

2006 Chevrolet Equinox LT

2006 ENGINE Engine Exhaust - Equinox & Torrent

2006 ENGINE

Engine Exhaust - Equinox & Torrent

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Catalytic Converter to Exhaust Manifold Nut	37 N.m	27 lb ft
Catalytic Converter to Exhaust Manifold Stud	6 N.m	53 lb in
Exhaust Crossover Pipe Nut	25 N.m	18 lb ft
Exhaust Manifold Crossover Pipe Stud	25 N.m	18 lb ft
Exhaust Manifold Heat Shield Bolt	10 N.m	89 lb in
Exhaust Manifold Nut	16 N.m	12 lb ft
Exhaust Manifold Stud	18 N.m	13 lb ft
Exhaust System to Catalytic Converter Nut	37 N.m	27 lb ft
Front Exhaust Heat Shield Nut	10 N.m	89 lb in
Fuel Tank Strap Bolt	25 N.m	18 lb ft
Propeller Shaft Underbody Guard Loop Bolt	25 N.m	18 lb ft

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - ENGINE EXHAUST

Begin the system diagnosis by reviewing the exhaust system description. Reviewing the exhaust system description information will help familiarize you with the components of the exhaust system and the components intended function. Refer to **Exhaust System Description**. Also reviewing the engine exhaust symptoms information will help you determine if the condition described by the customer is normal operation or if a malfunction exists. Refer to **Symptoms - Engine Exhaust** in order to identify the correct procedure for diagnosing the system and where the diagnostic procedure is located.

SYMPTOMS - ENGINE EXHAUST

- Review the exhaust system description in order to familiarize yourself with the exhaust system components and the intended function of the components. Refer to **Exhaust System Description**.
- All diagnostics on a vehicle should follow a logical process. Strategy Based Diagnostics is a uniform approach for repairing all systems. The diagnostic flow is the place to start when repairs are necessary and may always be used in order to resolve a

system problem. For a detailed explanation, refer to **Strategy Based Diagnosis** in General Information.

Visual/Physical Inspection

- Inspect for aftermarket or non-OEM devices such as, but not limited to; tailpipe extensions, headers, and exhaust cutouts. Any aftermarket exhaust system devices could affect the operation and proper performance of the exhaust system.
- Verify the exact operating conditions under which the concern exists. Note factors such as engine RPM, engine temperature, engine load, and frequency of concern.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause any symptom.

Intermittent

Test the vehicle under the same conditions that the customer reported in order to verify the system is operating as designed.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- Loss of power

Refer to **Restricted Exhaust**

- Poor acceleration

Refer to **Restricted Exhaust**

- Poor fuel economy

Refer to **Restricted Exhaust**

- Excessive smoke diesel

Refer to **Restricted Exhaust**

- Exhaust hissing noise

Refer to **Exhaust Leakage**

- Exhaust popping noise

Refer to **Exhaust Leakage**

- Exhaust rattle noise

Refer to **Exhaust Noise**

- Loud exhaust noise

Refer to **Exhaust Noise**

- Exhaust buzz, groan, humm noise

Refer to **Exhaust Noise**

RESTRICTED EXHAUST

Diagnostic Aids

CAUTION: While engine is operating, the exhaust system will become extremely hot. To prevent burns avoid contacting a hot exhaust system.

For dual exhaust systems a quick check of exhaust flow will help determine which side of the exhaust system is restricted. The side that has less exhaust flow is the side that will be suspect, and diagnosis should begin there.

Test Description

The numbers below refer to the step numbers on the diagnostic table.

4: The exhaust system has very low back pressure under normal conditions. If the exhaust system is restricted, a significant increase in the exhaust pressure is noticed on the **J 35314-A** Exhaust Back Pressure Gage. See **Special Tools**. Removing the heated oxygen sensor (HO2S) may set a DTC. When finishing this diagnostic table, be sure to clear all codes.

5: If high back pressure is not found at idle, increasing the engine speed may help find a restriction. Perform operational check before returning vehicle to customer.

6: This step will isolate the catalytic converter from the remainder of the exhaust system.

9: Confirming that the condition has been fixed is essential. If the symptom still exists and the vehicle has a dual exhaust system, proceed to Step 2 and repeat diagnostic procedure on the opposite exhaust pipe.

Restricted Exhaust

Step	Action	Value(s)	Yes	No
	Did you verify the customers	-		

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1	complaint?		Go to Step 2	-
2	Did you review the exhaust symptoms diagnostic information and perform the necessary inspections?	-	Go to Step 3	Go to Symptoms - Engine Exhaust
3	Is the system equipped with dual exhaust?	-	Go to Diagnostic Aids	Go to Step 4
4	1. Remove the HO2S that is in front of and closest to the catalytic converter. Refer to Heated Oxygen Sensor Replacement - Position 1 in Engine Controls. 2. Install the J 35314-A Exhaust Back Pressure Gage in place of the HO2S. See Special Tools. 3. Start and run the vehicle. 4. With the engine idling at normal operating temperature, record the exhaust system back pressure reading on the gage. Does the reading exceed the specified value?	2 psi	Go to Step 6	Go to Step 5
5	1. With the J 35314-A still installed increase and monitor engine speed to 2,000 RPM. See Special Tools. 2. Observe the exhaust system back pressure reading on the gage. Does the reading exceed the specified value?	2 psi @ 2,000 RPM	Go to Step 6	Go to Step 9
	1. Turn the engine off and place the ignition in the lock position. 2. Remove the J 35314-A . See Special Tools. 3. Re-install the HO2S. Refer to Heated Oxygen Sensor Replacement - Position 1 in Engine Controls. 4. Remove the post-catalyst HO2S			

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6	sensor. Refer to Heated Oxygen Sensor Replacement - Position 2 in Engine Controls. 5. Install the J 35314-A in place of the post HO2S. See Special Tools. 6. Start and idle the engine and monitor the engine speed to 2,000 RPM. 7. Observe the exhaust system back pressure reading on the gage. Does the reading exceed the specified value?	2 psi @ 2,000 RPM	Go to Step 7	Go to Step 8
7	Inspect the exhaust system for the following conditions: • Damage in the exhaust pipe • Debris in the exhaust pipe • Muffler or resonator internal failure • Two-layer exhaust pipe separation Did you find and correct the condition?	-	Go to Step 9	-
8	Replace the catalytic converter. Refer to Catalytic Converter Replacement. Did you find and correct the condition?	-	Go to Step 9	-
9	1. Remove the J 35314-A and reinstall the HO2S sensor. See Special Tools. Refer to Heated Oxygen Sensor Replacement - Position 2 in Engine Controls. 2. Clear any codes. 3. Road test the vehicle in order to verify the repair. Did you correct the condition?	-	System OK	Go to Step 2

EXHAUST LEAKAGE

Exhaust Leakage

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Problem	Action
DEFINITION: An exhaust leak may show stains at the area of the leak. The leak may be felt by holding a hand close to the suspected areas or using a smoke pencil. The leak may make a popping or hissing noise.	
Misaligned or improperly installed exhaust system components.	Align and tighten the components to the specifications. Refer to <u>Fastener Tightening Specifications</u> .
Exhaust leaks at the following connections: • Exhaust manifold to pipe • Flanges • Pipe clamps	Tighten the components to the specifications. Refer to <u>Fastener Tightening Specifications</u> .
Seals or gaskets leaking. • Exhaust manifold to cylinder head • Exhaust pipes to exhaust manifold • Catalytic converter connection • EGR connections • AIR connections to the exhaust manifold or cylinder head	Replace the leaking seal or gasket. Refer to the affected component's procedure for service.
Exhaust manifold cracked or broken.	Replace the exhaust manifold. Refer to <u>Exhaust Manifold Replacement - Left</u> or <u>Exhaust Manifold Replacement - Right</u> .
Exhaust system component connection welds leaking.	Replace the leaking component. Refer to the affected component's procedure for service.
Catalytic converter, muffler, or resonator, if equipped, damaged or leaking at the seams.	Replace the affected catalytic converter, muffler, or resonator. Refer to <u>Catalytic Converter Replacement</u> or <u>Exhaust System Replacement</u> .

EXHAUST NOISE**Exhaust Noise**

Condition	Action
DEFINITION: An audible or physical noise due to a faulty component or damaged	

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components causing a loose or misaligned exhaust system resulting in a rattle or vibration noise (buzz, groan, hum).

Popping or hissing noise	Exhaust leak. Refer to Exhaust Leakage .
Loud exhaust	1. Compare to a known good vehicle. 2. Inspect for a damaged or failed catalytic converter, muffler, or resonator. 3. Replace the faulty catalytic converter, muffler, or resonator. Refer to Catalytic Converter Replacement or Exhaust System Replacement.
External rattle or vibration noise	1. Inspect for a bent or loose hanger, loose heat shield, or loose clamp. 2. Inspect for a exhaust pipe causing interference. 3. Repair or replace the affected component. 4. Refer to the affected component's service procedure.
Internal rattle	1. Test the components by tapping with a rubber mallet to confirm a rattle. 2. Replace the faulty catalytic converter, muffler, or resonator. Refer to Catalytic Converter Replacement or Exhaust System Replacement.

REPAIR INSTRUCTIONS

EXHAUST MANIFOLD REPLACEMENT - LEFT

Removal Procedure

1. Remove the 3 nuts attaching the exhaust crossover pipe to the left exhaust manifold. Refer to **Exhaust Crossover Pipe Replacement**.
2. Remove the exhaust gas recirculation (EGR) pipe. Refer to **Exhaust Gas Recirculation (EGR) Pipe Replacement** in Engine Controls - 3.4L.

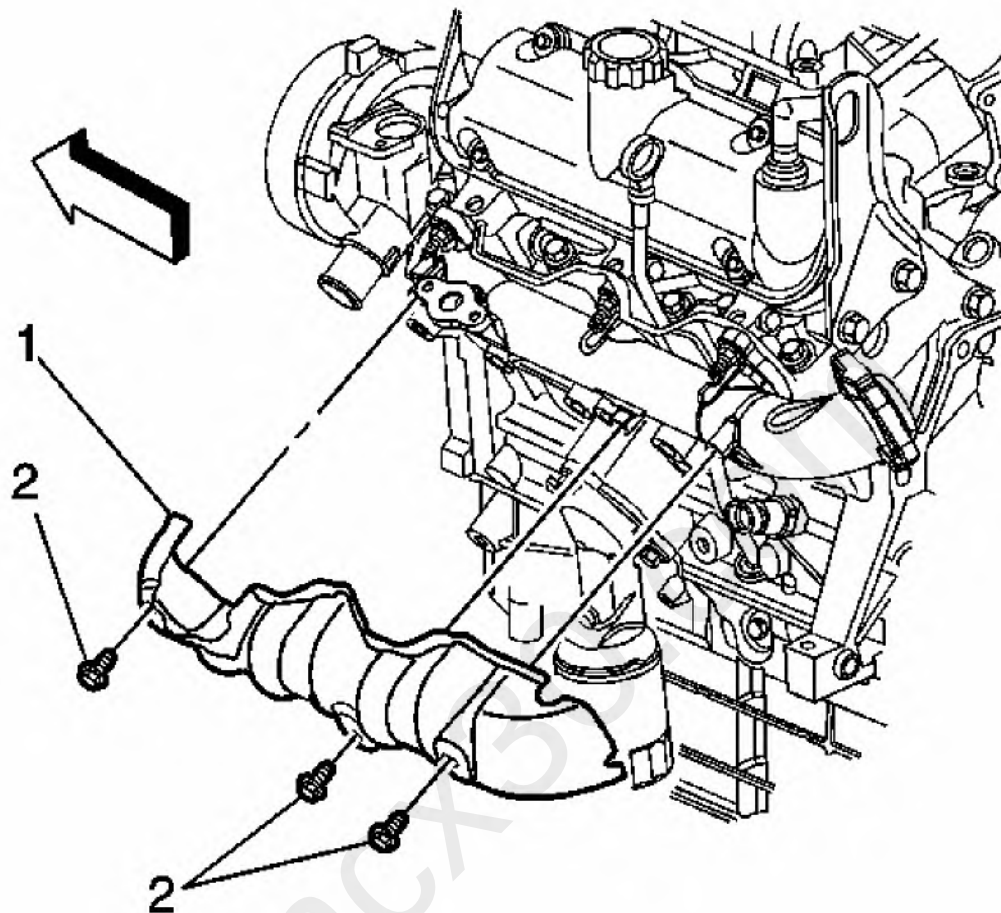


Fig. 1: View Of Left Exhaust Manifold Heat Shield & Bolts
Courtesy of GENERAL MOTORS CORP.

3. Remove the exhaust manifold heat shield bolts (2).
4. Remove the exhaust manifold heat shield (1).

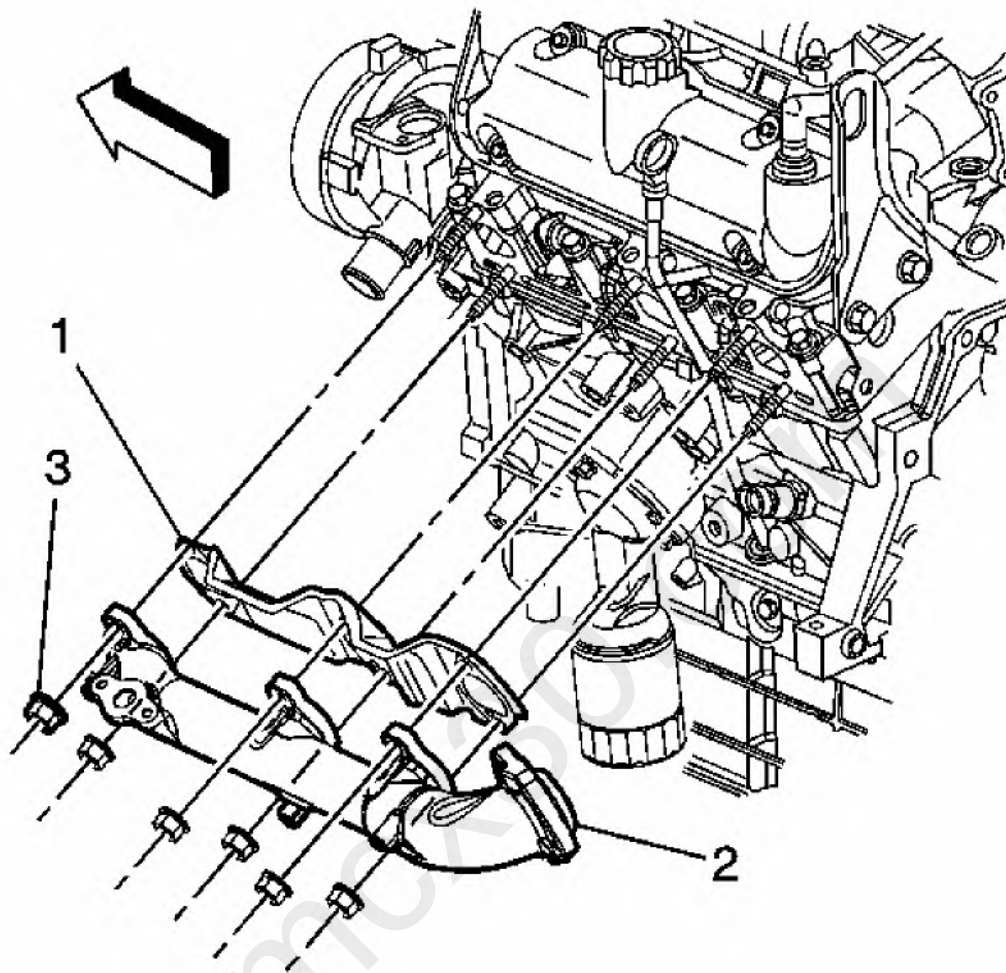


Fig. 2: View Of Left Exhaust Manifold, Nuts & Gasket
Courtesy of GENERAL MOTORS CORP.

5. Remove the exhaust manifold nuts (3).
6. Remove the exhaust manifold (2).
7. Remove the exhaust manifold gasket (1).

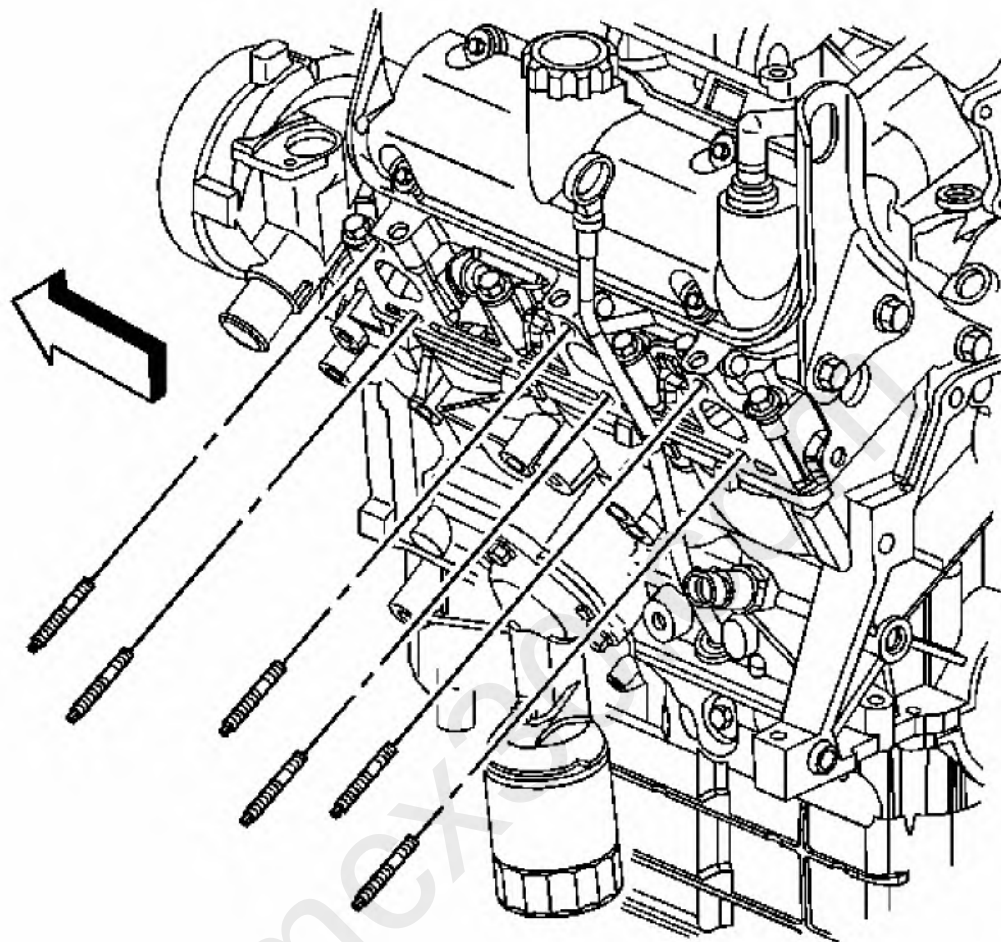


Fig. 3: View Of Left Exhaust Manifold Studs
Courtesy of GENERAL MOTORS CORP.

