

SECTION 6F

EXHAUST SYSTEM

CAUTION: This vehicle is equipped with Supplemental Inflatable Restraint (SIR). Refer to **CAUTIONS** in SECTION 9J under "ON-VEHICLE SERVICE" and the SIR Component and Wiring Location View in Section 9J before performing service on or around SIR components or wiring. Failure to follow **CAUTIONS** could result in possible air bag deployment, personal injury, or otherwise unneeded SIR system repairs.

NOTICE: Always use the correct fastener in the proper location. When you replace a fastener, use **ONLY** the exact part number for that application. General Motors will call out those fasteners that require a replacement after removal. General Motors will also call out the fasteners that require thread lockers or thread sealant. **UNLESS OTHERWISE SPECIFIED**, do not use supplemental coatings (paints, greases, or other corrosion inhibitors) on threaded fasteners or fastener joint interfaces. Generally, such coatings adversely affect the fastener torque and the joint clamping force, and may damage the fastener. When you install fasteners, use the correct tightening sequence and specifications. Following these instructions can help you avoid damage to parts and systems.

NOTICE: Exhaust system components must have enough clearance from the underbody to prevent overheating of the floor pan and possible damage to the passenger compartment, insulation and trim materials.

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GENERAL DESCRIPTION

NOTICE: When inspecting or replacing exhaust system components, make sure there is adequate clearance from all points on the underbody to prevent overheating of the floor pan and possible damage to the passenger compartment insulation and trim materials.

Periodic maintenance of the exhaust system is not required; however, if the vehicle is raised for other service, it is advisable to check the general condition of the three way catalytic converter (TWC), pipes and muffler.

Check complete exhaust system and nearby body areas for broken, damaged, missing or mispositioned parts, open seams, holes, loose connections or other deterioration that could permit exhaust fumes to seep into the passenger compartment. Dust or water in the rear compartment may indicate a problem in one of these areas. Any faulty areas should be corrected immediately.

The Geo Tracker exhaust system consists (from front to rear) of an engine exhaust manifold, an exhaust manifold heat shield, a front pipe, a Three

Way Catalytic Converter (TWC) and a muffler/tail pipe assembly. Various flexible rubber hangers and supports suspend the system along the underside of the vehicle.

THREE WAY CATALYTIC CONVERTER (TWC)

CAUTION: Prolonged operation with a misfiring or flooded engine may cause the TWC to overheat. This could cause damage either to the catalyst itself or the operating vehicle and possible personal injury.

NOTICE: When jacking or lifting the vehicle from frame side rails, be certain that the lift pads do not contact the TWC; damage to the converter may result. Refer to SECTION 0A for proper vehicle jacking and lifting procedures.

The TWC is an emission control device added to the exhaust system on gasoline engines to reduce pollutants from the exhaust gas stream.

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NOTICE: The TWC requires the use of unleaded fuel only. Using leaded fuels may cause damage to the catalyst.

The catalyst is not serviceable; the TWC is serviced as part of the front pipe/TWC assembly.

HANGERS

Important

- The installation of exhaust system components is very important. Improperly installed supports can cause annoying vibrations that can be difficult to diagnose.

The exhaust system is supported along its length by five rubber hangers. The rubber hangers provide a rigid brace along with a feature that continues to support the exhaust system if the rubber insulation breaks.

DIAGNOSIS

NOISE

Rattles and noise vibrations in the exhaust system may be caused by misalignment of system components. When aligning the system, leave all bolts or nuts loose until all parts are properly aligned. After alignment is complete, tighten all fasteners from front to rear.

EXHAUST SYSTEM

Figure 1

Exhaust system performance complaints, such as excessive back pressure, are noticeable by their effect on engine performance. However, other faulty vehicle components, such as emission control devices, have similar effects on engine performance and may be characterized by the identical symptoms. For further information regarding emission control devices, refer to SECTION 6E.

