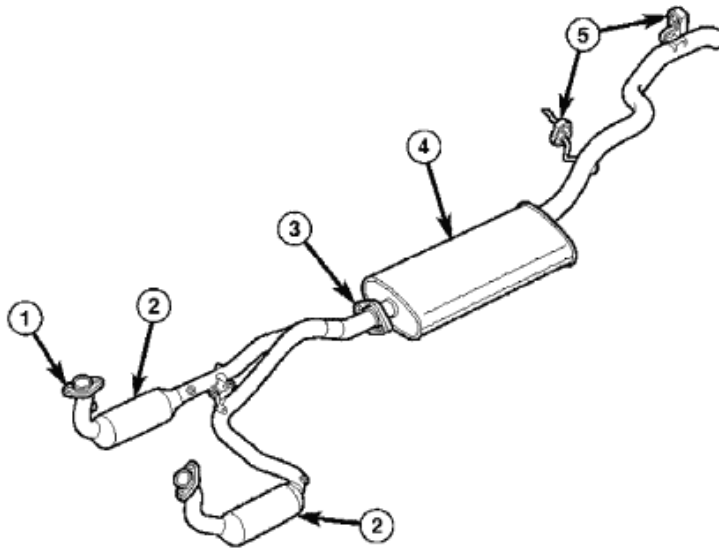


2007 ENGINE

Exhaust System And Turbocharger - Nitro

DESCRIPTION

DESCRIPTION-GAS ENGINE



81471906

**Fig. 1: Exhaust System - Gas**  
Courtesy of CHRYSLER LLC

- 1 - EXHAUST FLANGE
- 2 - CATALYTIC CONVERTER
- 3 - FRONT EXHAUST PIPE ASSEMBLY-TO-MUFFLER CLAMP
- 4 - MUFFLER
- 5 - INSULATOR
- 6 - RESONATOR

The basic exhaust system consists of an exhaust pipe assembly with catalytic converters (2), muffler (4) and tailpipe assembly and heat shields

The exhaust system must be properly aligned to prevent stress, leakage and body contact. Minimum clearance between any exhaust component and the body or frame is 25 mm (1.0 in.). If the system contacts any body panel, it may amplify objectionable noises from the engine or body.

When inspecting an exhaust system, critically inspect for cracked or loose joints, stripped screw or bolt threads, corrosion damage and worn, cracked or broken hangers. Replace all components that are badly corroded or damaged. DO NOT attempt to repair.

When replacement is required, use original equipment parts (or equivalent). This will assure proper engine

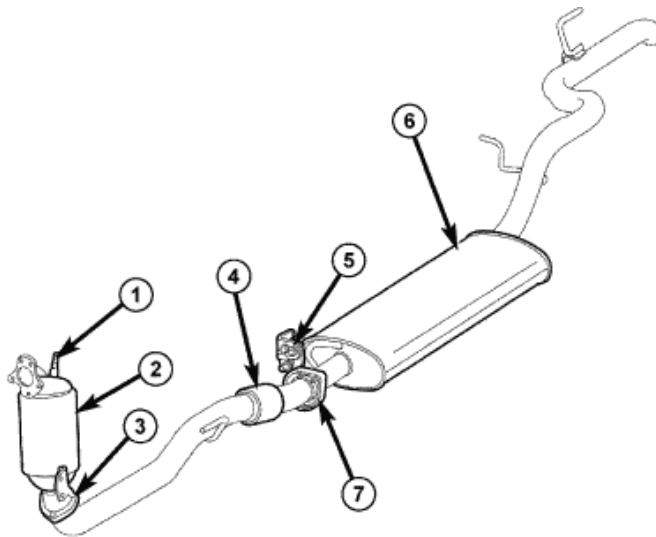
## 2007 Dodge Nitro R/T

### 2007 ENGINE Exhaust System And Turbocharger - Nitro

function and system alignment.

**CAUTION:** Avoid application of rust prevention compounds or undercoating materials to exhaust system floor pan exhaust heat shields. Light overspray near the edges is permitted. Application of coating will result in excessive floor pan temperatures and objectionable fumes.