8. If necessary, remove the exhaust manifold studs.
9. Clean the exhaust manifold and the cylinder head exhaust manifold sealing surfaces.

Installation Procedure

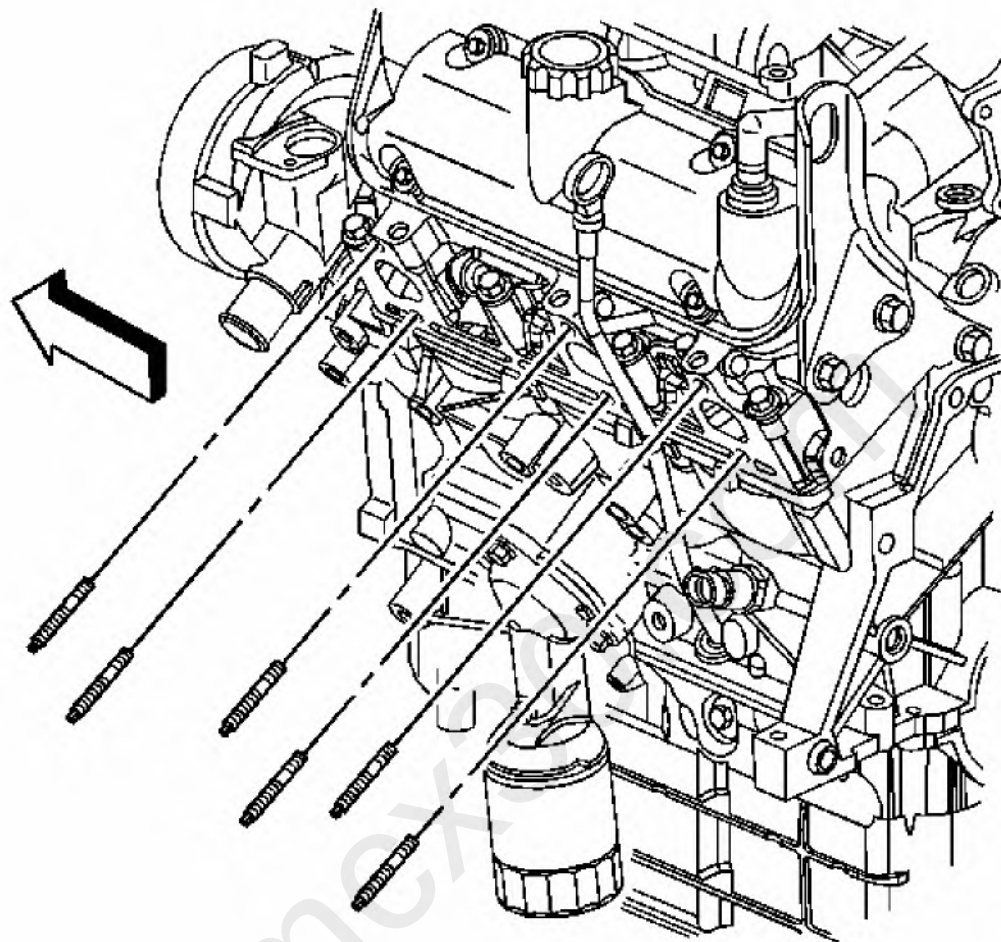


Fig. 4: View Of Left Exhaust Manifold Studs
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

1. If previously removed, install the exhaust manifold studs.

Tighten: Tighten the studs to 18 N.m (13 lb ft).

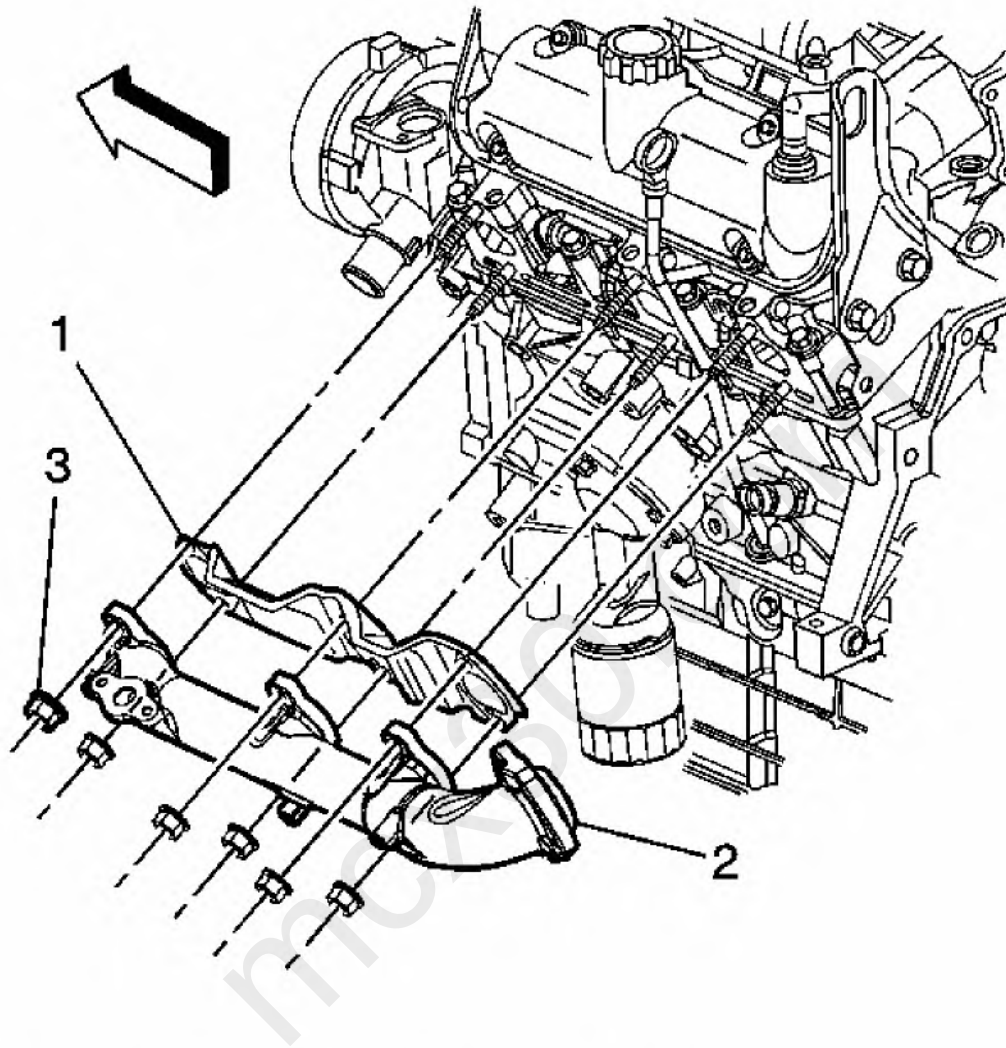


Fig. 5: View Of Left Exhaust Manifold, Nuts & Gasket
Courtesy of GENERAL MOTORS CORP.

2. Install the exhaust manifold gasket (1).
3. Install the exhaust manifold (2).
4. Install the exhaust manifold nuts (3).

Tighten: Tighten the nuts to 16 N.m (12 lb ft).

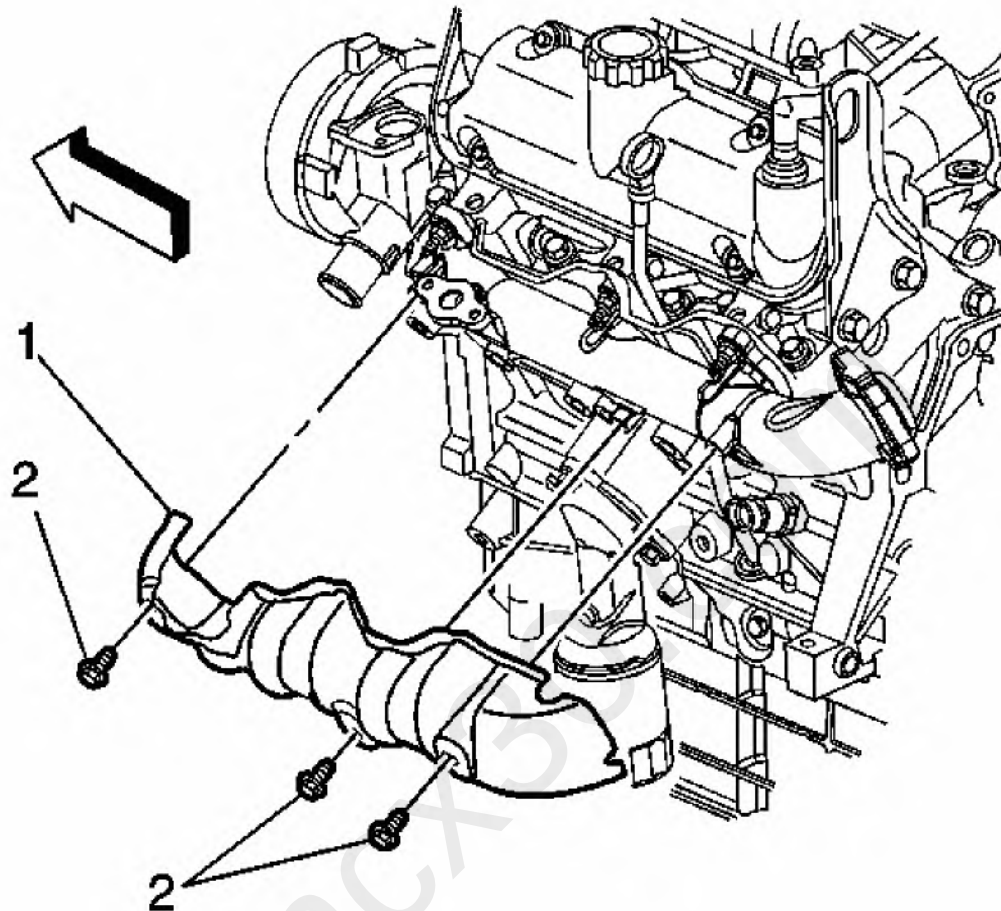


Fig. 6: View Of Left Exhaust Manifold Heat Shield & Bolts
Courtesy of GENERAL MOTORS CORP.

5. Install the exhaust manifold heat shield (1).
6. Install the exhaust manifold heat shield bolts (2).

Tighten: Tighten the bolts to 10 N.m (89 lb in).

7. Install the EGR pipe. Refer to **Exhaust Gas Recirculation (EGR) Pipe Replacement** in Engine Controls - 3.4L.
8. Install the 3 nuts attaching the exhaust crossover pipe to the left exhaust manifold. Refer to **Exhaust Crossover Pipe Replacement**.

EXHAUST MANIFOLD REPLACEMENT - RIGHT

Removal Procedure

1. Disconnect the oxygen sensor electrical connector.
2. Remove the 3 nuts attaching exhaust crossover pipe to the right exhaust manifold. Refer to **Exhaust Crossover Pipe Replacement**.
3. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.

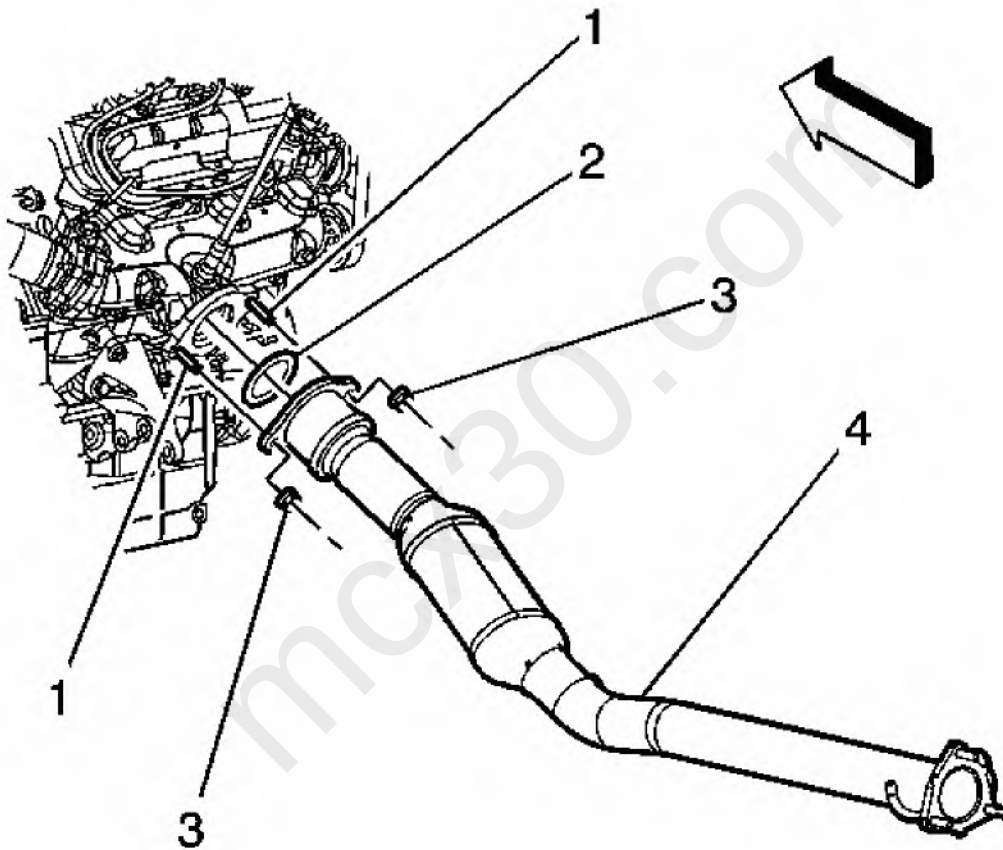


Fig. 7: View Of Catalytic Converter & Nuts
Courtesy of GENERAL MOTORS CORP.

4. Remove the nuts (3) securing the catalytic converter (4) to the exhaust manifold and position catalytic converter out of the way. Refer to **Catalytic Converter Replacement**.

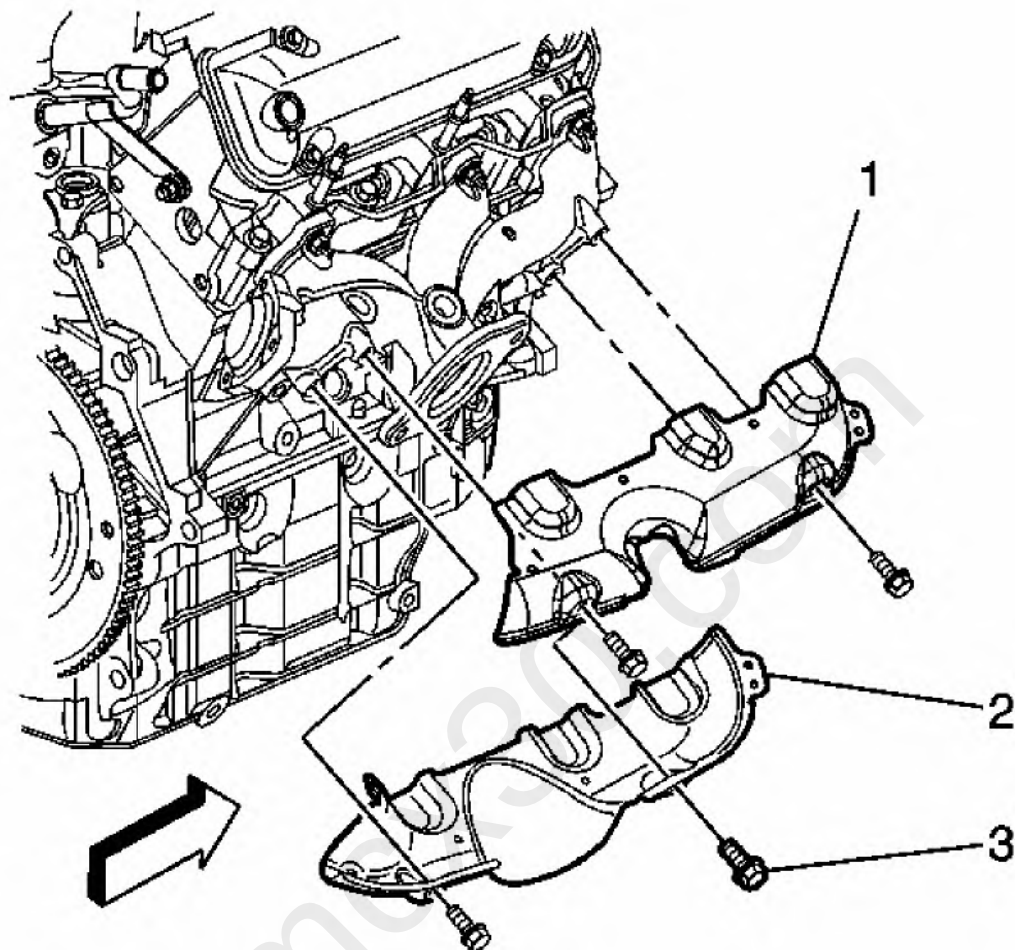


Fig. 8: View Of Right Exhaust Manifold Heat Shields & Bolts
Courtesy of GENERAL MOTORS CORP.