CONDITION	CAUSE	CORRECTION
VIBRATION/RATTLING	1. Loose System Components. 2. Misaligned System Components. 3. Bent or Damaged Support Brackets or Mounts. 4. Loose Heat Shields.	1. Tighten Loose Components. 2. Align System Components. 3. Repair as Necessary. 4. Tighten Heat Shields.
RESTRICTION	1. Kinked Exhaust Pipes. 2. Restriction in Three Way Catalytic Converter (TWC). 3. Restriction in Muffler.	1. Repair/replace Components as Necessary. 2. Replace Three Way Catalytic Converter (TWC). 3. Replace Muffler/Tail Pipe Assembly.
LEAKAGE/EXCESSIVE NOISE	1. Loose System Components 2. Bad Seal or Gasket 3. Cracked Exhaust Manifold	1. Tighten Loose System Components. 2. Replace Seal or Gasket. 3. Replace Exhaust Manifold.

Figure 1—Exhaust System Diagnosis Table

ON-VEHICLE SERVICE

COMPONENT REPLACEMENT

When installing a new exhaust system component, always use new gaskets and seals.

FRONT PIPE

Figure 2

Remove or Disconnect

1. Raise and suitably support vehicle. Refer to SECTION 0A.
2. Two bolts, two springs and front pipe from exhaust manifold (Figure 2).
3. Two bolts, two springs; securing front pipe to Three Way Catalytic Converter (TWC) and remove front pipe from the vehicle.



Clean

- Gasket and seal mating surfaces.