#### DESCRIPTION-2.8L DIESEL



81a592e0

**Fig. 2: Exhaust System - 2.8L Diesel - W/Out DPF**  
Courtesy of CHRYSLER LLC

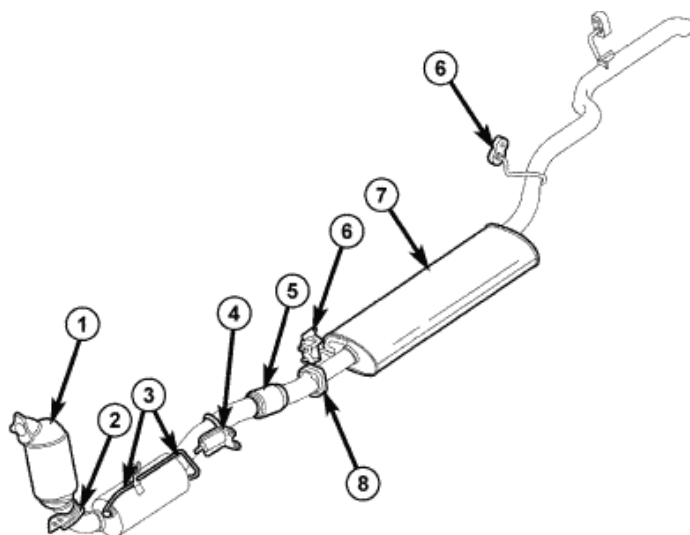
1 - OXYGEN SENSOR
2 - MANIVERTER
3 - MANIVERTER TO EXHAUST PIPE FLANGE
4 - FLEXIBLE BELLOWS
5 - ISOLATORS
6 - MUFFLER/TAILPIPE ASSEMBLY
7 - EXHAUST PIPE TO MUFFLER FLANGE

**CAUTION:** Avoid application of rust prevention compounds or undercoating materials to exhaust system floor pan exhaust heat shields. Light overspray near the edges is permitted. Application of coating will result in excessive floor pan temperatures and objectionable fumes.

The diesel engine exhaust system consists of an engine exhaust manifold, turbocharger, EGR valve with intercooler, front exhaust pipe with catalytic converter, muffler and tailpipe assembly.

## 2007 Dodge Nitro R/T

### 2007 ENGINE Exhaust System And Turbocharger - Nitro



81a502db

**Fig. 3: Exhaust System - 2.8L Diesel - W/DPF**  
 Courtesy of CHRYSLER LLC

1 - MANIVERTER
2 - MANIVERTER TO DFP FLANGE
3 - PRESSURE SENSOR TUBING
4 - STEADY MOUNT
5 - FLEXIBLE BELLOWS
6 - ISOLATOR
7 - MUFFLER/TAIL PIPE ASSEMBLY
8 - DPF TO MUFFLER FLANGE

The exhaust system must be properly aligned to prevent stress, leakage and body contact. The exhaust components should be kept a minimum of 25.4 mm (1.0 in.) away from the body and frame. If the system contacts any body panel, it may amplify objectionable noises from the engine or body.

## DIAGNOSIS AND TESTING

### EXHAUST SYSTEM-GAS ENGINES

CONDITION	POSSIBLE CAUSE	CORRECTION
EXCESSIVE EXHAUST NOISE OR LEAKING EXHAUST GASES	1. Leaks at pipe joints. 2. Rusted or blown out muffler. 3. Broken or rusted out exhaust pipe. 4. Exhaust pipe leaking at manifold flange.	1. Tighten clamps/bolts to specified torque at leaking joints. 2. Replace muffler. Inspect exhaust system. 3. Replace exhaust pipe. 4. Tighten/replace flange attaching nuts/bolts.