5. Remove the exhaust manifold heat shield bolts (3).
6. Remove the exhaust manifold heat shields (1, 2).

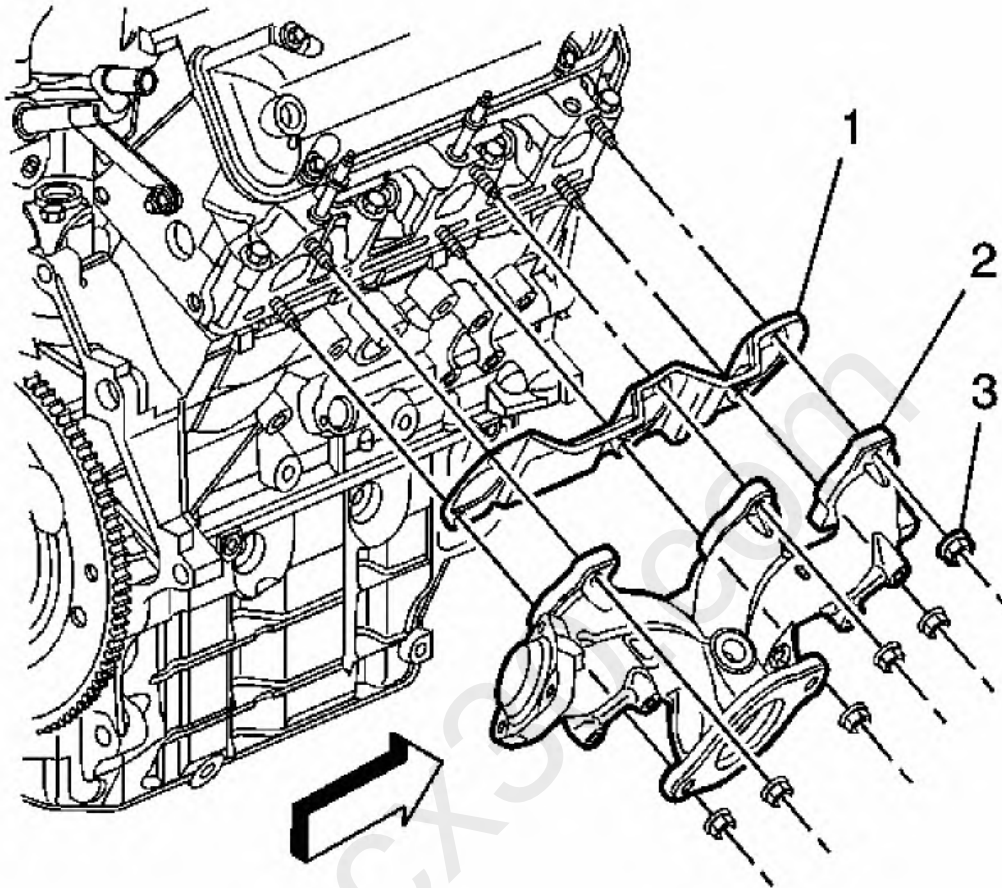


Fig. 9: View Of Right Exhaust Manifold, Gasket & Nuts
Courtesy of GENERAL MOTORS CORP.

7. Remove the exhaust manifold nuts (3).
8. Remove the exhaust manifold (2).
9. Remove the exhaust manifold gasket (1).
10. If you are REPLACING the engine right side exhaust manifold, remove the heated oxygen sensor (HO2S). Refer to **Heated Oxygen Sensor Replacement - Position 1** in Engine Controls - 3.4L.

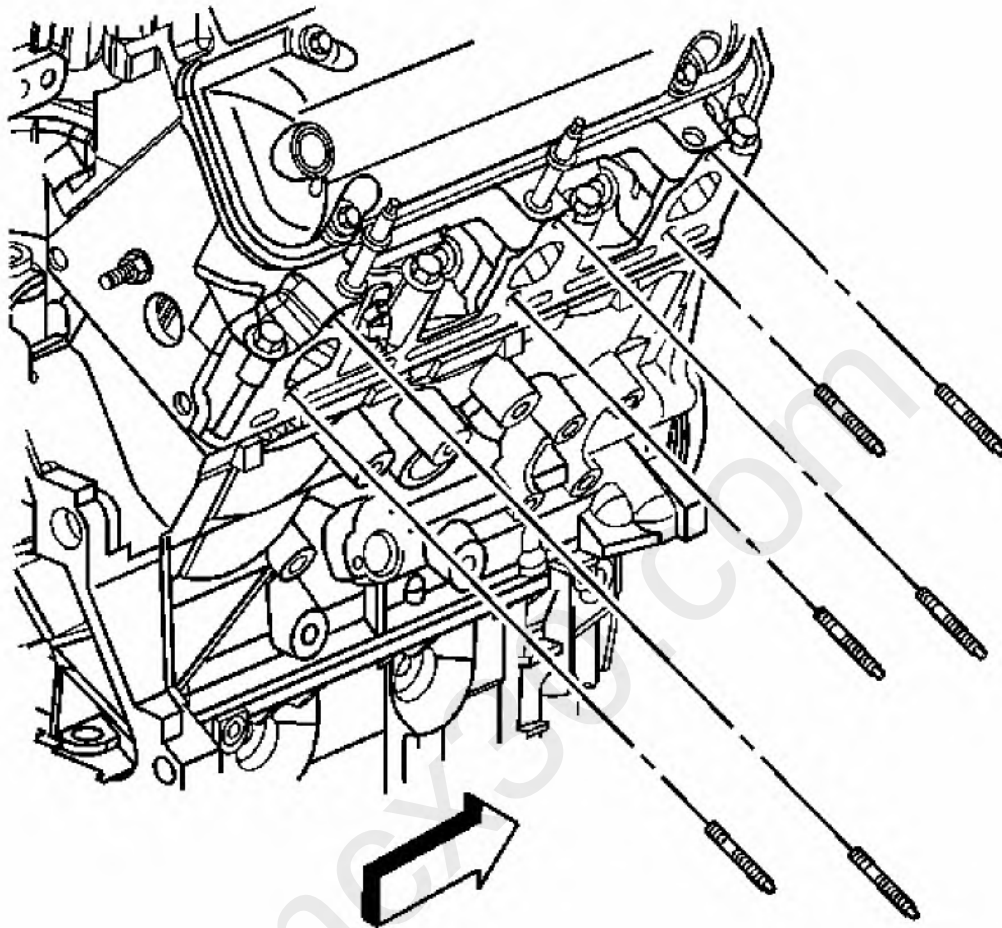


Fig. 10: View Of Right Exhaust Manifold Studs
Courtesy of GENERAL MOTORS CORP.

11. If necessary, remove the exhaust manifold studs.
12. Clean the exhaust manifold and the cylinder head exhaust manifold sealing surfaces.

Installation Procedure

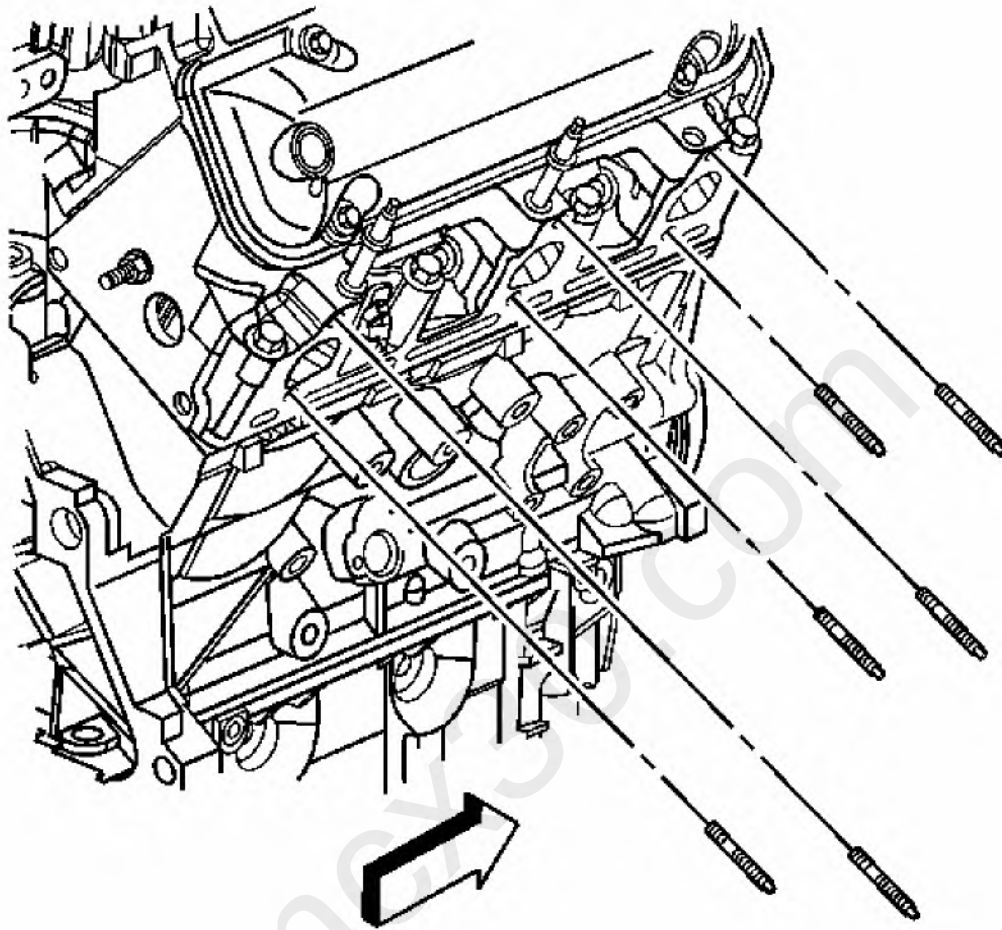


Fig. 11: View Of Right Exhaust Manifold Studs
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

1. If previously removed, install the exhaust manifold studs.

Tighten: Tighten the studs to 18 N.m (13 lb ft).

2. If removed, install the HO2S. Refer to Heated Oxygen Sensor Replacement - Position 1 in Engine Controls - 3.4L.

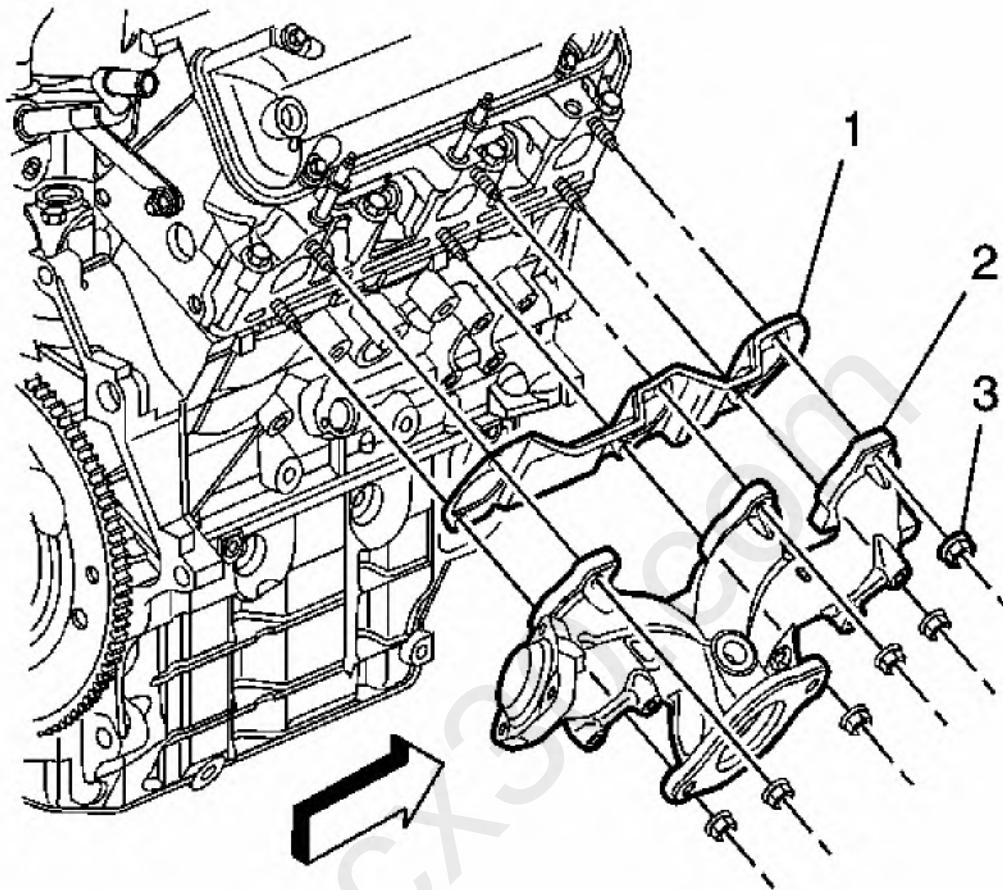


Fig. 12: View Of Right Exhaust Manifold, Gasket & Nuts
Courtesy of GENERAL MOTORS CORP.

3. Install the exhaust manifold gasket (1).
4. Install the exhaust manifold (2).
5. Install the exhaust manifold nuts (3).

Tighten: Tighten the nuts to 16 N.m (12 lb ft).

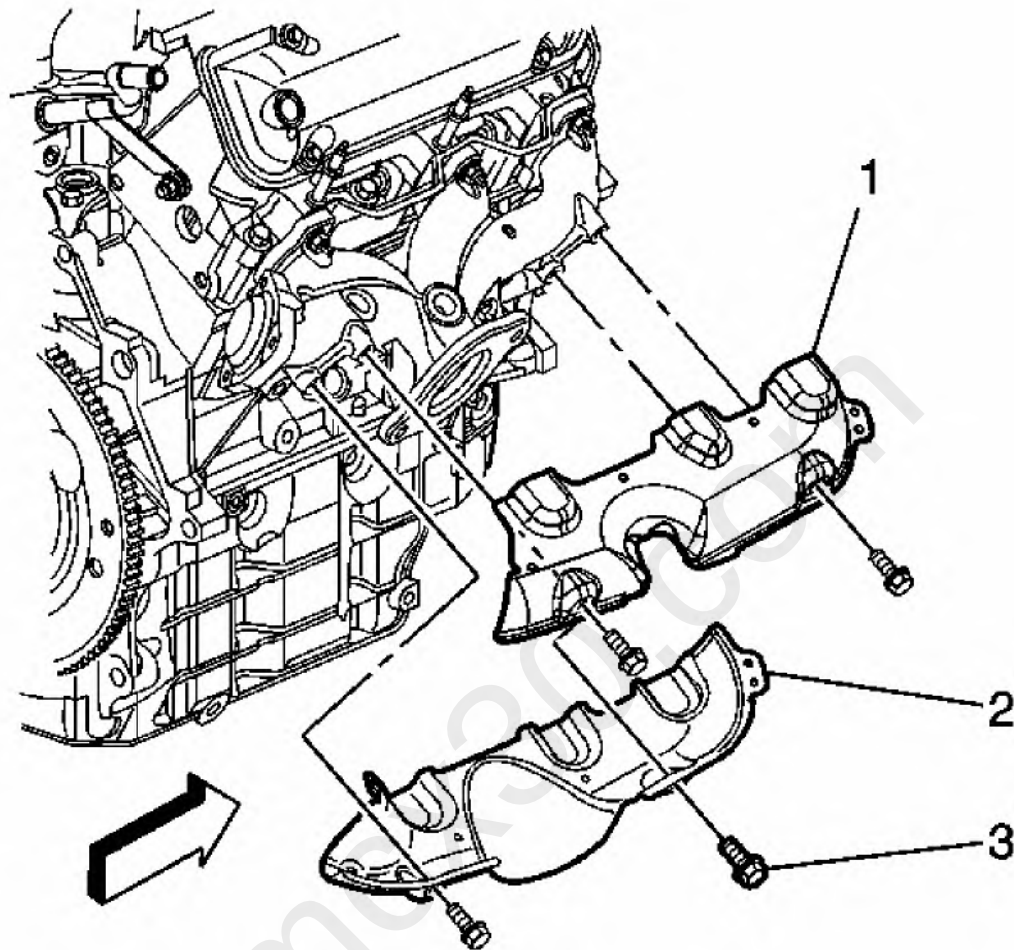


Fig. 13: View Of Right Exhaust Manifold Heat Shields & Bolts
Courtesy of GENERAL MOTORS CORP.

6. Install the exhaust manifold upper heat shield (1).
7. Install the exhaust manifold lower heat shield (2).
8. Install the exhaust manifold heat shield bolts (3).

Tighten: Tighten the bolts to 10 N.m (89 lb in).

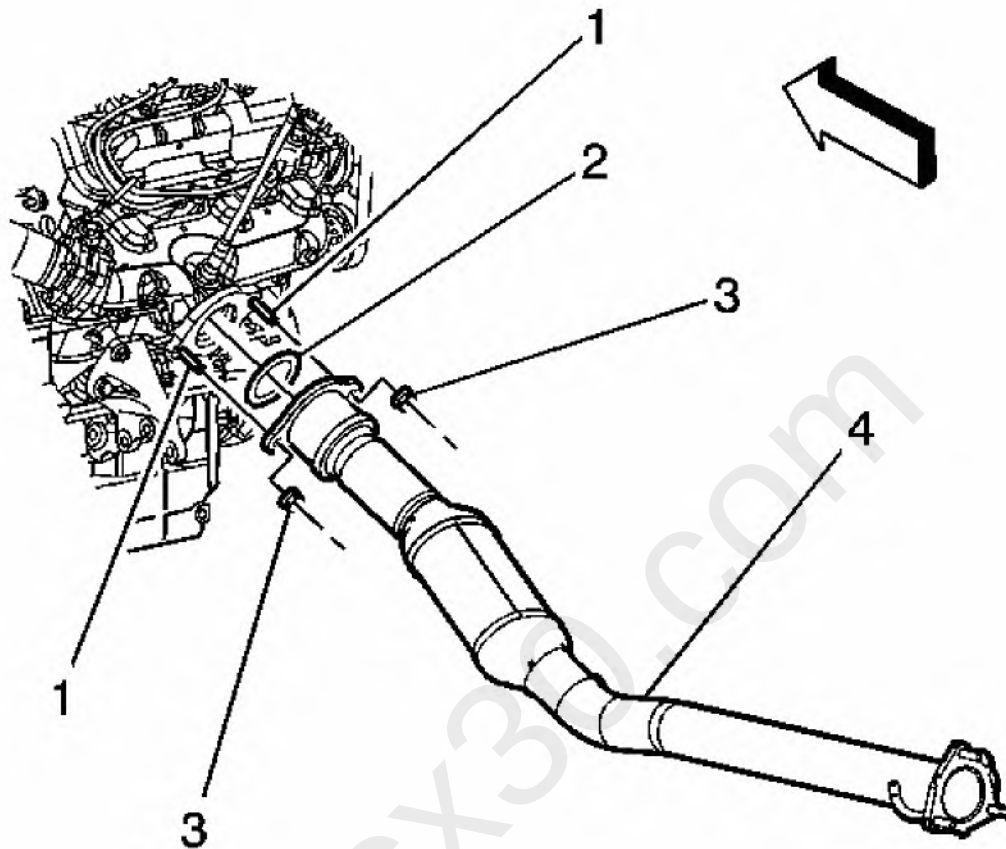


Fig. 14: View Of Catalytic Converter & Nuts
Courtesy of GENERAL MOTORS CORP.