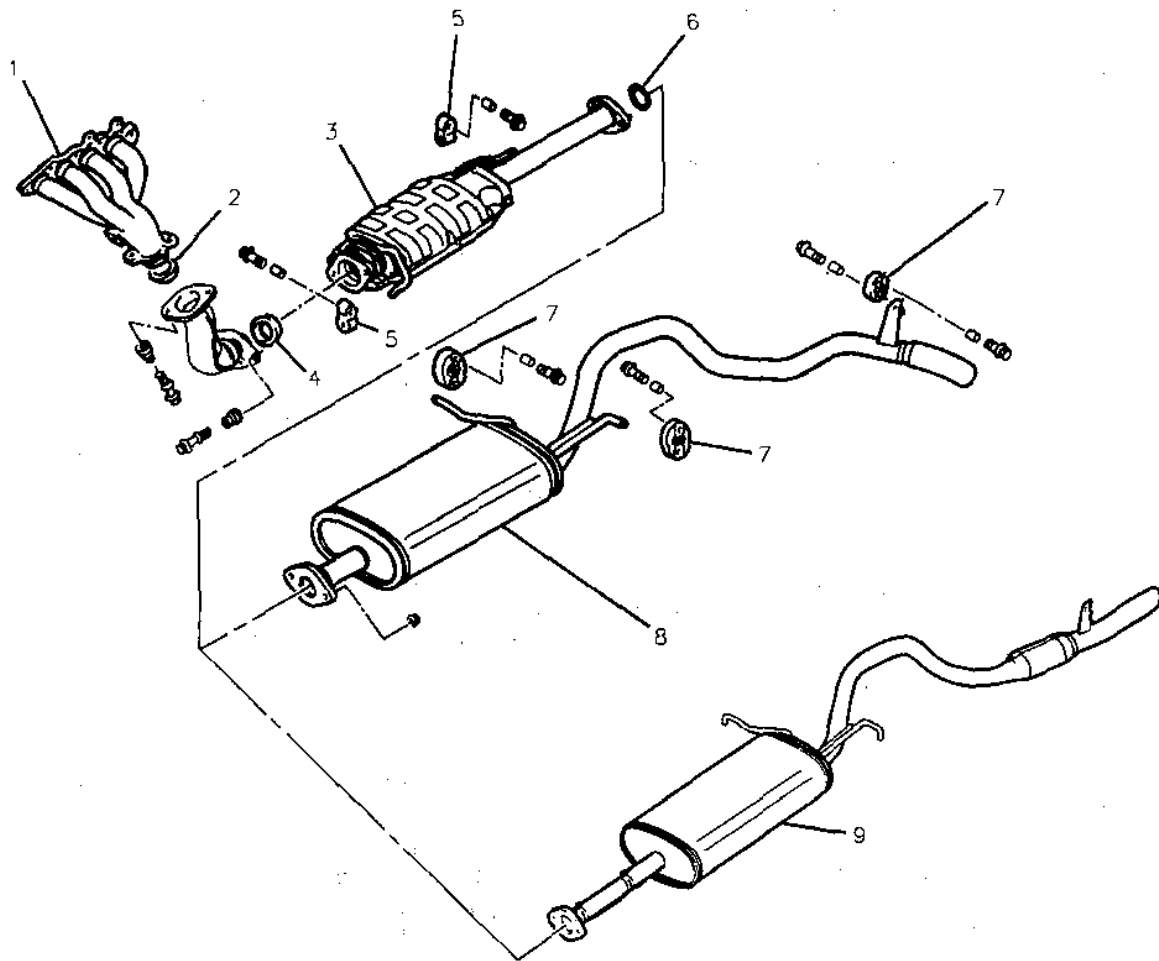
Install or Connect

1. Front pipe with new gasket to vehicle; secure to manifold with two springs and two bolts. Do not tighten fully.
2. Front pipe with new seal to Three Way Catalytic Converter (TWC); secure with two springs and two bolts. Do not tighten fully.



Adjust

- Align all system components properly to prevent any noise or vibrations before tightening fasteners.



- 1 EXHAUST MANIFOLD
- 2 EXHAUST MANIFOLD-TO-FRONT PIPE SEAL
- 3 THREE WAY CATALYTIC CONVERTER (TWC)
- 4 FRONT PIPE-TO-TWC SEAL
- 5 TWC HANGERS
- 6 TWC-TO-MUFFLER/TAIL PIPE ASSEMBLY SEAL
- 7 MUFFLER/TAIL PIPE ASSEMBLY HANGERS
- 8 MUFFLER/TAIL PIPE ASSEMBLY (2-DOOR MODEL)
- 9 MUFFLER/TAIL PIPE ASSEMBLY (4-DOOR MODEL)

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Figure 2—Exhaust System Components

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Tighten

- Front pipe-to-exhaust manifold bolts to 50 N.m (37 lb. ft.)
- Front pipe-to-TWC bolts to 50 N.m (37 lb. ft.)

3. Lower vehicle.

THREE WAY CATALYTIC CONVERTER (TWC)

Figure 2

Remove or Disconnect

1. Raise and suitably support vehicle. Refer to SECTION 0A.
2. Electrical connector from heated oxygen sensor (HOS2)
3. Two bolts, two springs securing front pipe to Three Way Catalytic Converter (TWC).
4. Two bolts and two nuts securing Three Way Catalytic Converter (TWC) to muffler/tail pipe assembly.
5. One bolt and hanger from front of TWC.
6. One bolt and hanger from rear of TWC and remove TWC from vehicle.

Clean

- Gasket and seal mating surfaces.

Install or Connect

1. Three Way Catalytic Converter (TWC) to vehicle and secure with two bolts and two hangers at front and rear of TWC.
2. Two bolts and two nuts securing Three Way Catalytic Converter (TWC) to muffler/tail pipe assembly. Do not tighten fully.
3. Two bolts, two springs securing front pipe to Three Way Catalytic Converter (TWC). Do not tighten fully.

Adjust

- Align all system components properly to prevent any noise or vibrations before tightening fasteners.

Tighten

- Front pipe-to-TWC bolts to 50 N.m (37 lb. ft.).
 - TWC-to-muffler/tail pipe assembly bolts and nuts to 50 N.m (37 lb. ft.).
4. Electrical connector to heated oxygen sensor (HOS2).
 5. Lower vehicle.

MUFFLER/TAIL PIPE ASSEMBLY

Figures 2, 3 and 4

Remove or Disconnect

1. Raise and suitably support vehicle. Refer to SECTION 0A.
2. Two bolts, two nuts and muffler/tail pipe assembly from front pipe/three way catalytic converter (TWC) assembly (Figure 3).
3. One bolt and hanger from pipe at muffler (Figure 2).
4. One bolt and hanger from muffler.
5. Two bolts and hangers from tail pipe.
6. Muffler/tail pipe assembly from vehicle.

Clean

- Seal mating surfaces.

Install or Connect

Important

- Be certain to install the muffler/tail pipe assembly hangers in their proper position (Figures 2 and 4).
1. Muffler/tail pipe assembly to vehicle; secure tail pipe with two hangers (one bolt each). Do not tighten fully.
 2. Muffler/tail pipe assembly, with new gasket, to front pipe/TWC assembly; secure with two bolts and two nuts. Do not tighten fully.
 3. Hanger to muffler; secure with one bolt. Do not tighten fully.
 4. Hanger to pipe at muffler; secure with one bolt. Do not tighten fully.