## 2007 Dodge Nitro R/T

### 2007 ENGINE Exhaust System And Turbocharger - Nitro

	<ol style="list-style-type: none"> <li>5. Exhaust manifold cracked or broken.</li> <li>6. Leak between exhaust manifold and cylinder head.</li> <li>7. Catalytic converter rusted or blown out.</li> <li>8. Restriction in exhaust system.</li> </ol>	<ol style="list-style-type: none"> <li>5. Replace exhaust manifold.</li> <li>6. Tighten exhaust manifold to cylinder head bolts.</li> <li>7. Replace catalytic converter assy.</li> <li>8. Remove restriction, if possible. Replace restricted part if necessary.</li> </ol>
--	---	--

**CAUTION:**

**When servicing and replacing exhaust system components, disconnect the oxygen sensor connector(s). Allowing the exhaust to hang by the oxygen sensor wires will damage the harness and/or sensor.**

#### EXHAUST SYSTEM-DIESEL ENGINE

**CAUTION: On high mileage vehicles it is normal to see some exhaust staining around the turbocharger control rod area. This is not a sign of turbocharger failure.**

#### EXHAUST SYSTEM DIAGNOSIS CHART

CONDITION	POSSIBLE CAUSE	CORRECTION
<b>EXCESSIVE EXHAUST NOISE OR LEAKING EXHAUST GASES</b>	<ol style="list-style-type: none"> <li>1. Leaks at pipe joints.</li> <li>2. Rusted or blown out muffler.</li> <li>3. Broken or rusted out exhaust pipe.</li> <li>4. Exhaust pipe leaking at manifold flange.</li> <li>5. Exhaust manifold cracked or broken.</li> <li>6. Leak between exhaust manifold and cylinder head.</li> <li>7. Turbocharger mounting flange cracked.</li> <li>8. Restriction in exhaust system.</li> <li>9. EGR pipe(s) leak.</li> <li>10. EGR assembly leak.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten clamps/bolts at leaking joints.</li> <li>2. Replace muffler. Inspect exhaust system.</li> <li>3. Replace exhaust pipe.</li> <li>4. Tighten/replace flange attaching nuts/bolts.</li> <li>5. Replace exhaust manifold.</li> <li>6. Tighten exhaust manifold to cylinder head bolts. Replace gasket if necessary.</li> <li>7. Remove turbocharger and inspect. (Refer to <b>REMOVAL</b> ).</li> <li>8. Remove restriction, if possible. Replace restricted part if necessary.</li> <li>9. Tighten bolts. Replace gasket.</li> <li>10. Tighten bolts. Replace gaskets.</li> </ol>
Driveability Concern - Turbo	<ol style="list-style-type: none"> <li>1. Vacuum hose disconnected.</li> <li>2. Vacuum system leaks.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check connections, replace as necessary.</li> <li>2. Inspect for damage. Check for</li> </ol>

## 2007 Dodge Nitro R/T

2007 ENGINE Exhaust System And Turbocharger - Nitro

3. Boost pressure solenoid filter clogged.

leaks, replace as necessary.  
3. Replace the filter.