9. Install the catalytic converter (4) to the exhaust manifold and install the nuts (3). Refer to **Catalytic Converter Replacement**.
10. Lower the vehicle.
11. Install the exhaust crossover pipe nuts to the right side exhaust manifold. Refer to **Exhaust Crossover Pipe Replacement**.
12. Connect the HO2S electrical connector.

EXHAUST CROSSOVER PIPE REPLACEMENT

Removal Procedure

1. Remove the battery box. Refer to **Battery Box Replacement** in Engine Electrical.

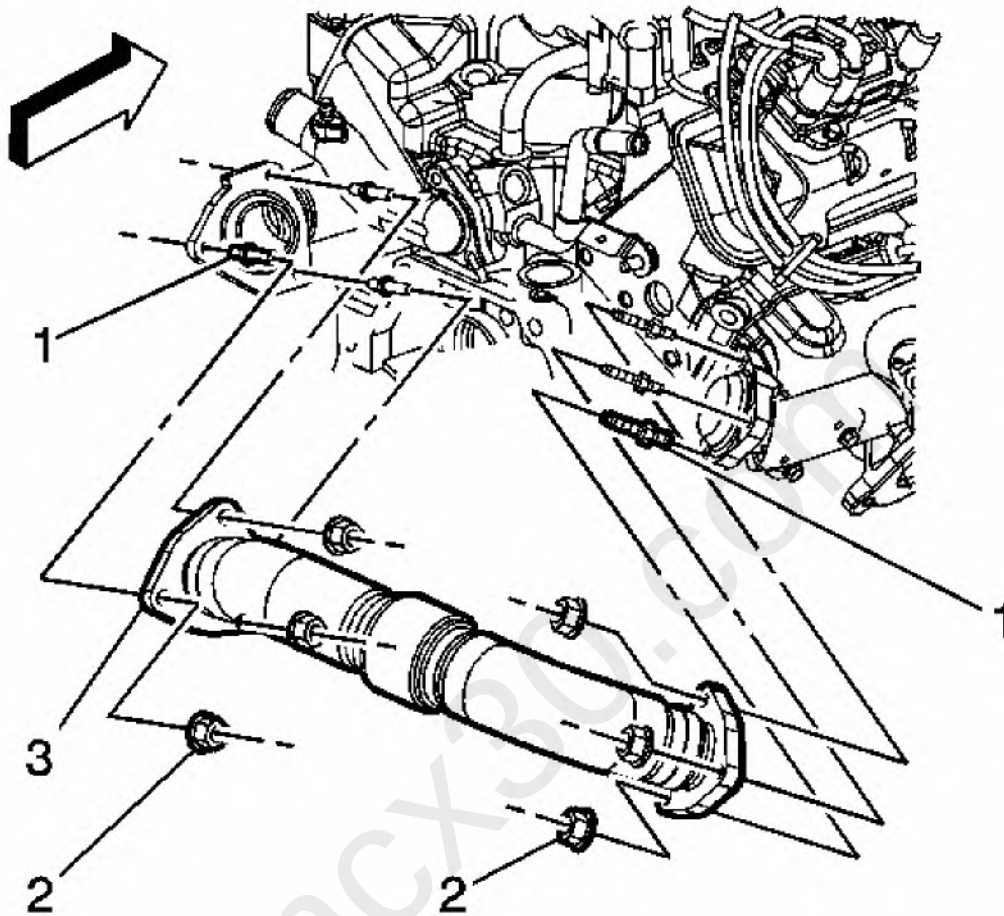


Fig. 15: View Of Exhaust Crossover Pipe, Studs & Nuts
Courtesy of GENERAL MOTORS CORP.

2. Remove the exhaust crossover pipe nuts (2).
3. Remove the exhaust crossover pipe (3).
4. Remove the exhaust manifold studs (1), if replacement of the stud is necessary.

Installation Procedure

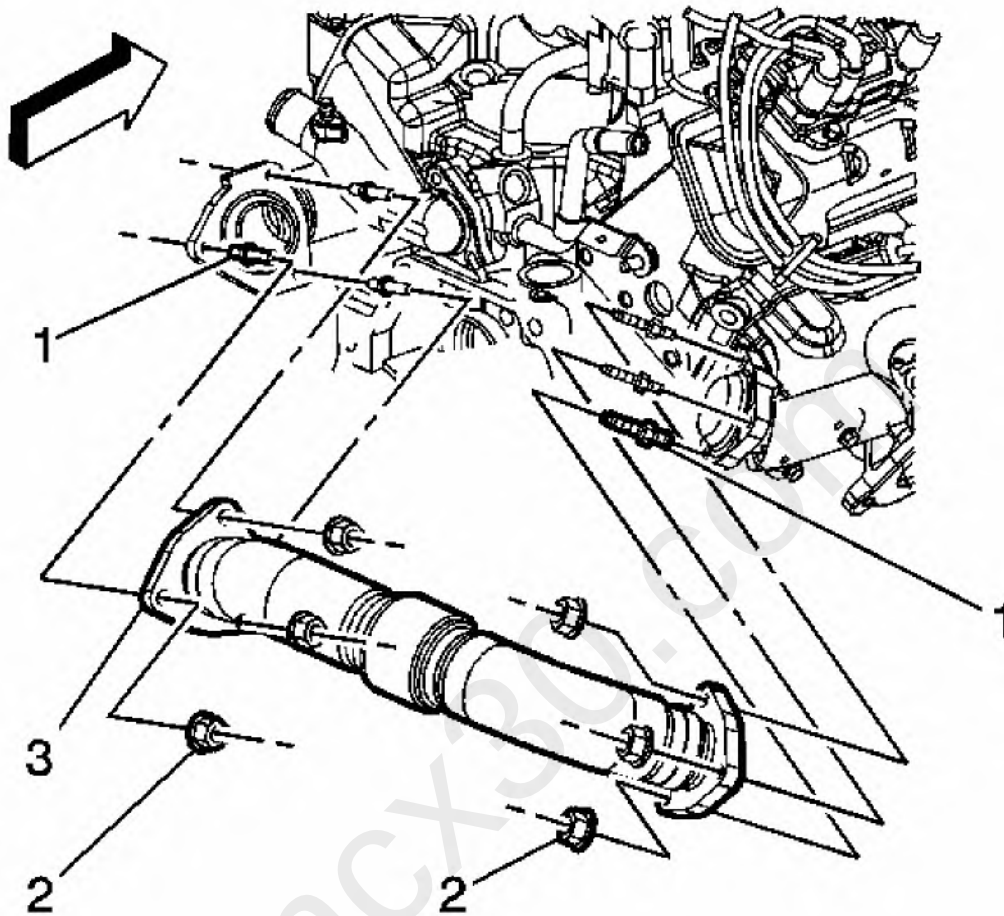


Fig. 16: View Of Exhaust Crossover Pipe, Studs & Nuts
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

1. Install any previously removed exhaust manifold studs (1).

Tighten: Tighten the studs to 25 N.m (18 lb ft).

2. Install the exhaust crossover pipe (3).

IMPORTANT: Maintain approximately 6.35 mm (0.25 in) between the thermostat housing and the exhaust crossover pipe.

3. Install the exhaust crossover pipe nuts (2).

Tighten: Tighten the nuts to 25 N.m (18 lb ft).

4. Install the battery box. Refer to **Battery Box Replacement** in Engine Electrical.

EXHAUST SYSTEM REPLACEMENT

Removal Procedure

1. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.

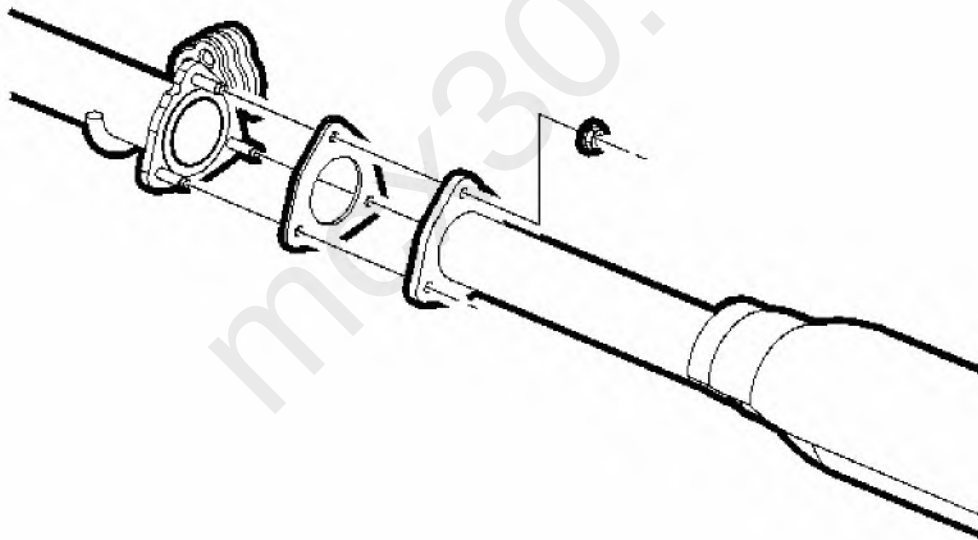


Fig. 17: View Of Gasket & Exhaust Pipe
Courtesy of GENERAL MOTORS CORP.

2. Remove the catalytic converter pipe flange to exhaust system pipe flange nuts.

3. Separate the pipes and discard the gasket.

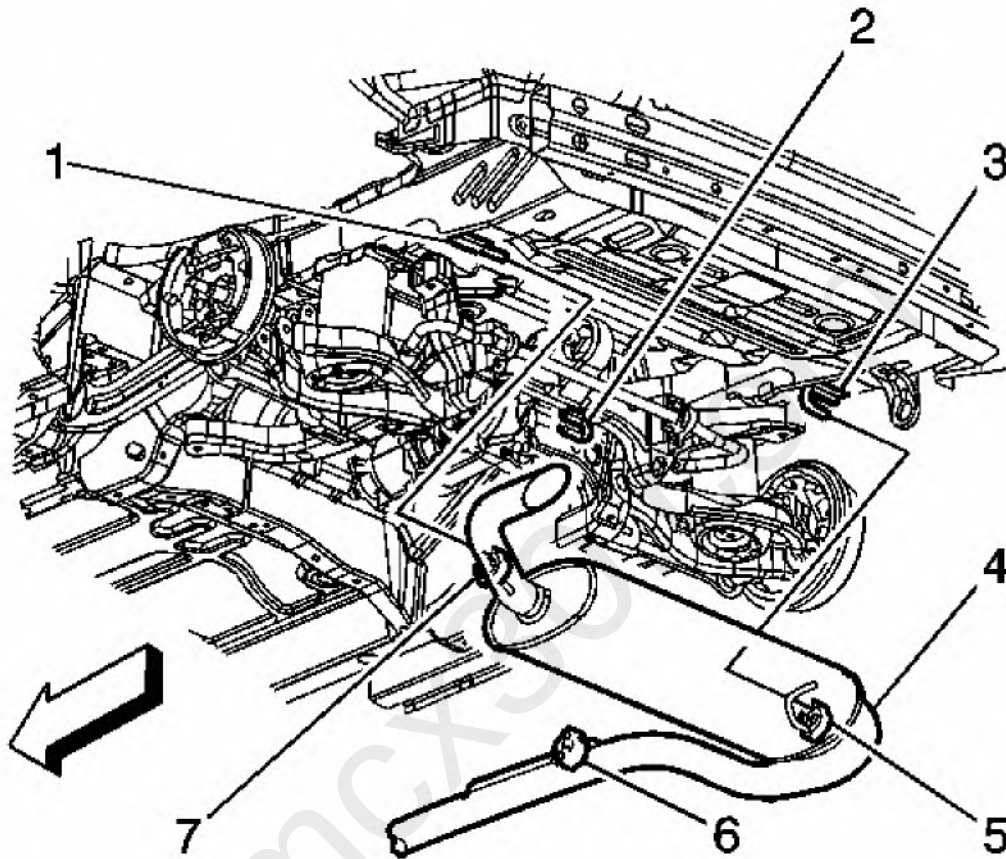


Fig. 18: View Of Exhaust System
Courtesy of GENERAL MOTORS CORP.

4. Separate the rubber isolators (5, 6, 7) from the hangers (1, 2, 3).
5. Remove the exhaust system (4).

Installation Procedure

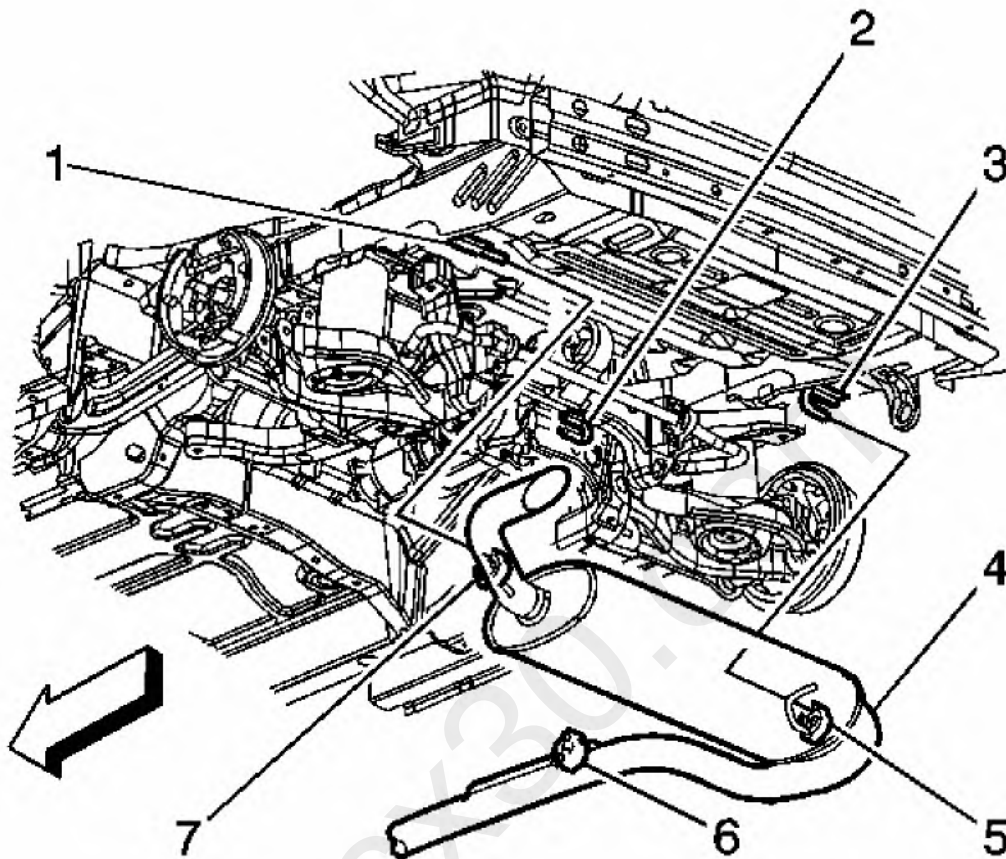


Fig. 19: View Of Exhaust System

Courtesy of GENERAL MOTORS CORP.

1. Position the exhaust system (4) to the vehicle and install the rubber isolators (5, 6, 7) to the hangers (1, 2, 3).

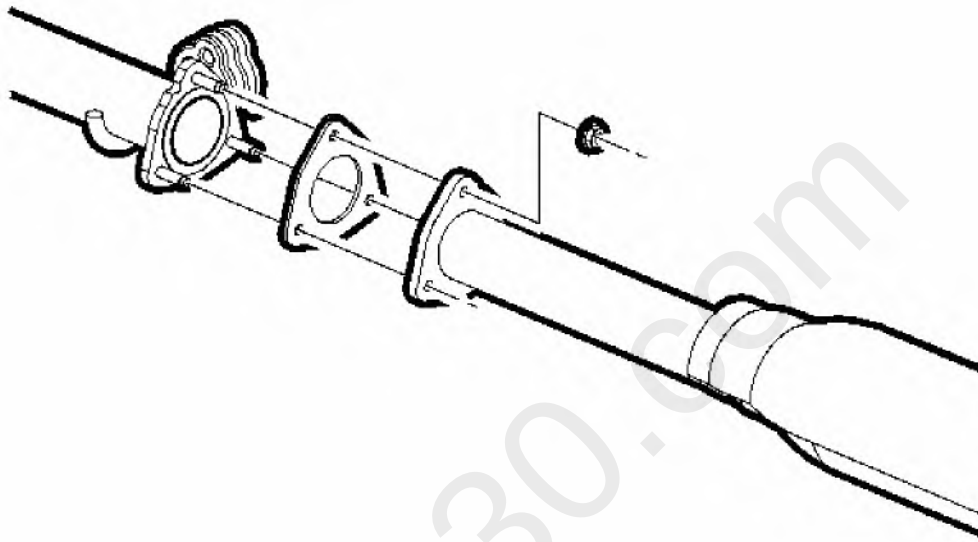


Fig. 20: View Of Gasket & Exhaust Pipe
Courtesy of GENERAL MOTORS CORP.

