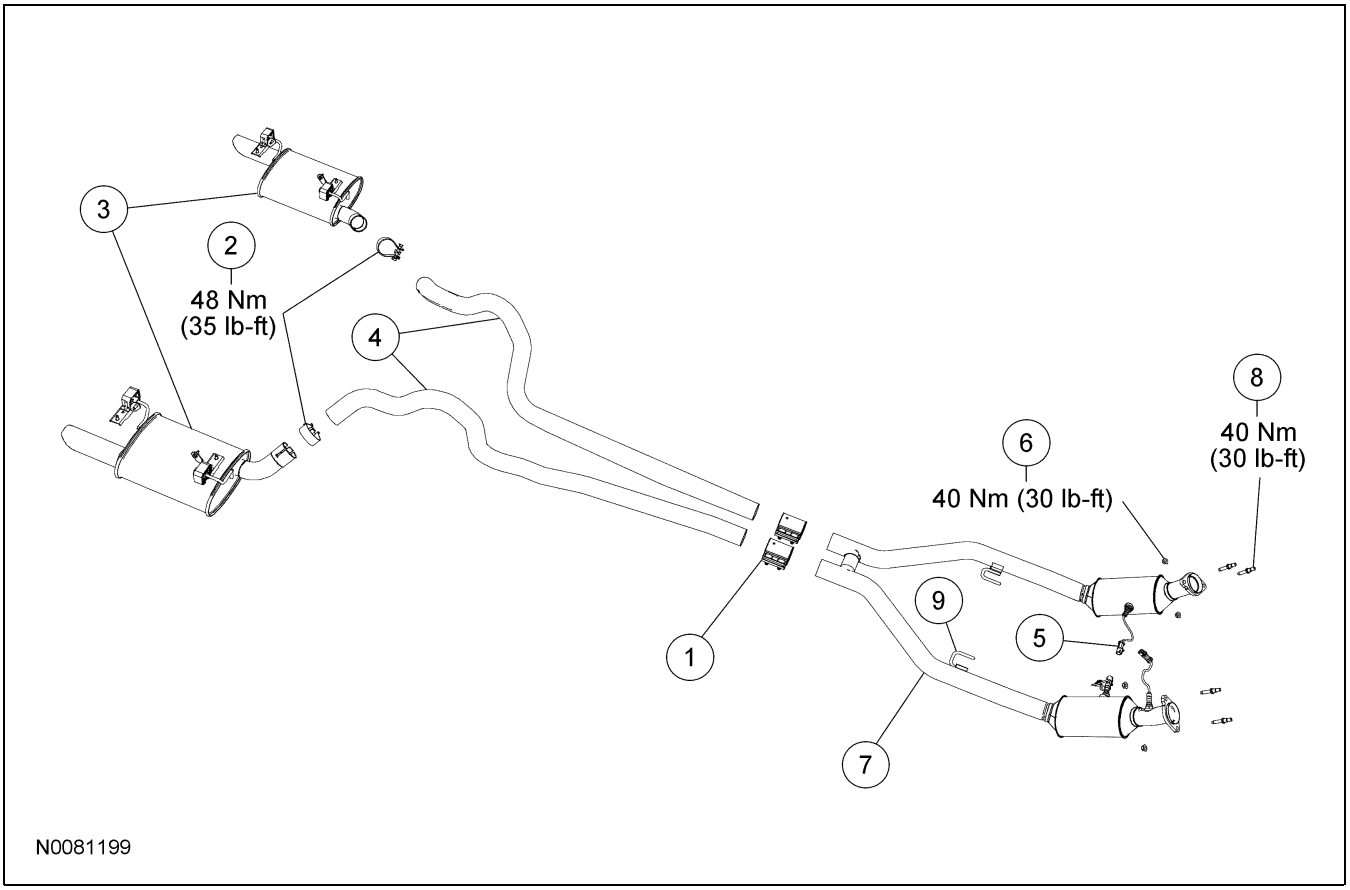
(Continued)

Item	Part Number	Description
6	5A246	Front isolator
7	W707079	LH rear isolator bottom bolt
8	W707079	LH rear isolator top bolt
9	5A246	LH rear isolator

REMOVAL AND INSTALLATION (Continued)

Exhaust System — V8 Engines

NOTE: 4.6L shown, 5.4L similar.