## SPECIFICATIONS

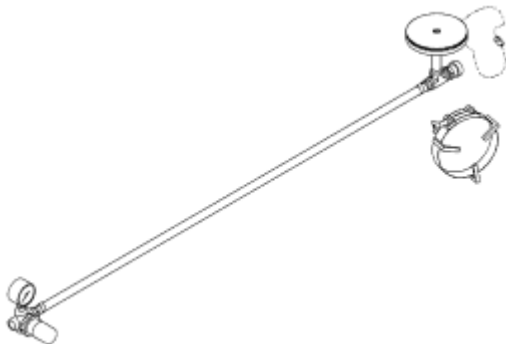
### TORQUE SPECIFICATIONS

### TORQUE SPECIFICATIONS

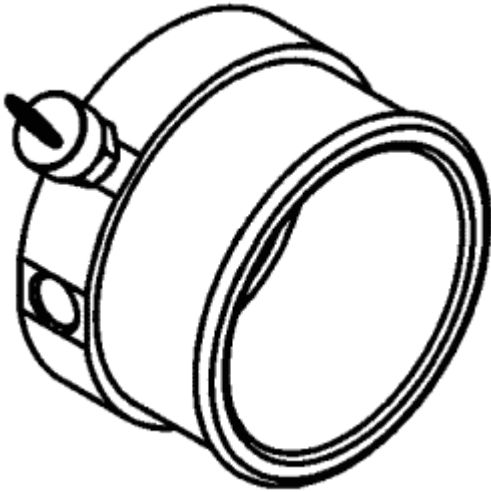
DESCRIPTION	N.m	Ft. Lbs.	In. Lbs.
EGR Pipe to EGR Inlet	32	24	-
Front Exhaust Pipe Flange-to-Exhaust Manifold Bolts	36	28	-
Front Exhaust pipe-to- Muffler Flange Nuts	36	28	-
Turbocharger Support Bracket Bolts	24	18	-
Turbocharger Downpipe Nuts	32	24	-
Turbocharger Oil Supply Line Fitting	24	18	215
Turbocharger Oil Return Line bolts	11	-	96
Turbocharger to Exhaust Manifold Nuts	32	24	-

## SPECIAL TOOLS

### SPECIAL TOOLS



**Fig. 4: Turbocharger Tester 9022**  
Courtesy of CHRYSLER LLC



**Fig. 5: Adaptor 8442**  
Courtesy of CHRYSLER LLC

## CONVERTER-CATALYTIC

### DESCRIPTION

### DESCRIPTION

**WARNING:** The normal operating temperature of the exhaust system is very high. Therefore, never work around or attempt to service any part of the exhaust system until it is cooled. Special care should be taken when working near the catalytic converter. The temperature of the converter rises to a high level after a short period of engine operation time.

**CAUTION:** DO NOT remove spark plug wires from plugs or by any other means short out cylinders. Failure of the catalytic converter can occur due to a temperature increase caused by unburned fuel passing through the converter.

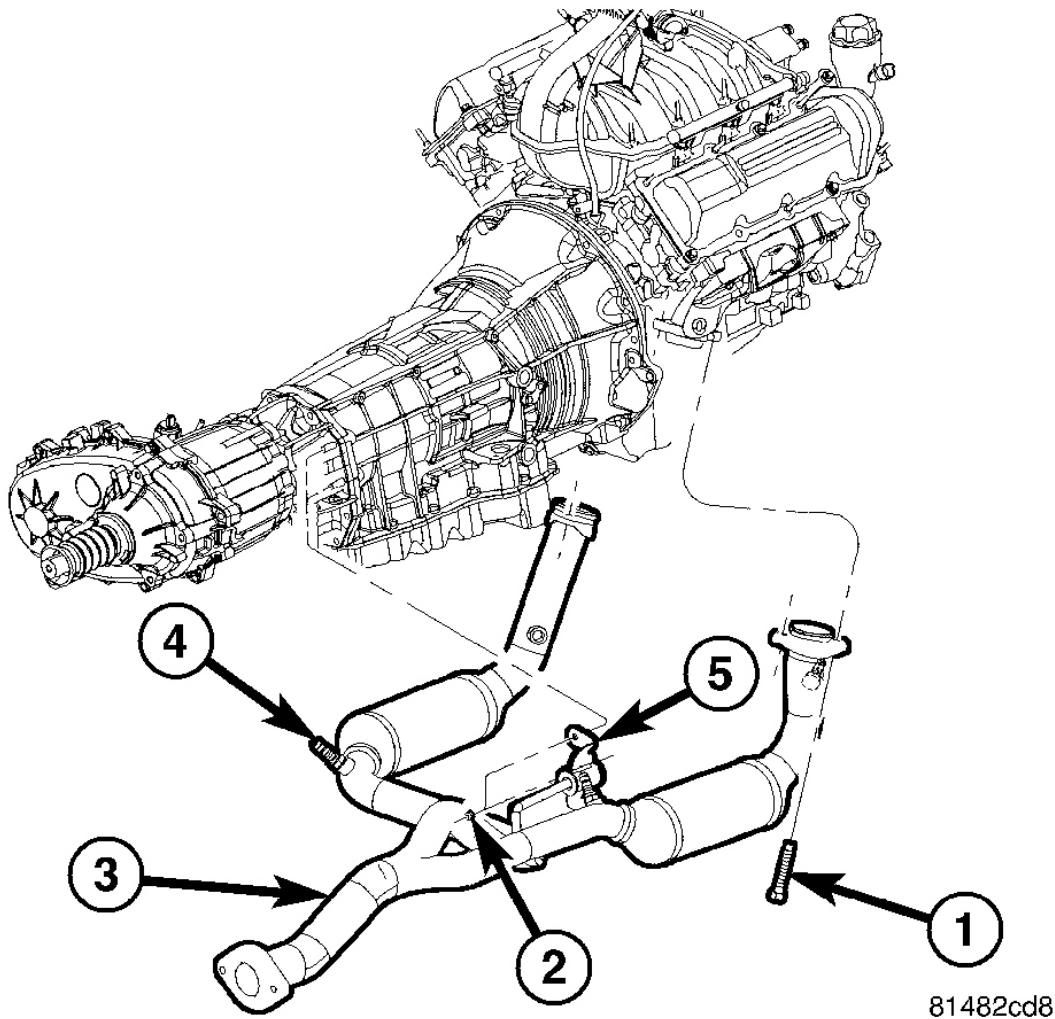
The stainless steel catalytic converter body is designed to last the life of the vehicle. Excessive heat can result in bulging or other distortion, but excessive heat will not be the fault of the converter. If unburned fuel enters the converter, overheating may occur. If a converter is heat-damaged, correct the cause of the damage at the same time the converter is replaced. Also, inspect all other components of the exhaust system for heat damage.