2. Install the new gasket onto the catalytic converter pipe flange.

NOTE: Refer to Fastener Notice in **Cautions and Notices**.

3. Assemble the exhaust system pipe to the catalytic converter pipe and install new nuts.

Tighten: Tighten the nuts to 37 N.m (27 lb ft).

4. Check the entire exhaust system for leaks.
5. Lower the vehicle.

Removal Procedure

1. Raise and suitably support the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.

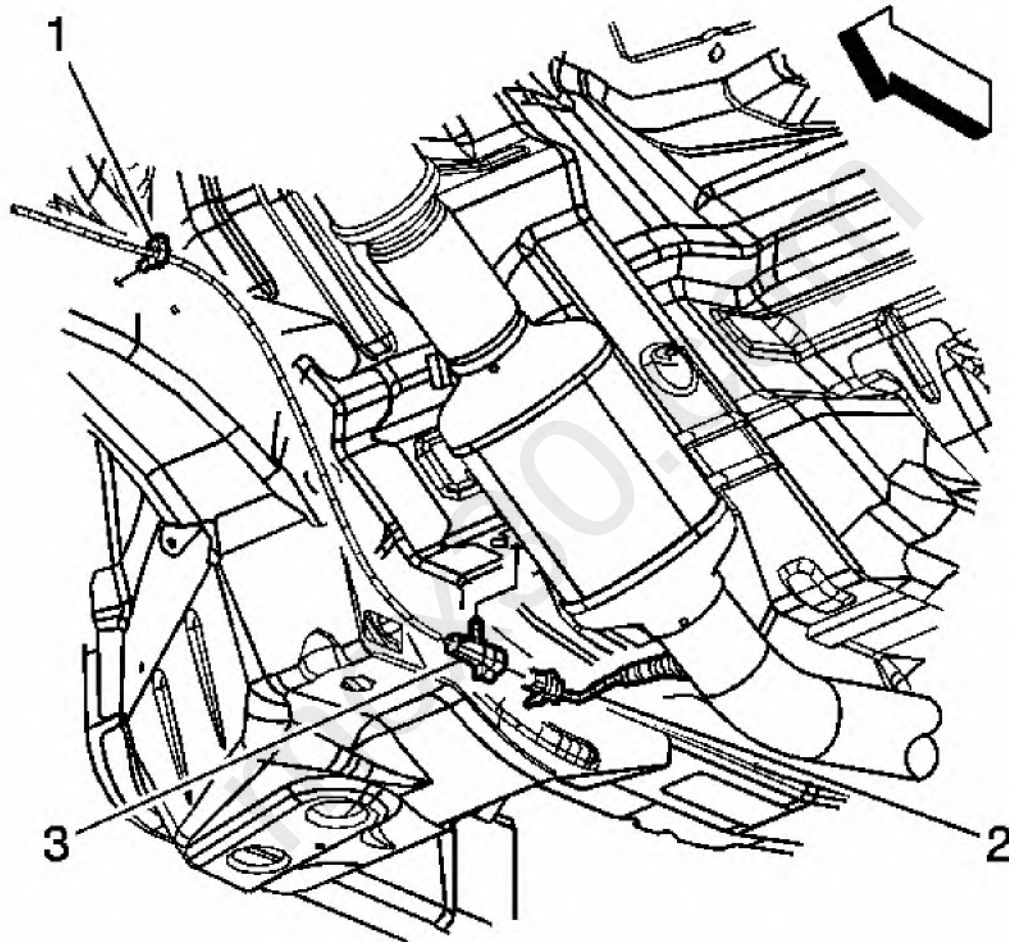


Fig. 21: View Of HO2S 2 & Harness Connector
Courtesy of GENERAL MOTORS CORP.

2. Disconnect the heated oxygen sensor (HO2S) connector (2) from the wiring harness (3).

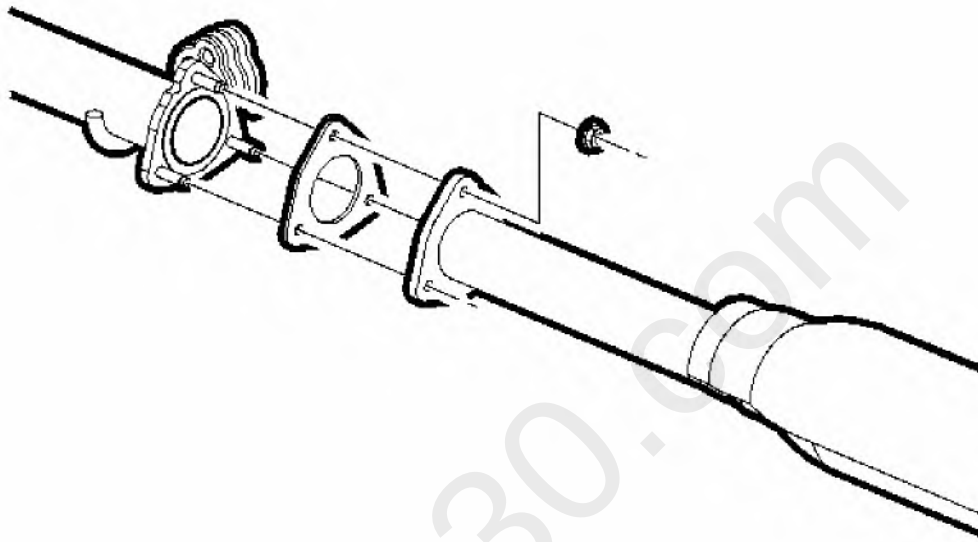


Fig. 22: View Of Gasket & Exhaust Pipe
Courtesy of GENERAL MOTORS CORP.

3. Remove the catalytic converter pipe flange to exhaust system pipe flange nuts.
4. Separate the pipes and discard the gasket.

IMPORTANT: Catalytic converter flex coupler must **NEVER** be deflected more than 6 degrees or failure of flex coupler could result.

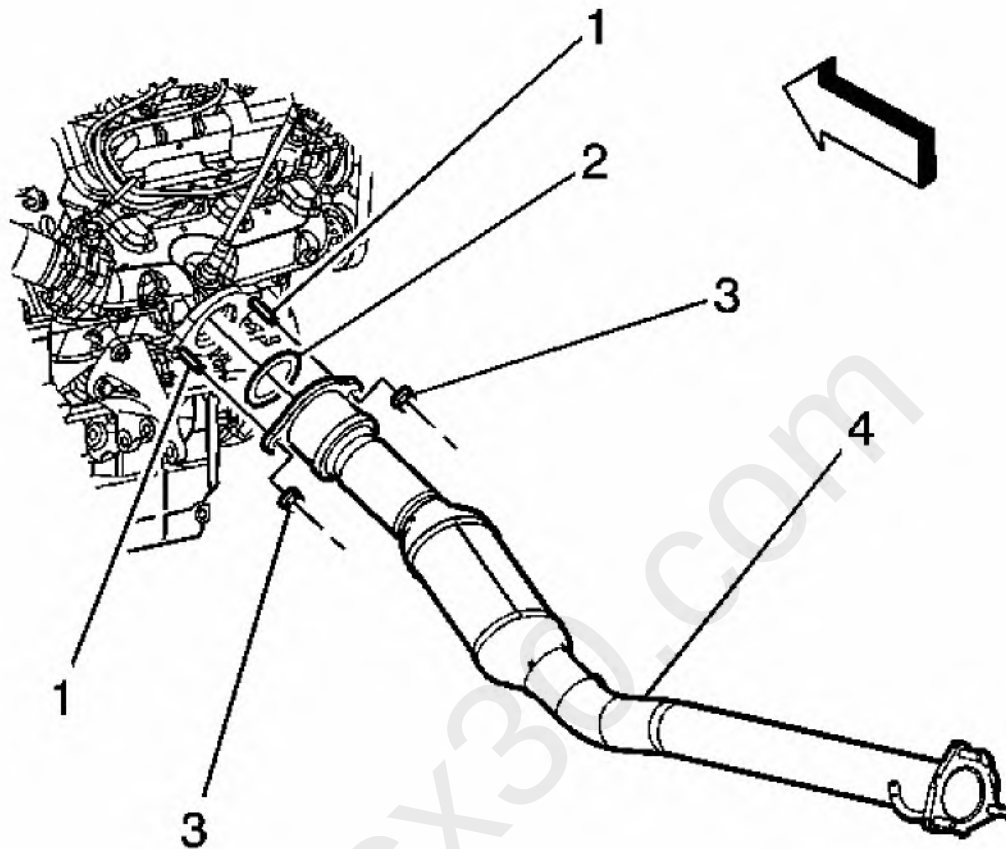


Fig. 23: View Of Catalytic Converter & Nuts
Courtesy of GENERAL MOTORS CORP.

5. Remove the nuts (3) securing the catalytic converter (4) to the exhaust manifold.
6. Separate the catalytic converter flange from the exhaust manifold and discard the gasket (2).

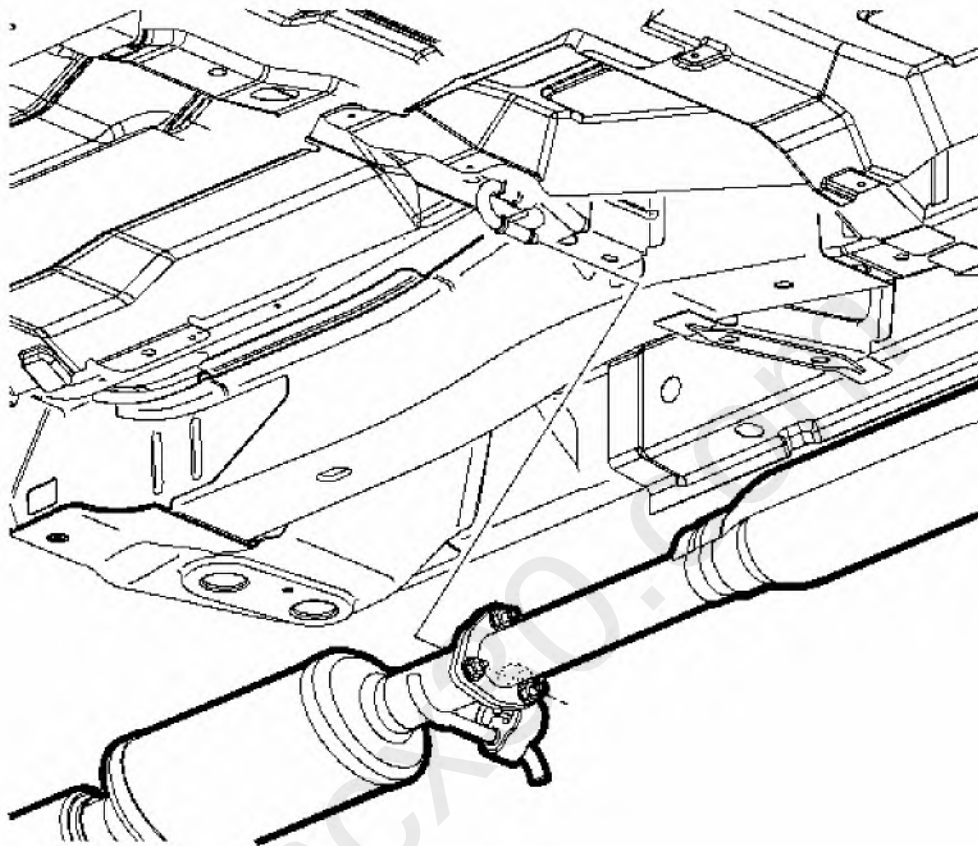


Fig. 24: View Of Hanger From The Rubber Isolators
Courtesy of GENERAL MOTORS CORP.

7. Separate the catalytic converter hanger from the rubber isolator and remove the catalytic converter from the vehicle.

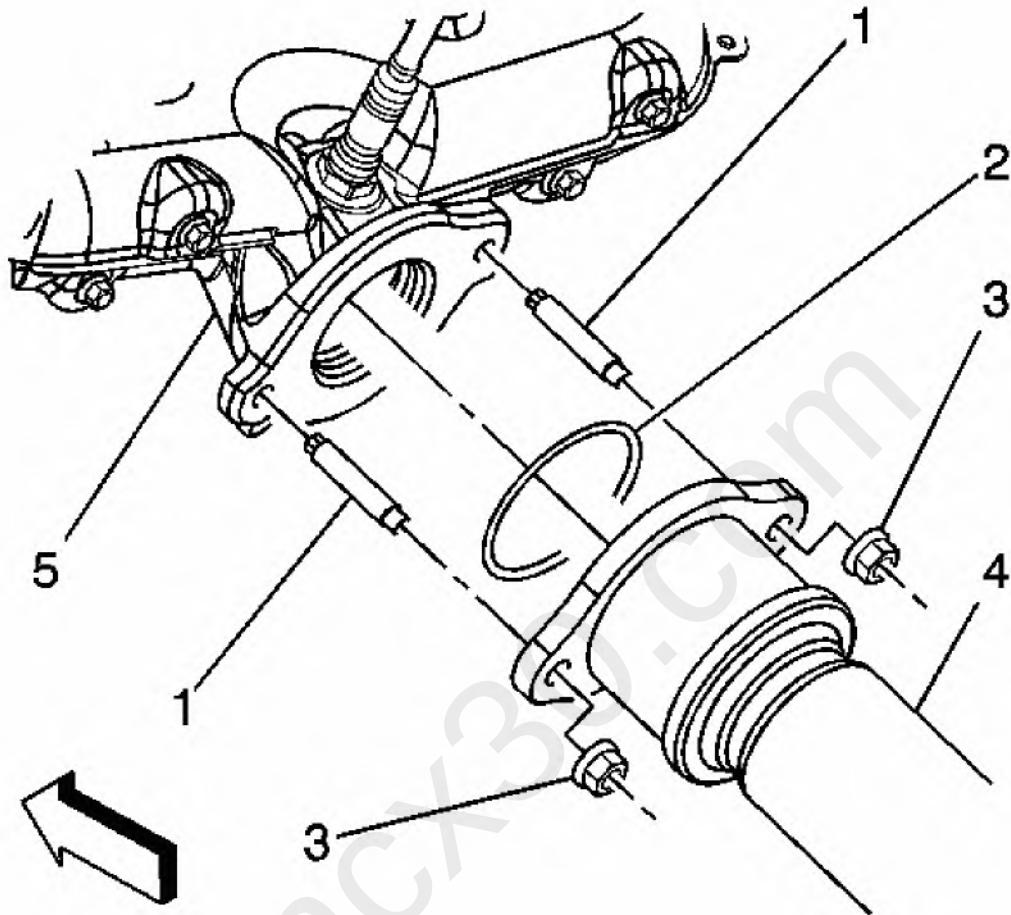


Fig. 25: View Of Exhaust Manifold Studs
Courtesy of GENERAL MOTORS CORP.

8. Remove the exhaust manifold studs (1) if worn or damaged.
9. If replacing the catalytic converter, remove the HO2S. Refer to **Heated Oxygen Sensor Replacement - Position 1** in Engine Controls - 3.4L.

Installation Procedure

1. Install the HO2S, if previously removed. Refer to **Heated Oxygen Sensor Replacement - Position 1** in Engine Controls - 3.4L.

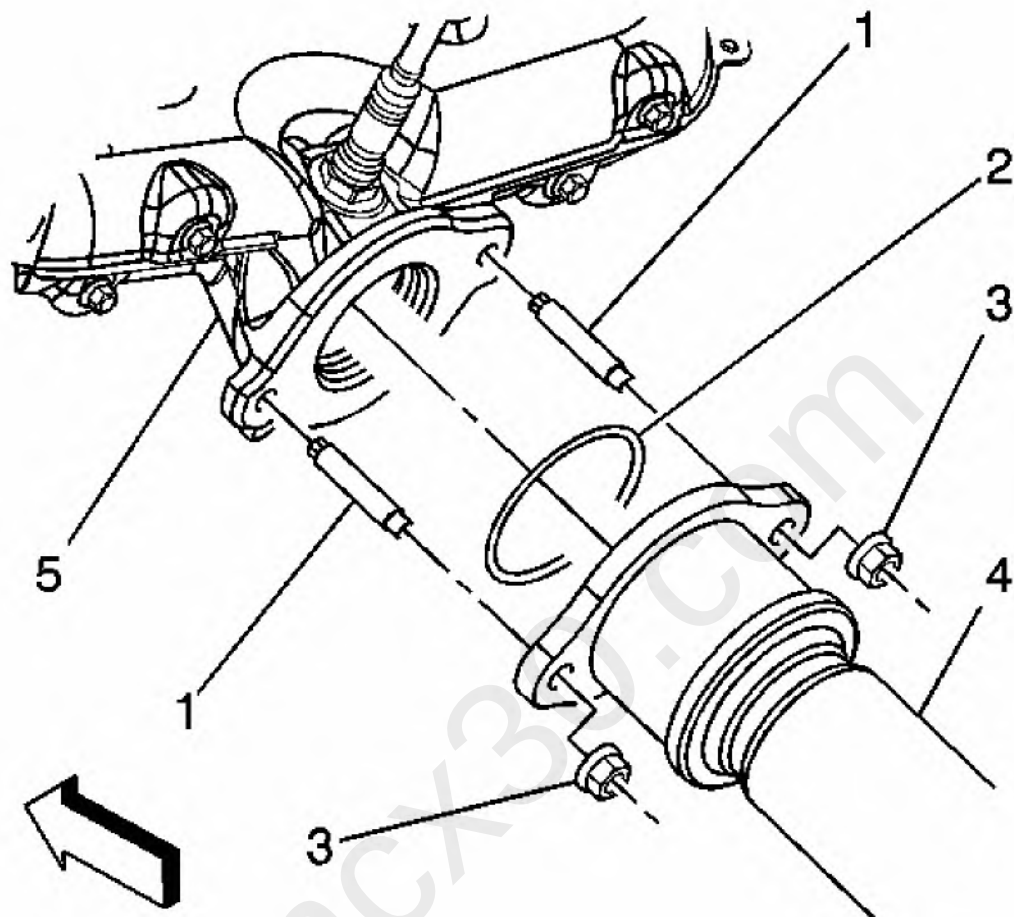


Fig. 26: View Of Exhaust Manifold Studs
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the exhaust manifold studs (1) if previously removed.