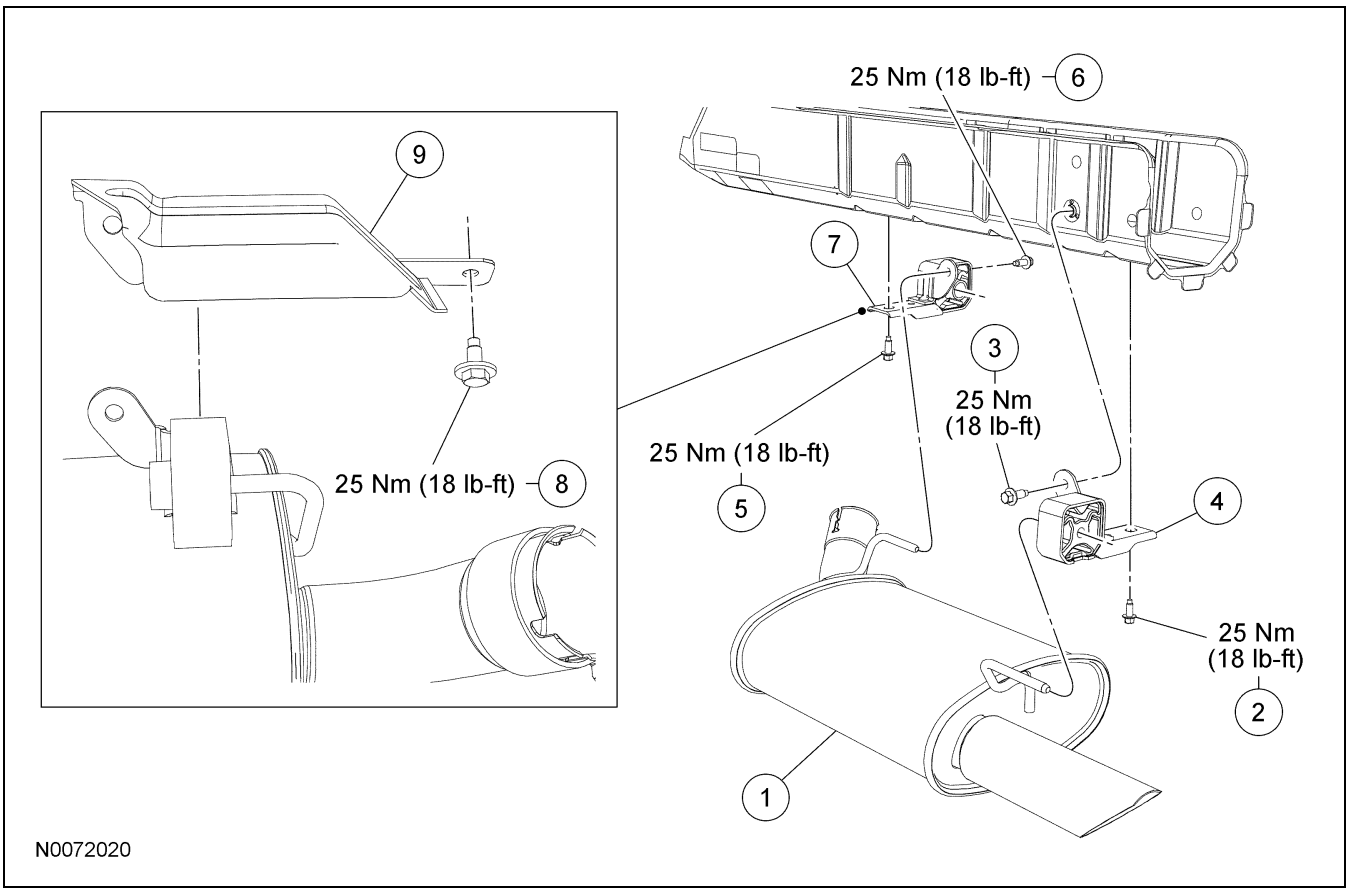


Item	Part Number	Description
1	5A281	Exhaust coupler
2	5270	Exhaust clamps
3	5230 RH/ 5232 LH	Mufflers
4	5A212 RH/ 5A213 LH	Intermediate pipes
5	—	Heated oxygen sensor (HO2S) electrical connectors
6	N811485	Catalytic converter-to-manifold nut (4 required)

(Continued)

Item	Part Number	Description
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)

REMOVAL AND INSTALLATION (Continued)



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

(Continued)

Item	Part Number	Description
7	5A246	Rear isolator
8	W707079	Rear isolator shield bolt
9	5J267	Rear isolator shield

1. For additional information, refer to the procedures in this section.