**Unleaded gasoline must be used to avoid contaminating the catalyst core.**

50 State emission vehicles incorporate two catalytic converters located after the exhaust manifolds and before the muffler.

### REMOVAL

REMOVAL-3.7L ENGINE



**Fig. 6: 3.7L Catalytic Converter**  
Courtesy of CHRYSLER LLC

**WARNING:** If torches are used when working on the exhaust system, do not allow the flame near the fuel lines.

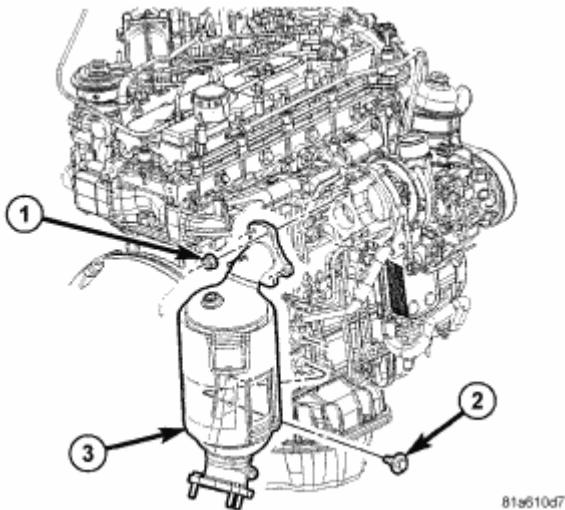
1. Raise and support the vehicle.
2. Saturate the bolts (1) and nuts with heat valve lubricant. Allow 5 minutes for penetration.
3. Disconnect oxygen sensor electrical connectors.
4. Remove the nuts from the front exhaust pipe and catalytic converter assembly to muffler flange.

## 2007 Dodge Nitro R/T

### 2007 ENGINE Exhaust System And Turbocharger - Nitro

5. Remove bolts (1) and flanged nuts at the manifold.
6. Lower the front exhaust pipe/catalytic converter assembly (3) and slide out of the mount at the transmission (if equipped).
7. Remove the front exhaust pipe/catalytic converter assembly from the vehicle.