Tighten: Tighten the studs to 6 N.m (53 lb in).

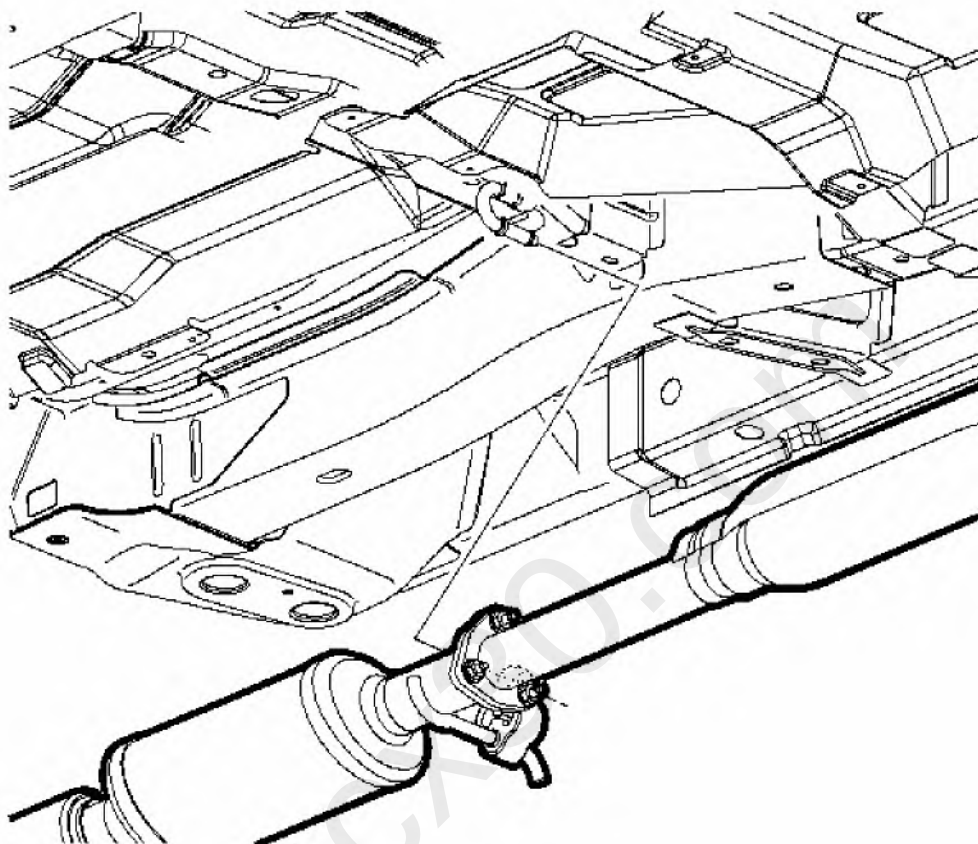


Fig. 27: View Of Hanger From The Rubber Isolators
Courtesy of GENERAL MOTORS CORP.

3. Install the rubber isolator and to the catalytic converter hanger.

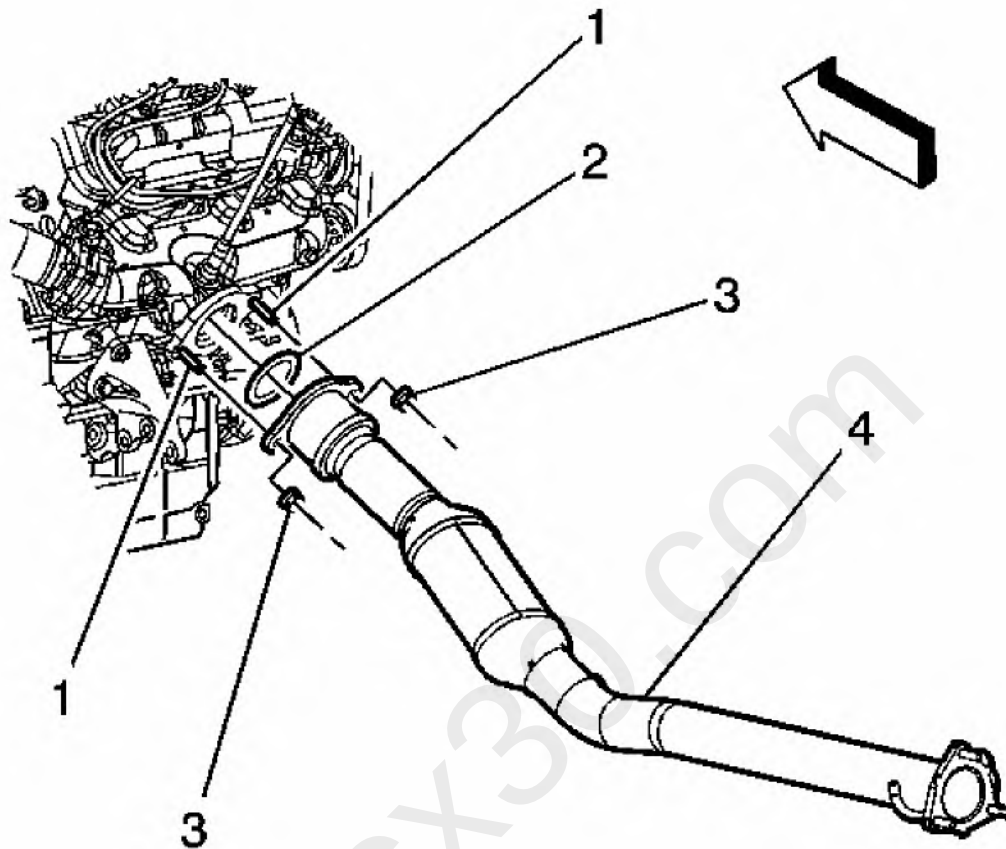


Fig. 28: View Of Catalytic Converter & Nuts
Courtesy of GENERAL MOTORS CORP.

NOTE: To prevent internal damage to the flexible coupling of the catalytic converter assembly, the converter must be supported. The vertical movement at the rear of the catalytic converter assembly must not exceed 6 degrees up or down.

4. Install a new gasket (2) and attach the catalytic converter (4) to the exhaust manifold.
5. Install the catalytic converter to the exhaust manifold nuts (3).

Tighten: Tighten the nuts to 37 N.m (27 lb ft).

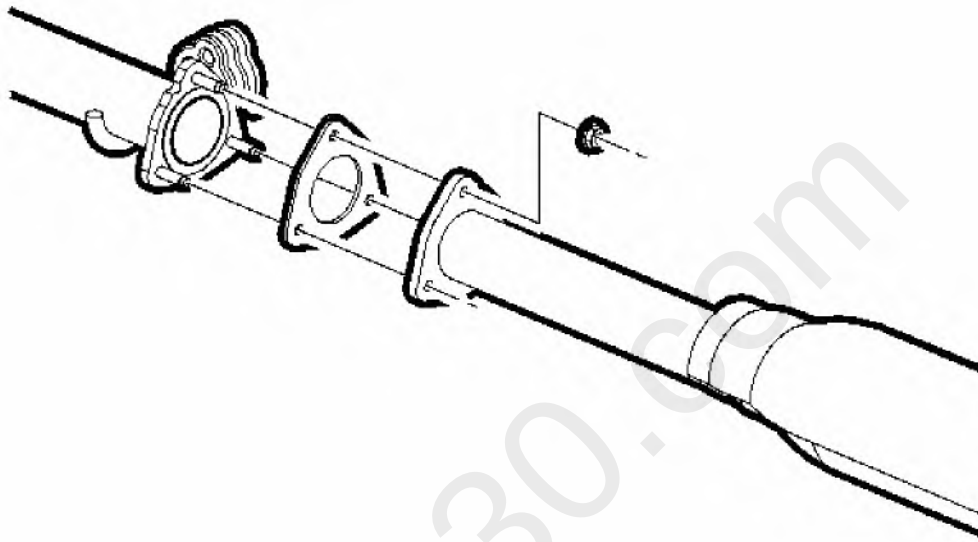


Fig. 29: View Of Gasket & Exhaust Pipe
Courtesy of GENERAL MOTORS CORP.

6. Install a new exhaust pipe flange gasket to the catalytic converter flange.
7. Install the exhaust pipe to the catalytic converter pipe. with the catalytic converter nuts.
8. Install the exhaust pipe to the catalytic converter pipe.

Tighten: Tighten the nuts to 37 N.m (27 lb ft).

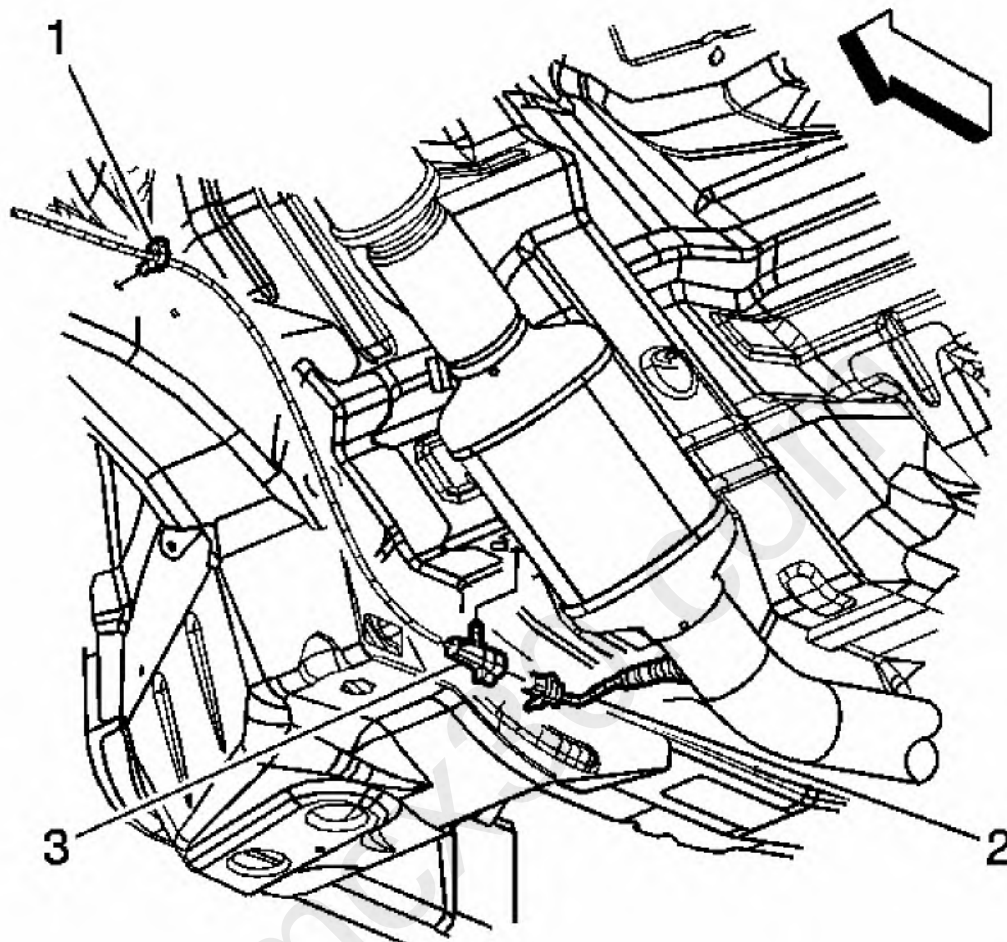


Fig. 30: View Of HO2S 2 & Harness Connector
Courtesy of GENERAL MOTORS CORP.

9. Connect the HO2S connector (2) to the wiring harness (3).
10. Lower the vehicle.

FUEL TANK HEAT SHIELD REPLACEMENT

Removal Procedure

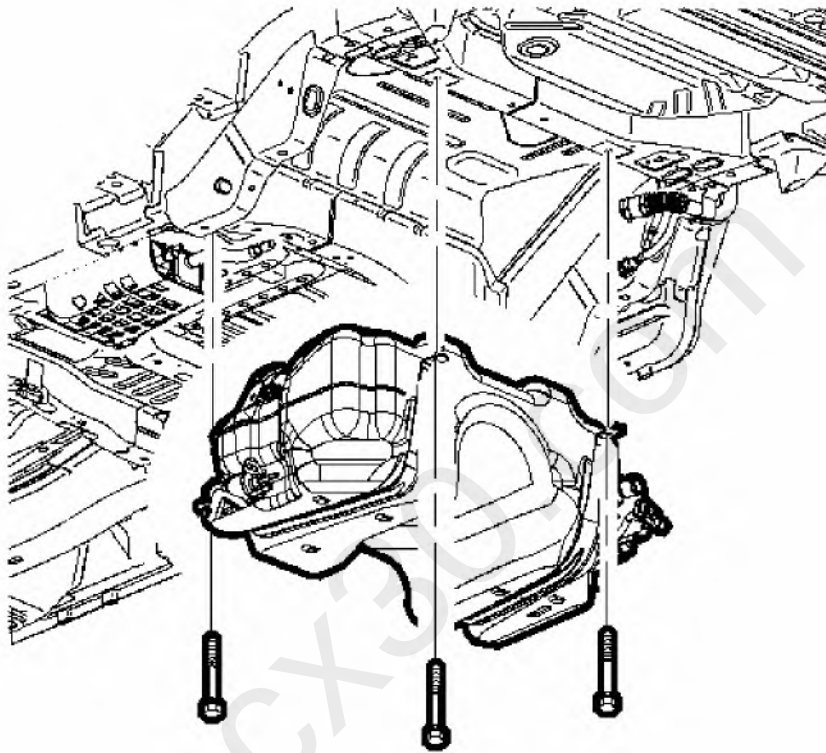


Fig. 31: View Of Fuel Tank Heat Shield & Fuel Tank Assembly Into The Vehicle
Courtesy of GENERAL MOTORS CORP.

1. Remove the fuel tank. Refer to **Fuel Tank Replacement (FWD)** or **Fuel Tank Replacement (AWD)** .
2. Remove the fuel tank shield from the fuel tank.

Installation Procedure

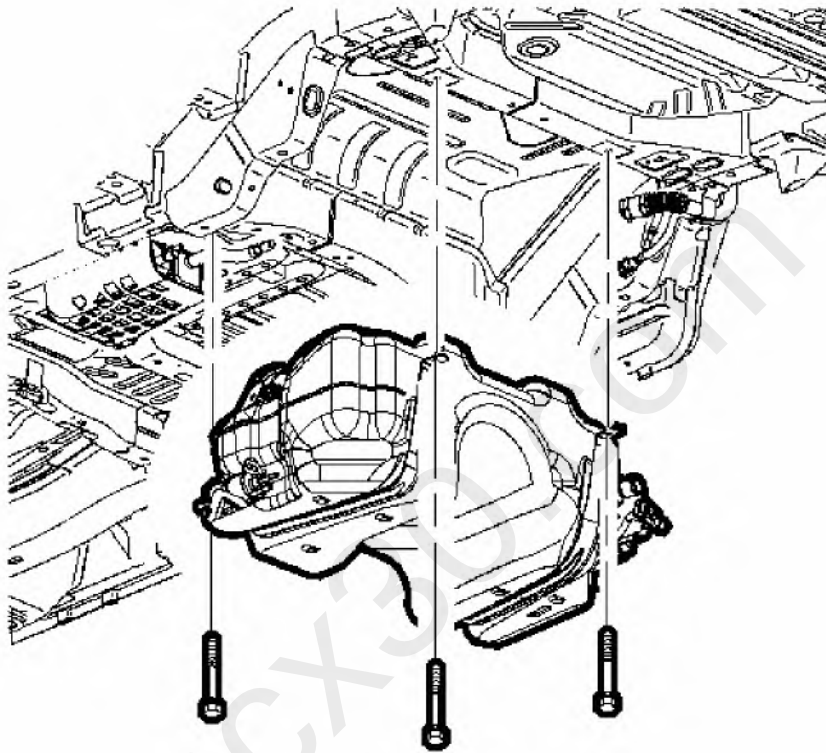


Fig. 32: View Of Fuel Tank Heat Shield & Fuel Tank Assembly Into The Vehicle
Courtesy of GENERAL MOTORS CORP.

1. Install the fuel tank shield to the fuel tank.
2. Install the fuel tank. Refer to **Fuel Tank Replacement (FWD)** or **Fuel Tank Replacement (AWD)** .

EXHAUST MANIFOLD HEAT SHIELD REPLACEMENT - RIGHT

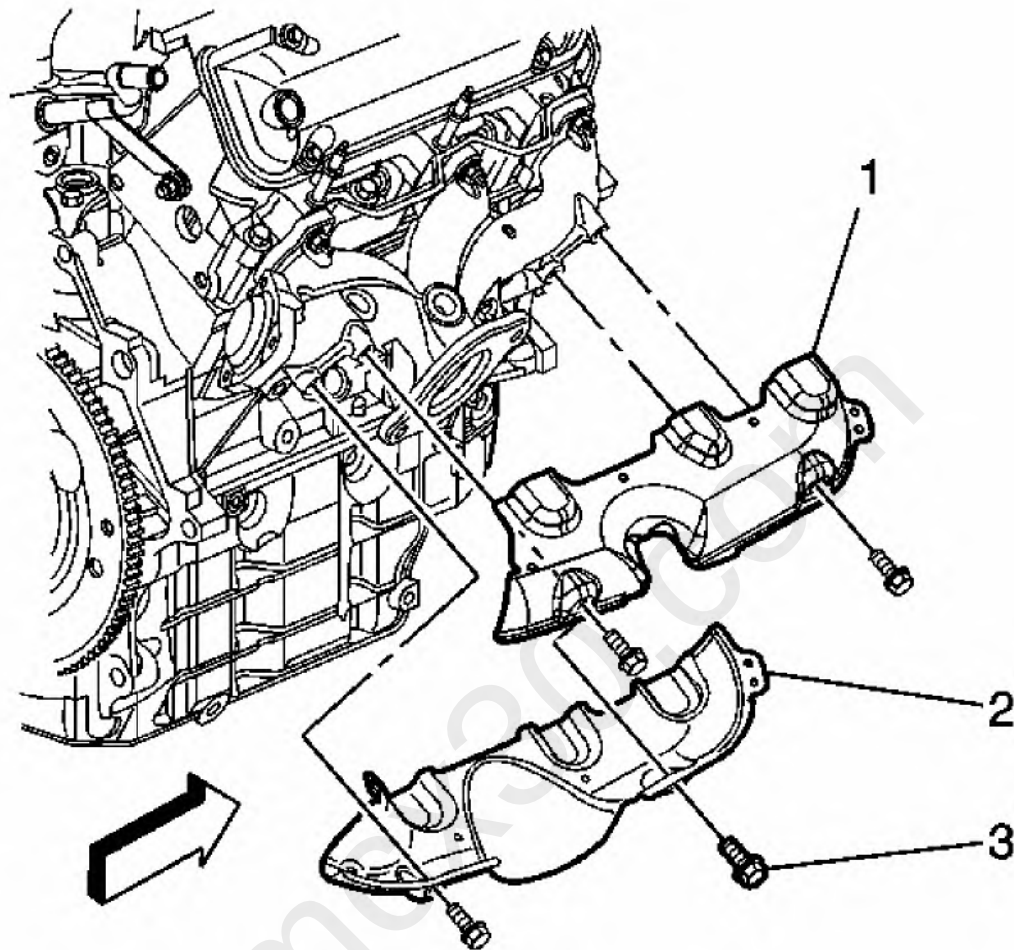


Fig. 33: View Of Right Exhaust Manifold Heat Shields & Bolts
Courtesy of GENERAL MOTORS CORP.