REMOVAL AND INSTALLATION

Catalytic Converter — 4.0L

Removal and Installation

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

All vehicles

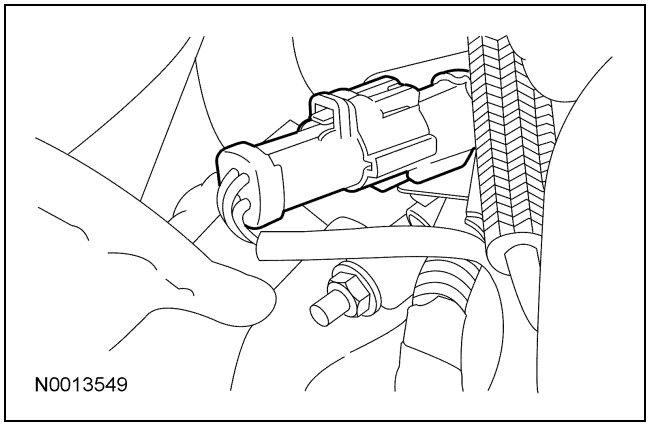
1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to Section 100-02.

2. Using a jackstand, support the muffler.

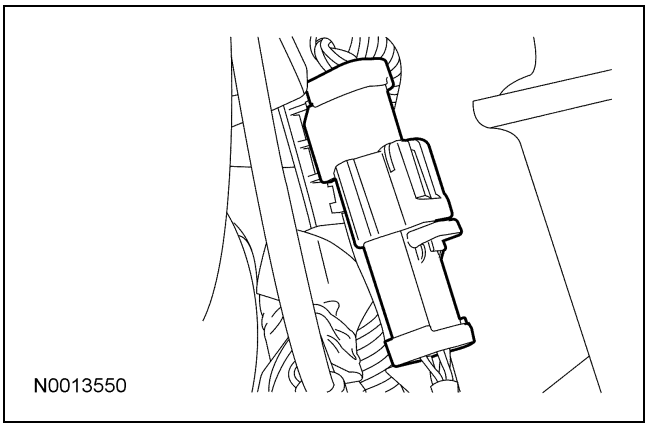
3. Loosen the exhaust coupler and disconnect the intermediate pipe from the catalytic converter assembly. Discard the exhaust coupler.
   - To install, tighten to 48 Nm (35 lb-ft).
     - Alternately tighten, in 10 Nm (89 lb-in) increments.

4. **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.**

   Disconnect the RH and LH HO2S electrical connectors.