#### REMOVAL-2.8L DIESEL



**Fig. 7: Catalytic Converter - 2.8L Diesel**  
Courtesy of CHRYSLER LLC

1 - NUT

2 - MOUNTING BOLT

3 - CATALYTIC CONVERTER

**WARNING: If torches are used when working on the exhaust system, do not allow the flame near the fuel lines.**

1. Raise and support the vehicle.
2. Saturate the bolts and nuts with heat valve lubricant. Allow 5 minutes for penetration.
3. Remove diesel particulate filter (DPF), if equipped.
4. Remove two bracket bolts (2).
5. Remove the nuts (1) from the front catalytic converter to turbocharger flange.
6. Lower the catalyst assembly (2) and slide out of the mount at the transmission (if equipped).
7. Remove the front exhaust pipe/catalytic converter assembly from the vehicle.

#### INSPECTION

#### INSPECTION



## 2007 Dodge Nitro R/T

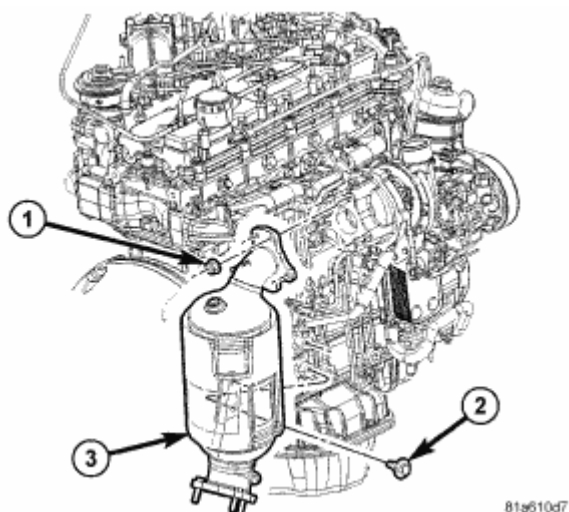
### 2007 ENGINE Exhaust System And Turbocharger - Nitro

Look at the stainless steel body of the converter, inspect for bulging or other distortion that could be a result of overheating. If the converter has a heat shield attached make sure it is not bent or loose.

If you suspect internal damage to the catalyst, tapping the bottom of the catalyst with a rubber mallet may indicate a damaged core.