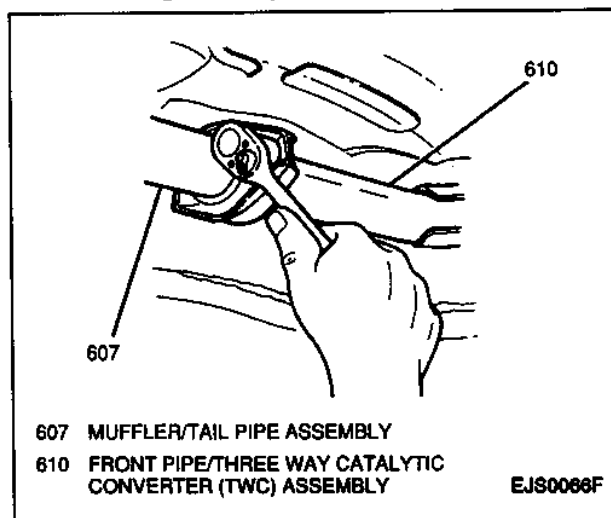


Figure 3—Removing Front Pipe/Three Way Catalytic Converter (TWC) Assembly from Muffler/Tail Pipe Assembly

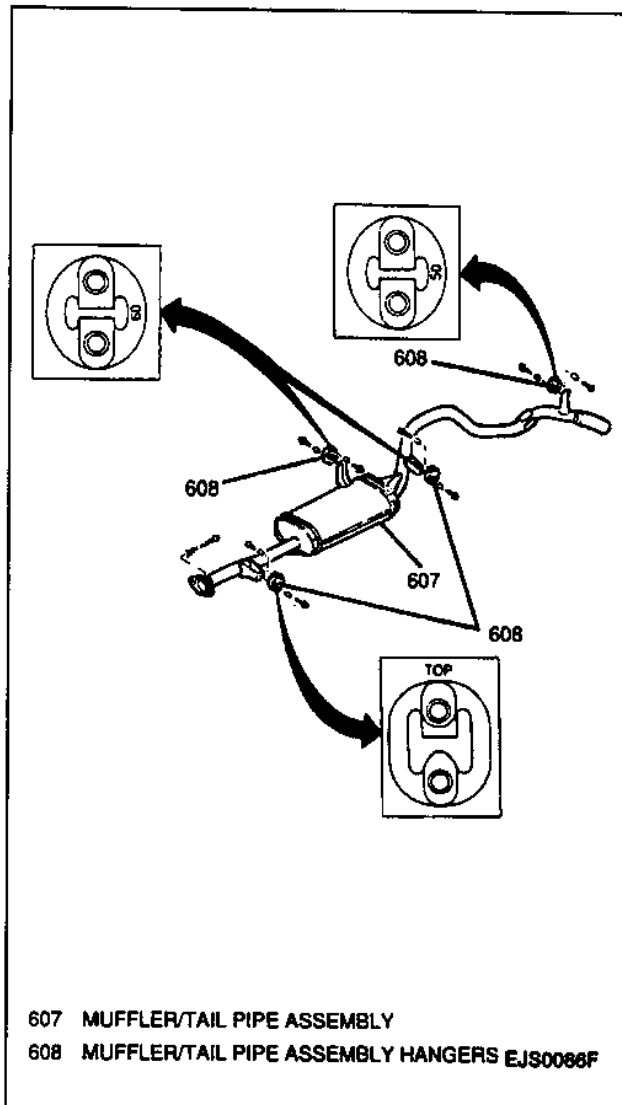


Figure 4—Muffler/Tail Pipe Assembly Hanger Positions
(Typical)



Adjust

- Align all system components properly to prevent any noise or vibrations before tightening fasteners.



Tighten

- TWC-to-muffler/tail pipe assembly bolts to 50 N.m (57 lb. ft.).
 - All hanger bolts to 13 N.m (115 lb. in.).
5. Lower vehicle.

SPECIFICATIONS

FASTENER TORQUES

Front Pipe-to-Exhaust Manifold Bolts	50 N.m (37 lb. ft.)
Front Pipe-to-Three Way Catalytic Converter (TWC).....	50 N.m (37 lb. ft.)
Three Way Catalytic Converter (TWC)-to-Muffler/Tail Pipe Assembly.....	50 N.m (37 lb. ft.)
Hanger Bolts	13 N.m (115 lb. in.)