1. Remove the heat shield bolts (3).
2. Remove the lower heat shield (2) from the exhaust manifold.
3. Remove the upper heat shield (1) from the exhaust manifold.

Installation Procedure

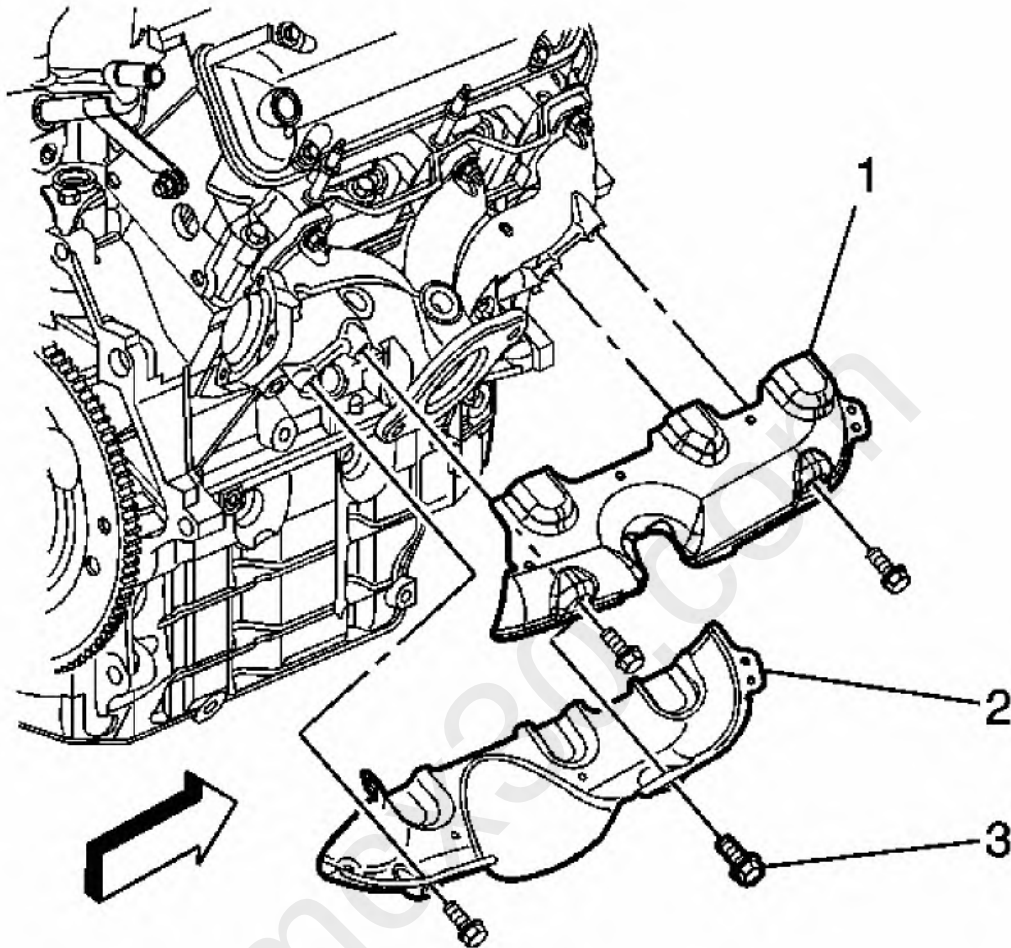


Fig. 34: View Of Right Exhaust Manifold Heat Shields & Bolts
Courtesy of GENERAL MOTORS CORP.

1. Install the upper heat shield (1) to the exhaust manifold.
2. Install the lower heat shield (2) to the exhaust manifold.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the heat shield bolts to the exhaust manifold.

Tighten: Tighten the bolts to 10 N.m (89 lb in).

EXHAUST MANIFOLD HEAT SHIELD REPLACEMENT - LEFT

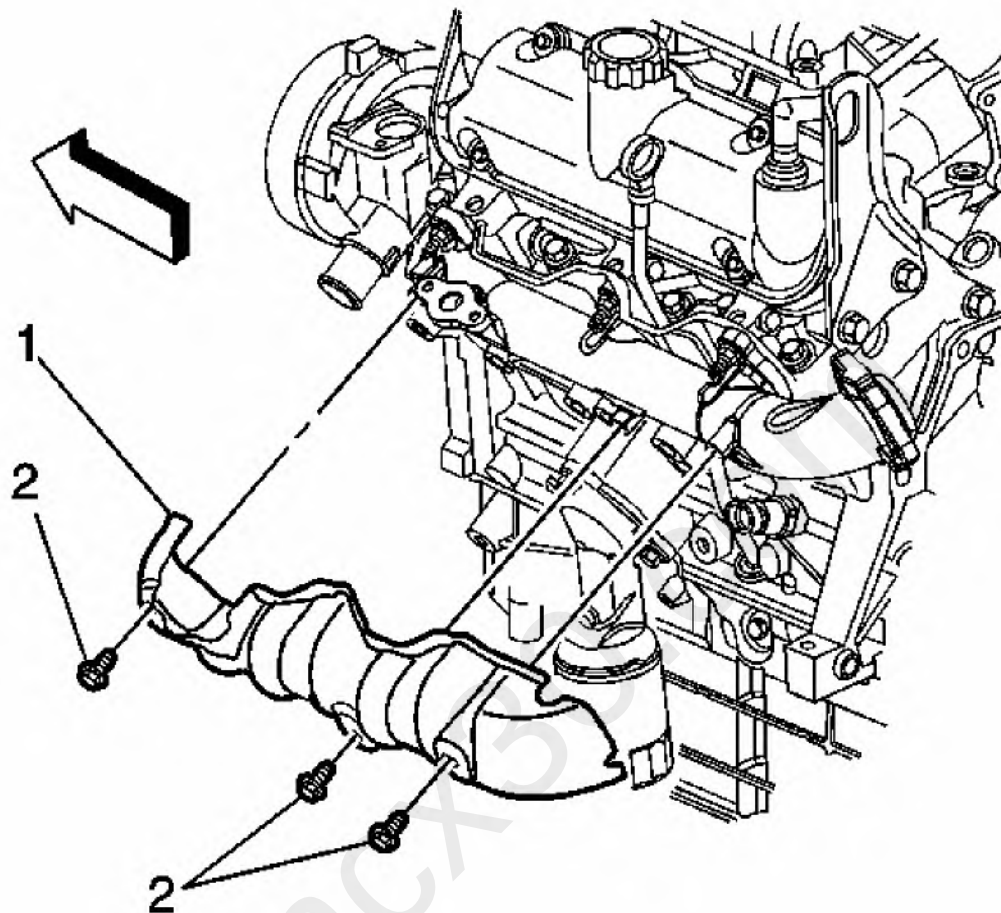


Fig. 35: View Of Left Exhaust Manifold Heat Shield & Bolts
Courtesy of GENERAL MOTORS CORP.

1. Remove the heat shield bolts (3).
2. Remove the heat shield (2) from the exhaust manifold.

Installation Procedure

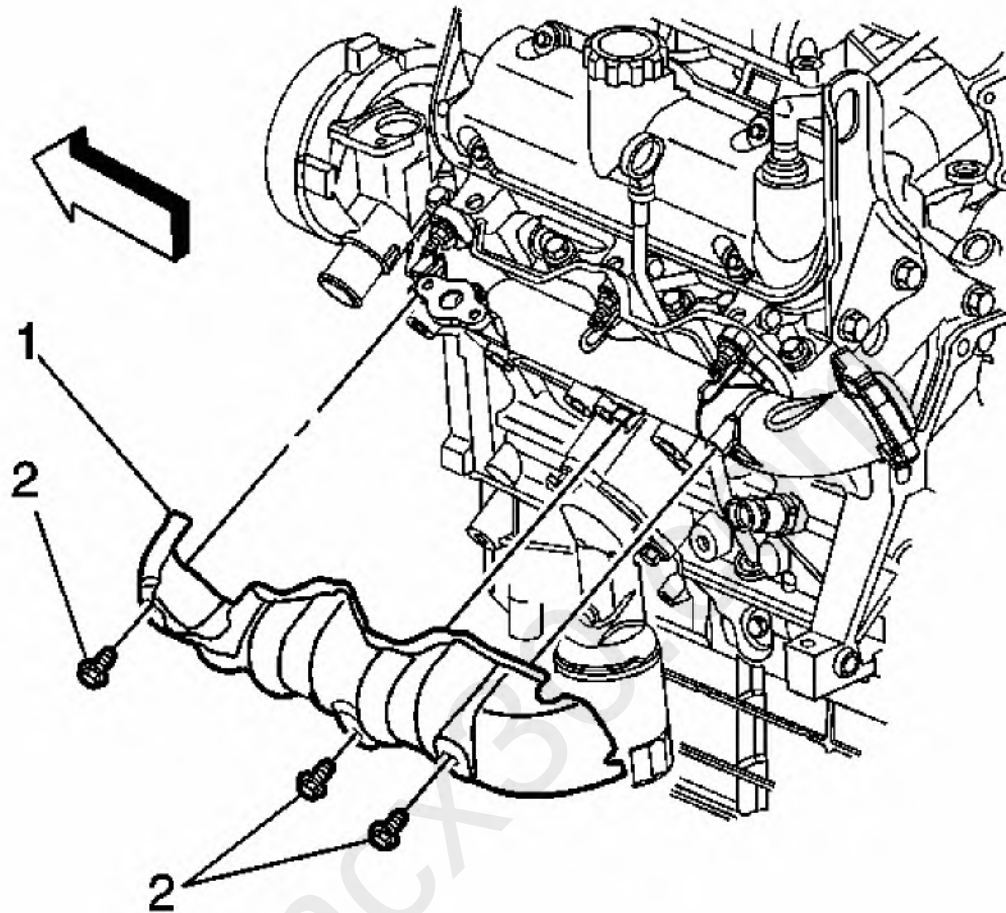


Fig. 36: View Of Left Exhaust Manifold Heat Shield & Bolts
Courtesy of GENERAL MOTORS CORP.

1. Install the heat shield (1) to the exhaust manifold.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the heat shield bolts to the exhaust manifold.

Tighten: Tighten the bolts to 10 N.m (89 lb in).

EXHAUST HEAT SHIELD REPLACEMENT - FRONT

Removal Procedure

1. Raise the vehicle. Refer to Lifting and Jacking the Vehicle in General Information.

2. Remove the catalytic converter. Refer to **Catalytic Converter Replacement**.

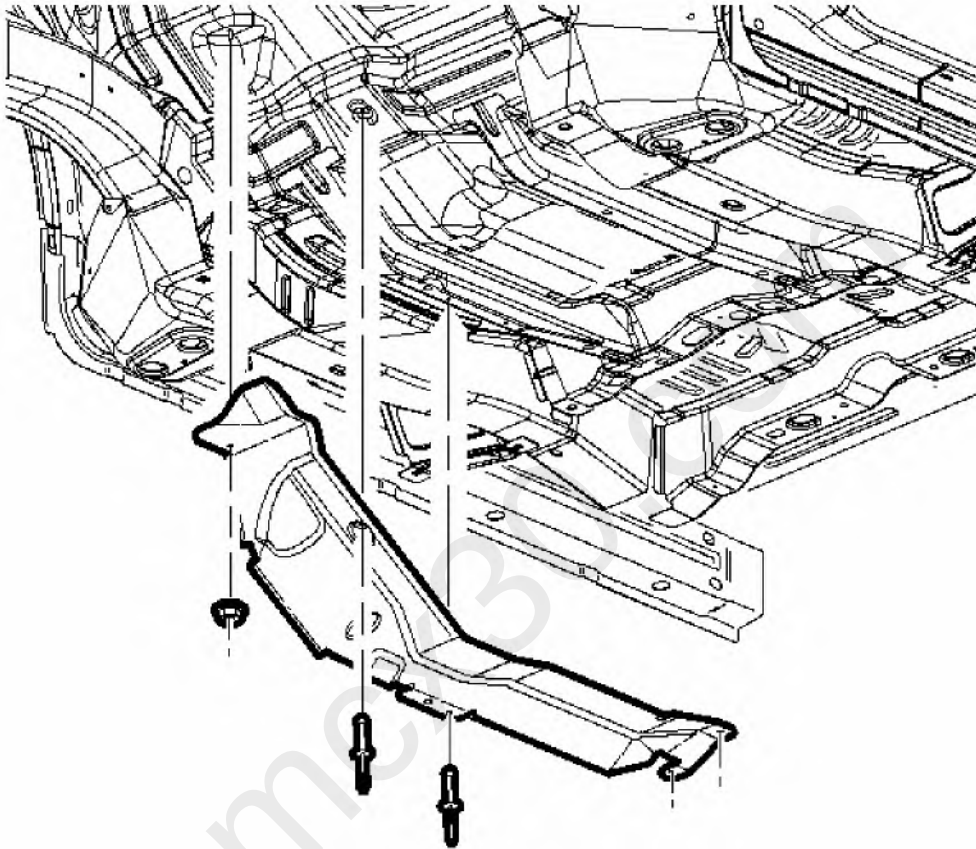


Fig. 37: Positioning Shield Onto The Vehicle
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The front and rear heat shields overlap and utilize common rivet attachment points.

3. Remove the nut and rivets.
4. Remove the heat shield.

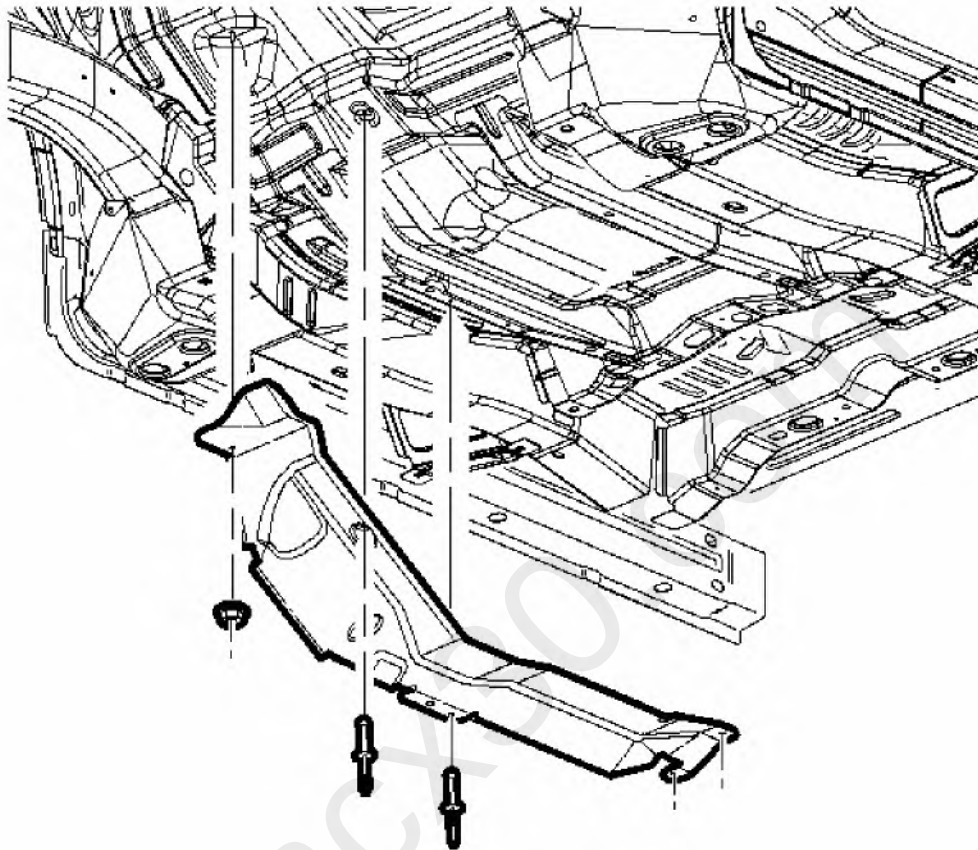


Fig. 38: Positioning Shield Onto The Vehicle
Courtesy of GENERAL MOTORS CORP.

1. Position the shield to the vehicle, aligning the front hole stud. Place the rear of the shield under the rear shield and against the underbody.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the nut and tighten.

Tighten: Tighten the heat shield-to-underbody nut to 10 N.m (89 lb in).

3. Install the rivets.
4. Install the catalytic converter. Refer to Catalytic Converter Replacement.

EXHAUST HEAT SHIELD REPLACEMENT - CENTER

Removal Procedure

1. Raise the vehicle. Refer to **Lifting and Jacking the Vehicle** in General Information.
2. Remove the exhaust system. Refer to **Exhaust System Replacement**.