## INSTALLATION

### INSTALLATION-2.8L DIESEL

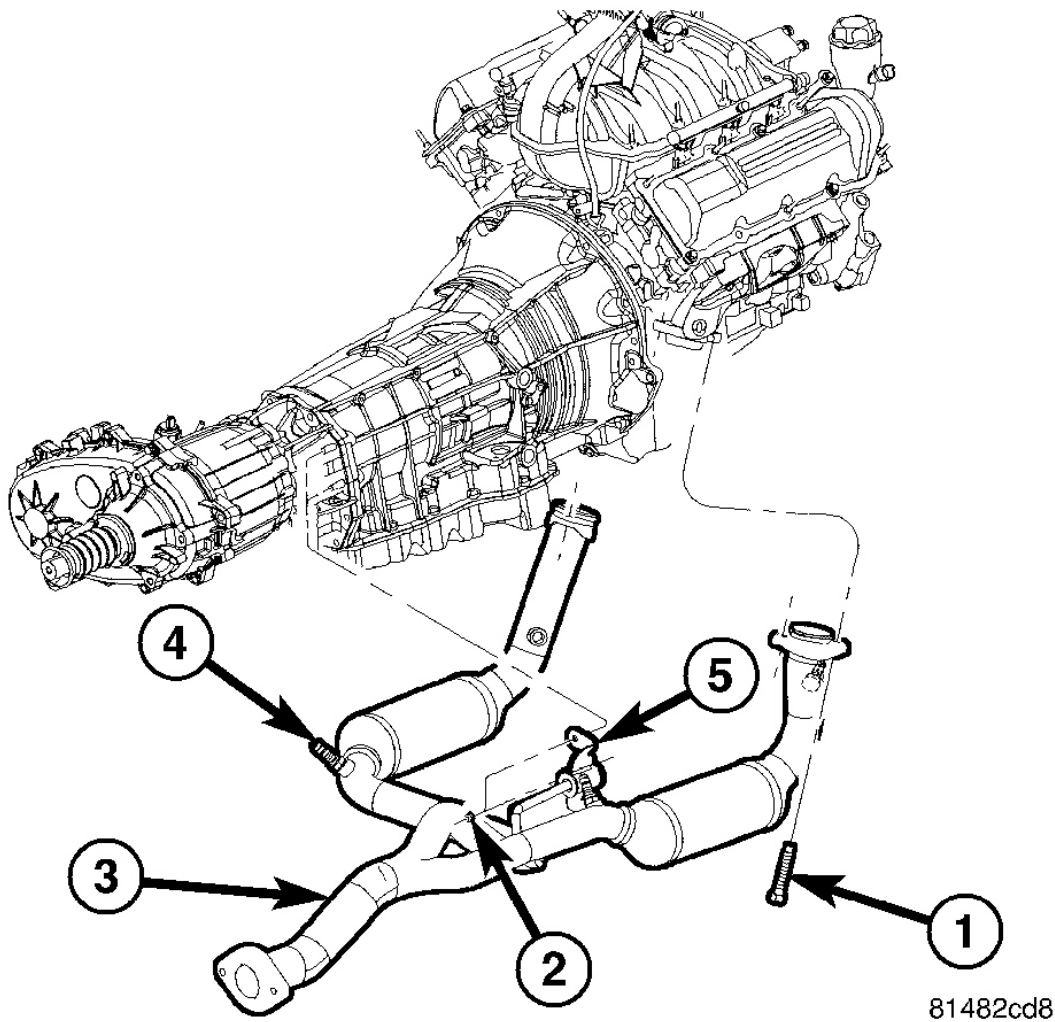


**Fig. 8: Catalytic Converter - 2.8L Diesel**  
Courtesy of CHRYSLER LLC

- |                         |
|-------------------------|
| 1 - NUT                 |
| 2 - MOUNTING BOLT       |
| 3 - CATALYTIC CONVERTER |

1. Position the front catalytic converter assembly (3) onto the turbocharger.
2. Install two catalytic converter mounting bolts. Tighten bolts to 27 N.m (19 ft. lbs.) torque.
3. Install DPF, if equipped. See **REMOVAL**.
4. Position the exhaust pipe for proper clearance with the frame and underbody parts. A minimum clearance of 25.4 mm (1.0 in.) is required.
5. Lower the vehicle.
6. Start the vehicle and inspect for exhaust leaks. Repair exhaust leaks as necessary.
7. Check the exhaust system for contact with the body panels. Make adjustments, if necessary.

### INSTALLATION-3.7L ENGINE



**Fig. 9: 3.7L Catalytic Converter**  
Courtesy of CHRYSLER LLC

1. Position the front exhaust pipe and catalytic converter assembly (3) into the mount at the transmission (if equipped) and onto the exhaust manifold flange connection.
2. Install the nuts at the front exhaust pipe and catalytic converter assembly to muffler flange. Do not tighten.
3. Position the exhaust pipe for proper clearance with the frame and underbody parts. A minimum clearance of 25.4 mm (1.0 in.) is required.
4. Tighten the bolt (1) at exhaust manifold to 27 N.m (19 in. lbs.) torque.
5. Tighten the front exhaust pipe and catalytic converter assembly to muffler flange nuts to 27 N.m (19 ft. lbs.) torque.
6. Position the front pipe onto the exhaust manifold flange connection. Tighten the clamp to 10 N.m (95 in.