N0013549

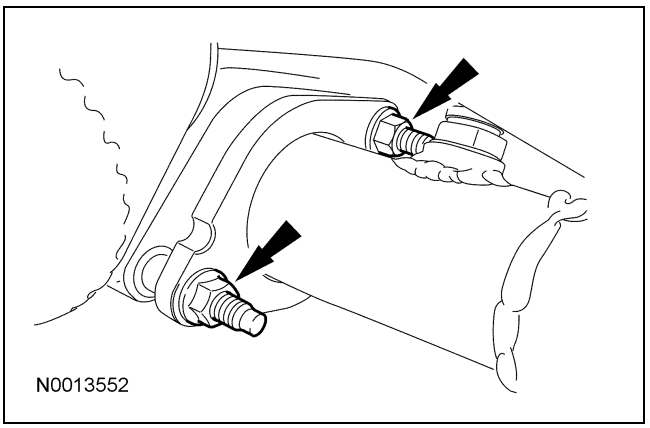
5. Disconnect the RH and LH catalyst monitor sensor electrical connectors.


N0013550

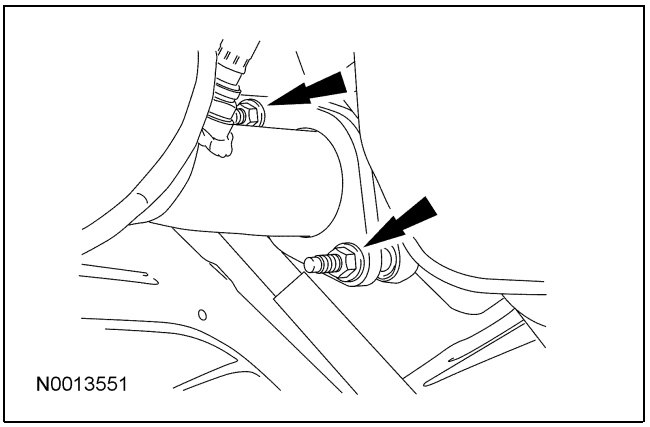
6. Using a jackstand, support the catalytic converter.

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

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


N0013552

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


N0013551

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REMOVAL AND INSTALLATION (Continued)

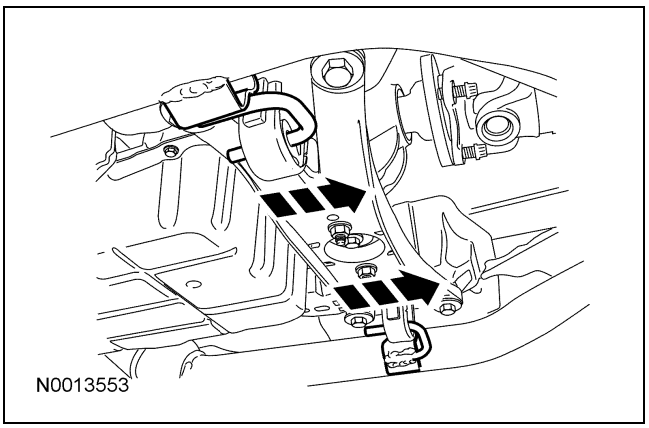
Late build vehicles

9. Remove the jackstand and the catalytic converter.

Early build vehicles

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

    Remove the jackstand and the catalytic converter assembly.



All vehicles

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

12. **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.

    To install, reverse the removal procedure.

    - Always install new converter-to-manifold nuts, studs and exhaust coupler.

REMOVAL AND INSTALLATION

Catalytic Converter — 4.6L, 5.4L

Removal and Installation

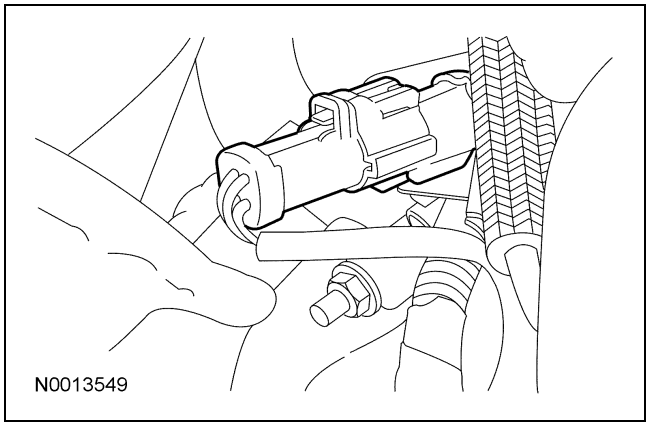
NOTE: Early build vehicles are equipped with catalytic converter-to-transmission crossmember exhaust isolator hangers.