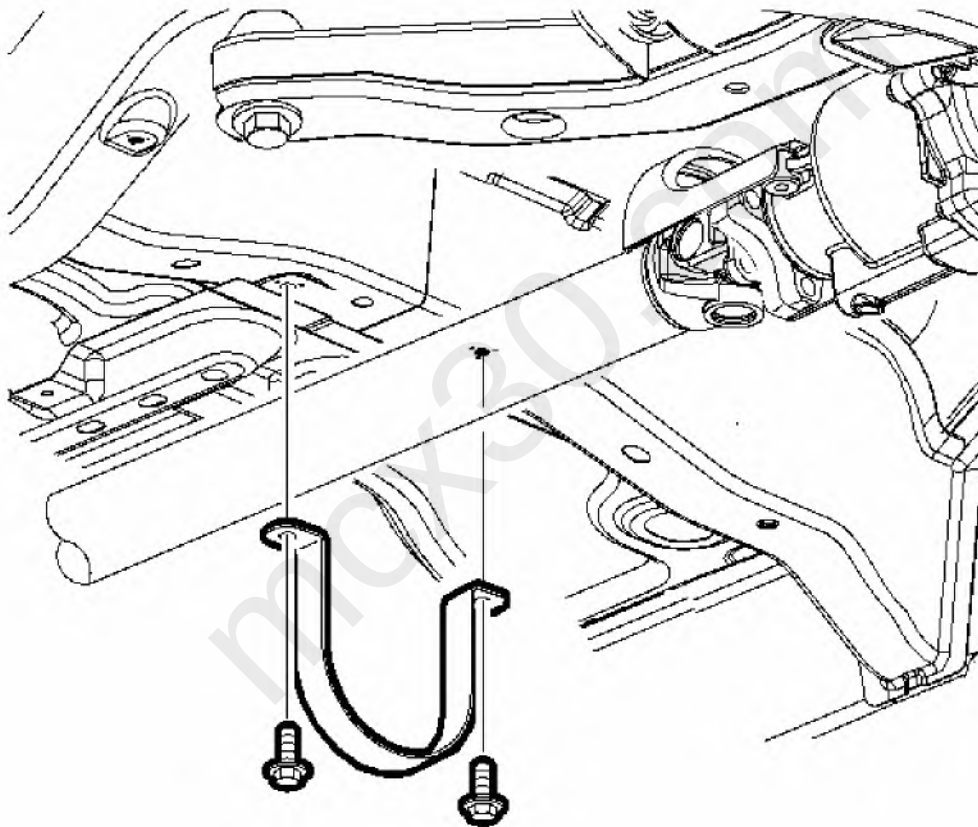


Fig. 39: View Of Propeller Shaft
Courtesy of GENERAL MOTORS CORP.

3. If vehicle is equipped with all wheel drive (AWD) remove the propeller shaft underbody guard loop bolts and guard loop.

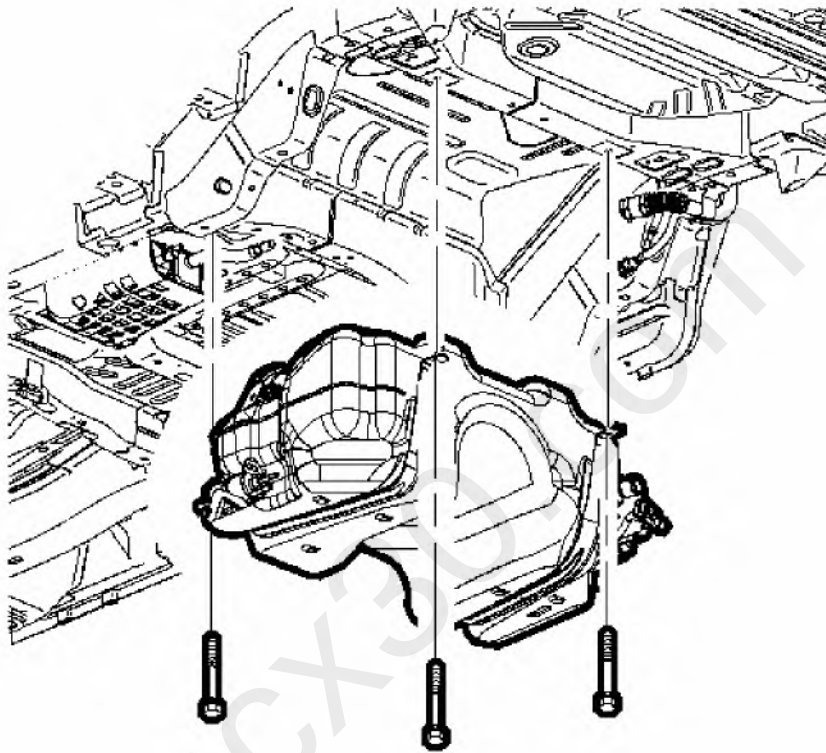


Fig. 40: View Of Fuel Tank Heat Shield & Fuel Tank Assembly Into The Vehicle
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Support the fuel tank before removing the fuel tank strap bolt.

4. Remove the fuel tank strap bolt, which also fastens the rear of the center heat shield.

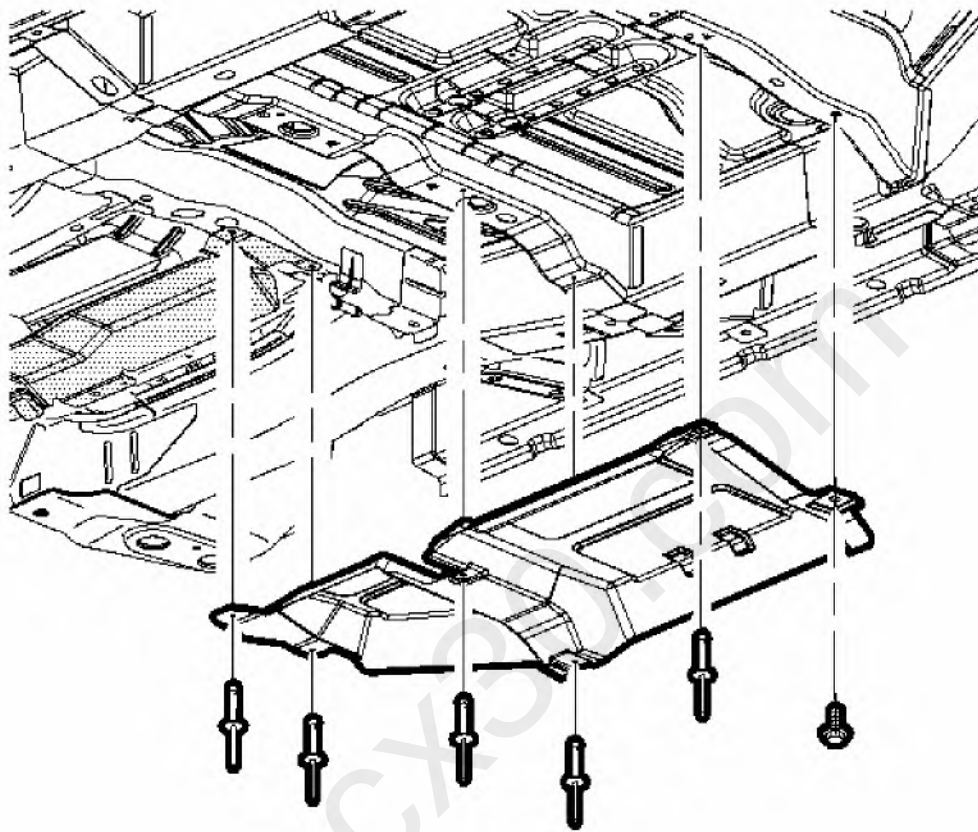


Fig. 41: View Of Center Exhaust Heat Shield & Rivets
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: The front and rear heat shields overlap and utilize common rivet attachment points.

5. Remove the rivets.
6. Remove the shield.

Installation Procedure

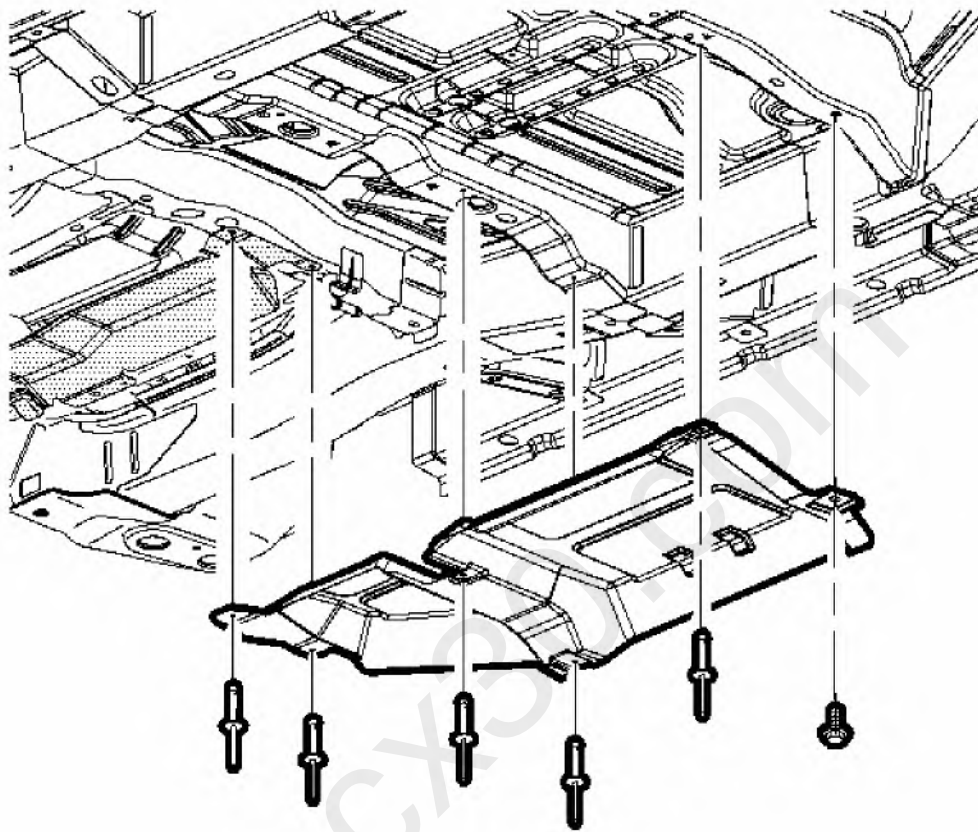


Fig. 42: View Of Center Exhaust Heat Shield & Rivets
Courtesy of GENERAL MOTORS CORP.

1. Position the shield to the vehicle, aligning the front rivet locations which are common attachment points with the front heat shield.
2. Install the rivets

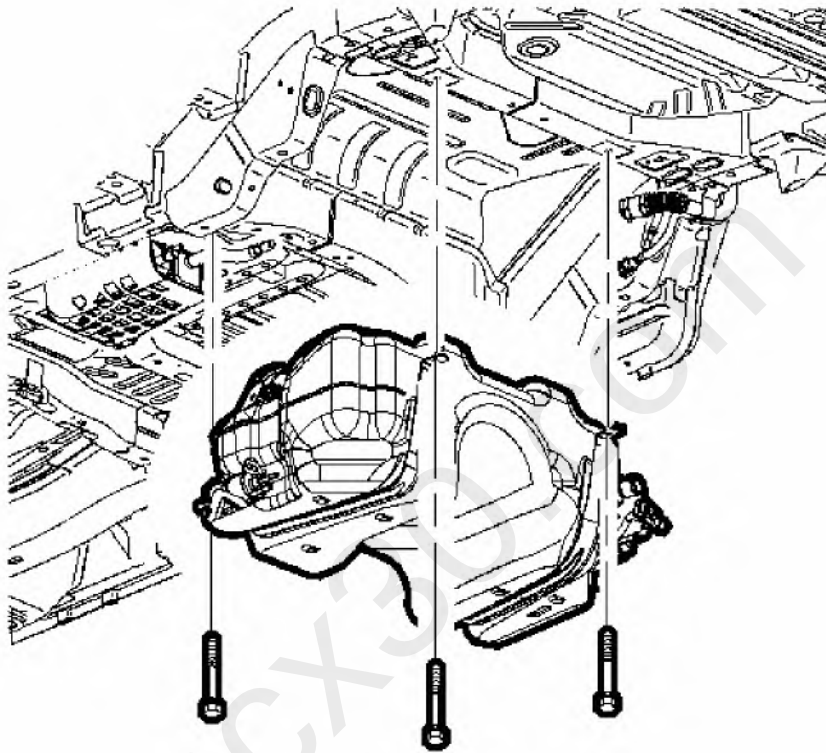


Fig. 43: View Of Fuel Tank Heat Shield & Fuel Tank Assembly Into The Vehicle
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the fuel tank strap bolt and tighten.

Tighten: Tighten the bolt to 25 N.m (18 lb ft).

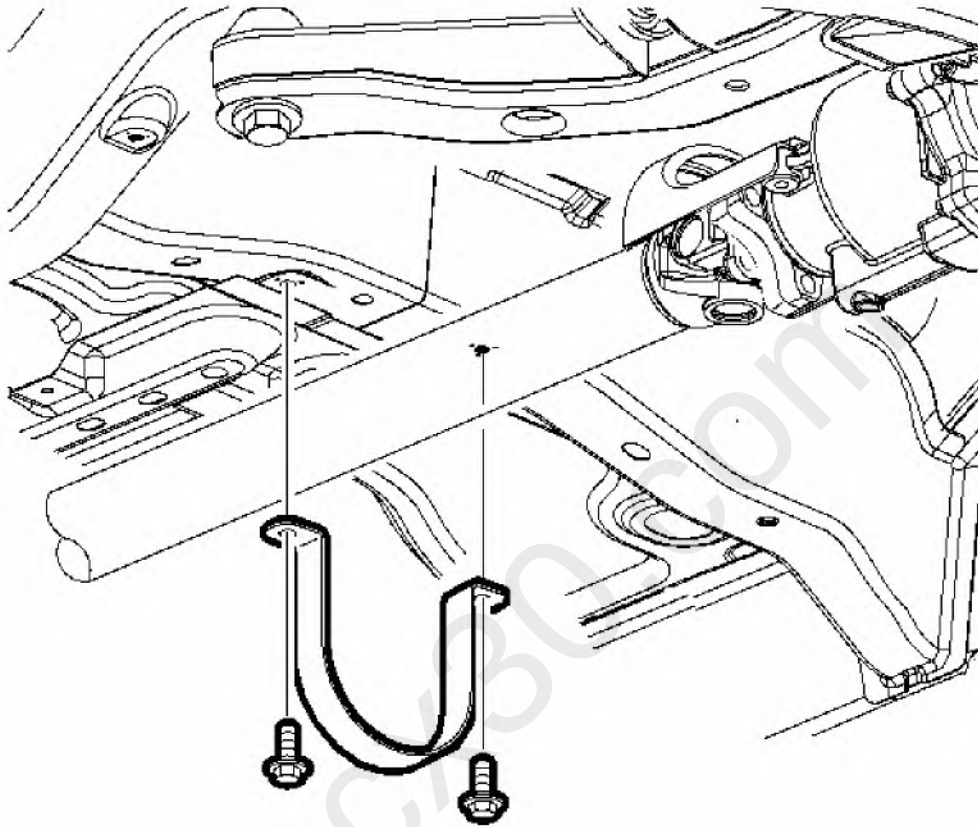


Fig. 44: View Of Propeller Shaft
Courtesy of GENERAL MOTORS CORP.

4. If vehicle is equipped with AWD install the propeller shaft underbody guard loop and bolts.

Tighten: Tighten the bolts to 25 N.m (18 lb ft).

5. Install the exhaust system. Refer to **Exhaust System Replacement**.
6. Lower the vehicle.

DESCRIPTION AND OPERATION

EXHAUST SYSTEM DESCRIPTION

IMPORTANT: Use of non-OEM parts may cause driveability concerns.

The exhaust system carries exhaust gases, treated by the catalytic converter, through a resonator, if applicable and into the exhaust muffler where exhaust noise is lessened.

In order to secure the exhaust pipe to the exhaust manifold, a flange and seal-joint coupling is utilized. The exhaust system may utilize a slip-joint coupling design with a clamp and a U-bolt or a flange connection with a gasket.

Exhaust hangers and rubber insulators help to support the weight of the exhaust pipe along with insulating any exhaust system vibration, rattle, or noise.

Exhaust hangers also space the exhaust system away from the underbody of the vehicle and allows the exhaust system to expand as the exhaust system warms up.

Exhaust heat shields are used to protect the body and other components from damage due to the heat from the exhaust system.

The exhaust system may be comprised of the following components:

- Exhaust manifold
- Exhaust pipes
- Catalytic converters
- Exhaust muffler
- Exhaust resonator, if equipped
- Exhaust tail pipe, if equipped
- Exhaust hangers
- Exhaust heat shields

Resonator

Some exhaust systems are equipped with a resonator. The resonator, located either before or after the muffler, allows the use of mufflers with less back pressure. Resonators are used when vehicle characteristics require specific exhaust tuning.

Catalytic Converter

The catalytic converter is an emission control device used to reduce hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) pollutants from the exhaust gas.

The catalytic converter is comprised of a ceramic monolith substrate, supported in insulation and housed within a sheet metal shell. The substrate may be washcoated with 3 noble metals:

- Platinum (Pt)

2006 Chevrolet Equinox LT

2006 ENGINE Engine Exhaust - Equinox & Torrent

- Palladium (Pd)
- Rhodium (Rh)

The catalyst in the catalytic converter is not serviceable.

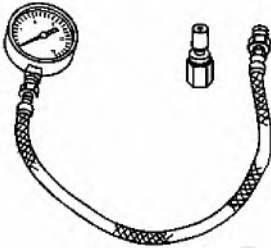
Muffler

The exhaust muffler reduces the noise levels of the engine exhaust by the use of tuning tubes. The tuning tubes create channels inside the exhaust muffler that lower the sound levels created by the combustion of the engine.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Special Tools

Illustration	Tool Number/ Description
	J 35314-A Exhaust Back Pressure Gage