All vehicles

1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to Section 100-02.

2. ⚠ **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.**

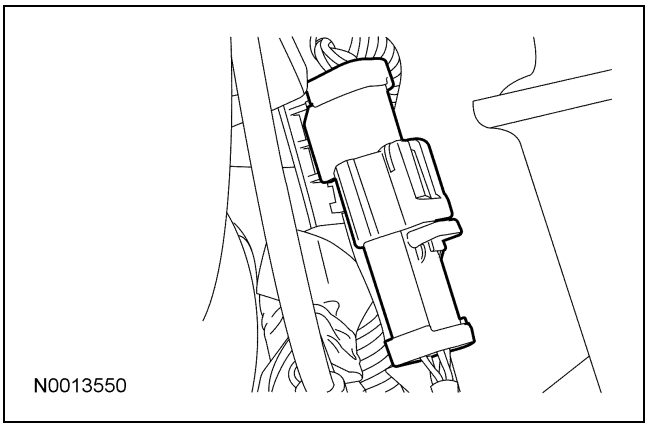
   Disconnect the RH HO2S electrical connector.



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.

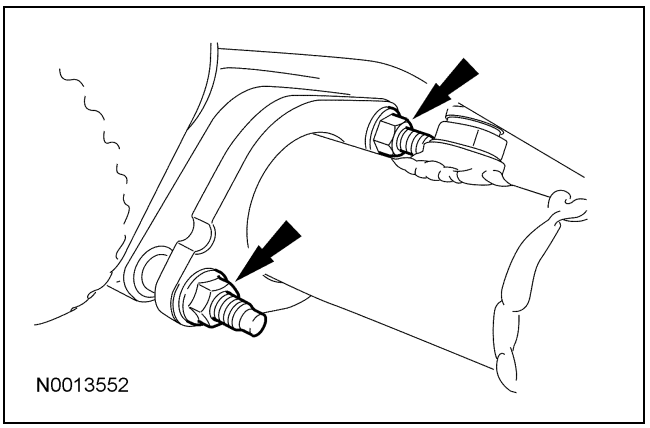
5. Disconnect the RH and LH catalyst monitor sensor electrical connectors.



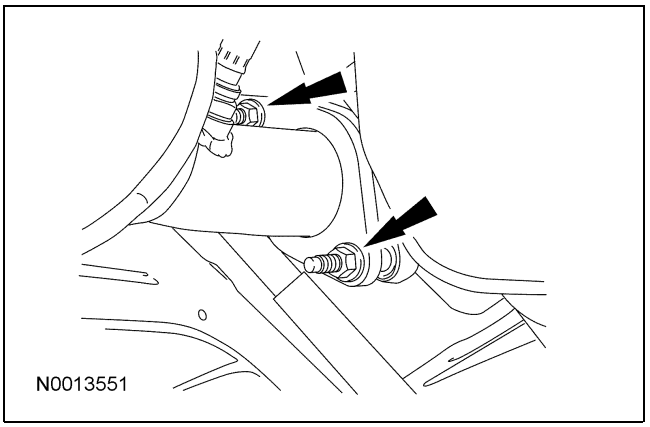
6. Using a jackstand, support the catalytic converter.

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

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



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



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REMOVAL AND INSTALLATION (Continued)

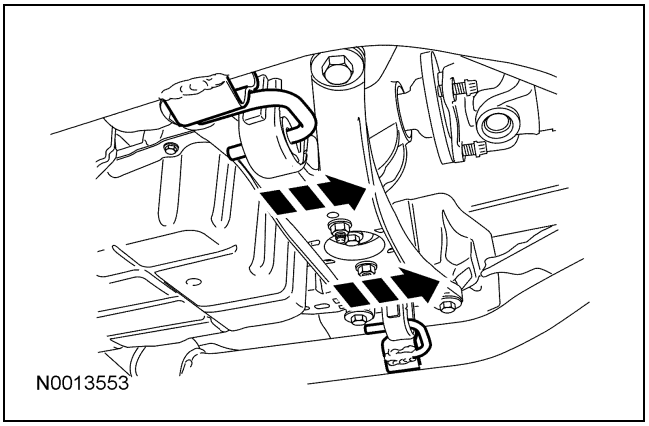
Late built vehicles

9. Remove the jackstand and catalytic converter.

Early build vehicles

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

    Remove the catalytic converter assembly.



All vehicles

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

12. **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.

    To install, reverse the removal procedure.

    - Always install new converter-to-manifold nuts, studs and exhaust couplers.

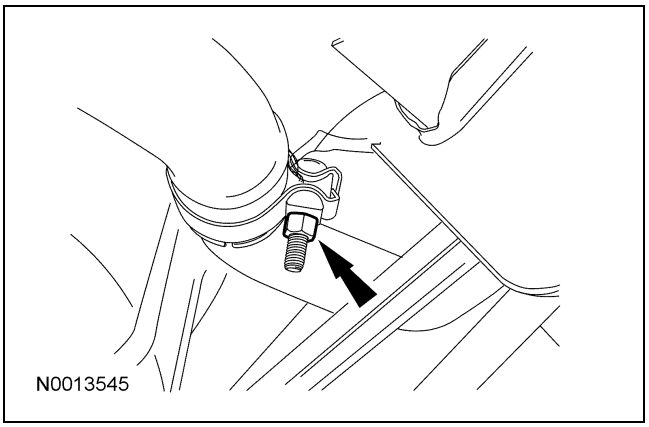
REMOVAL AND INSTALLATION

Muffler

Removal

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

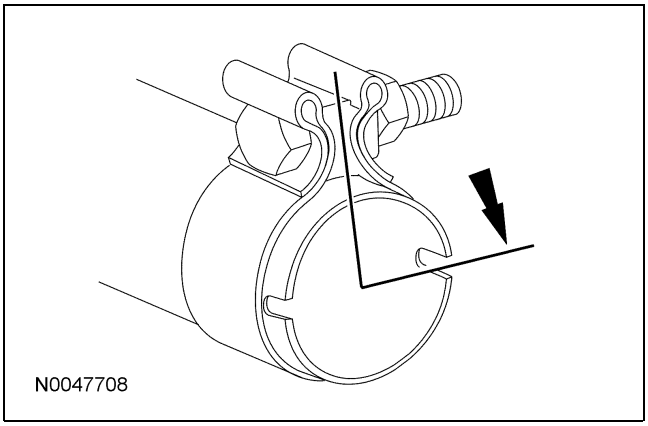
1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to Section 100-02.
2. Loosen the exhaust coupler and disconnect the intermediate pipe from the catalytic converter assembly. Discard the exhaust coupler.
3. Loosen the muffler clamp and disconnect the muffler from the intermediate pipe.



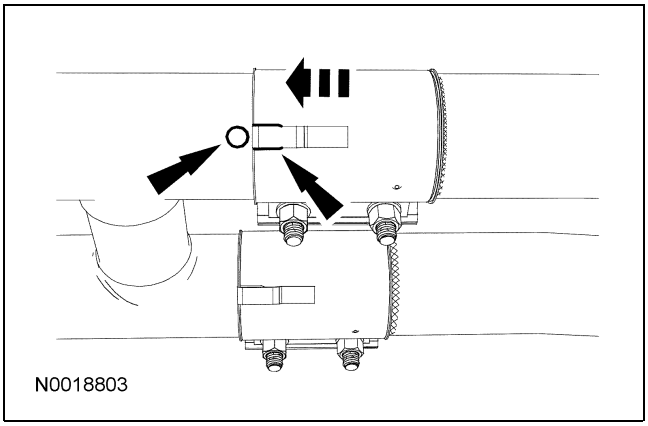
4. Remove the intermediate pipe from the vehicle.
5. Slide the muffler out of the muffler isolators and remove from the vehicle.
   - To install isolators, tighten the bolts to 25 Nm (18 lb-ft).
6. Slide the muffler into the isolators.

Installation

1. Install the intermediate pipe.
2. **NOTE:** Install a new exhaust clamp.
   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).



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.



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REMOVAL AND INSTALLATION (Continued)

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

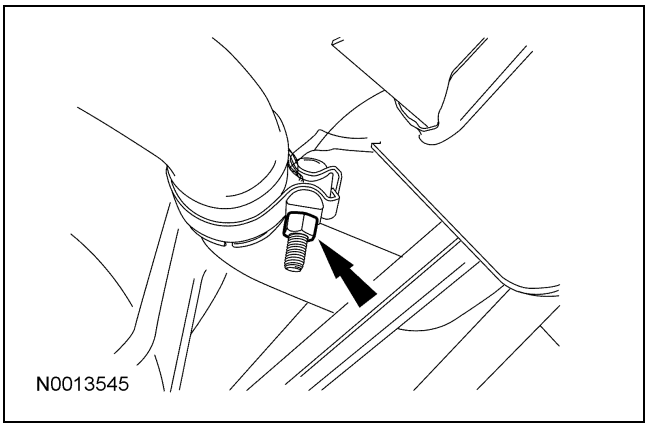
REMOVAL AND INSTALLATION

Exhaust Intermediate Pipe

Removal

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

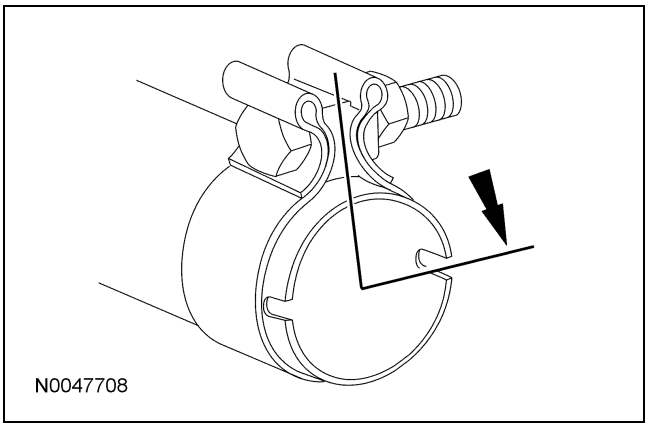
1. With the vehicle in NEUTRAL, position it on a hoist. For additional information, refer to Section 100-02.
2. Loosen the exhaust coupler and disconnect the intermediate pipe from the catalytic converter assembly. Discard the exhaust coupler.
3. Loosen the muffler clamp and disconnect the muffler from the intermediate pipe.



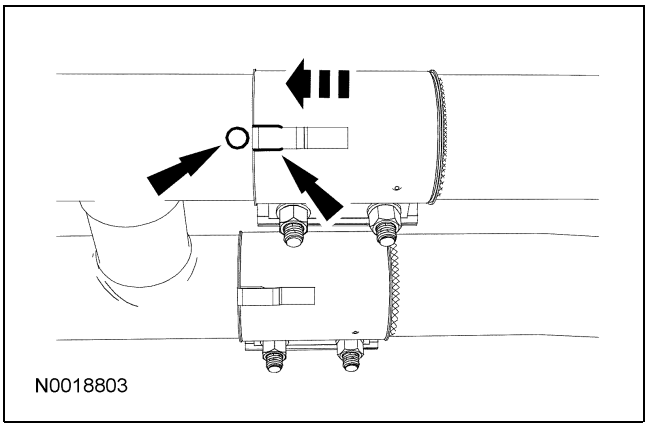
4. Remove the intermediate pipe from the vehicle.

Installation

1. Install the intermediate pipe.
2. **NOTE:** Install a new exhaust clamp.
   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).



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.



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.

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