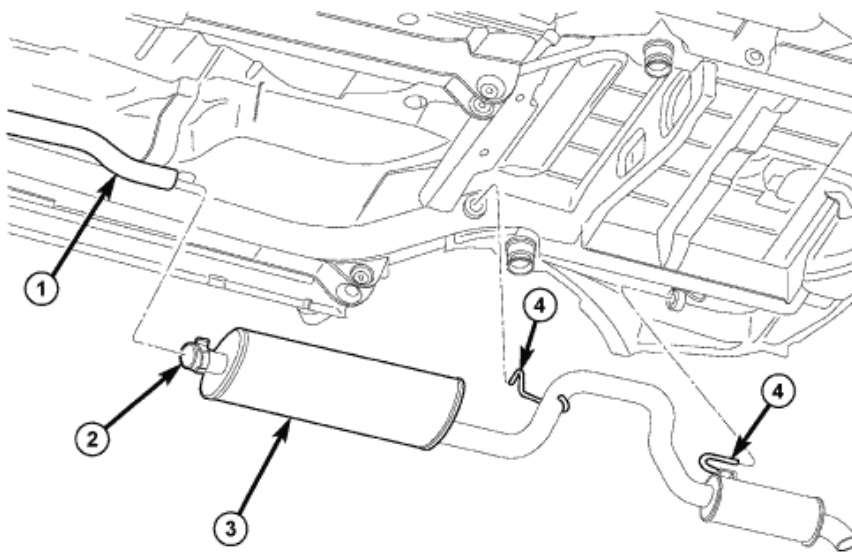
lbs.) torque.

7. Connect oxygen sensor electrical connectors.
8. Lower the vehicle.
9. Start the vehicle and inspect for exhaust leaks. Repair exhaust leaks as necessary.
10. Check the exhaust system for contact with the body panels. Make adjustments, if necessary.

## MUFFLER

### REMOVAL

### REMOVAL



81a78a60

**Fig. 10: Muffler/Resonator Assembly**  
Courtesy of CHRYSLER LLC

1 - CATALYTIC CONVERTER PIPE
2 - CLAMP
3 - MUFFLER/RESONATOR/TAILOPIPE ASSEMBLY
4 - HANGER ROD

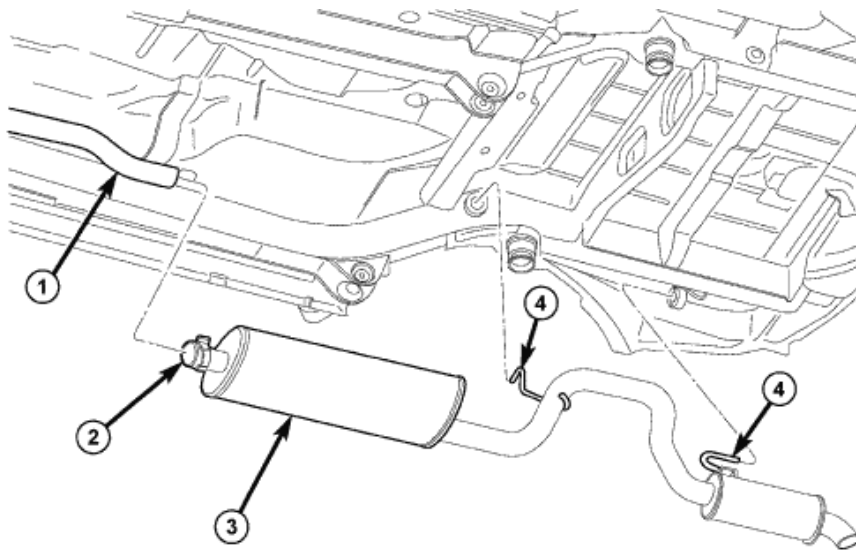
1. Raise vehicle on hoist.
2. Remove exhaust pipe to muffler and tailpipe assembly clamp nuts (2).
3. Using a suitable pry bar, pry muffler and tailpipe assembly out of exhaust hanger.
4. Remove muffler and tailpipe assembly (3) from vehicle.

### INSTALLATION

### INSTALLATION

## 2007 Dodge Nitro R/T

### 2007 ENGINE Exhaust System And Turbocharger - Nitro



**Fig. 11: Muffler/Resonator Assembly**  
Courtesy of CHRYSLER LLC

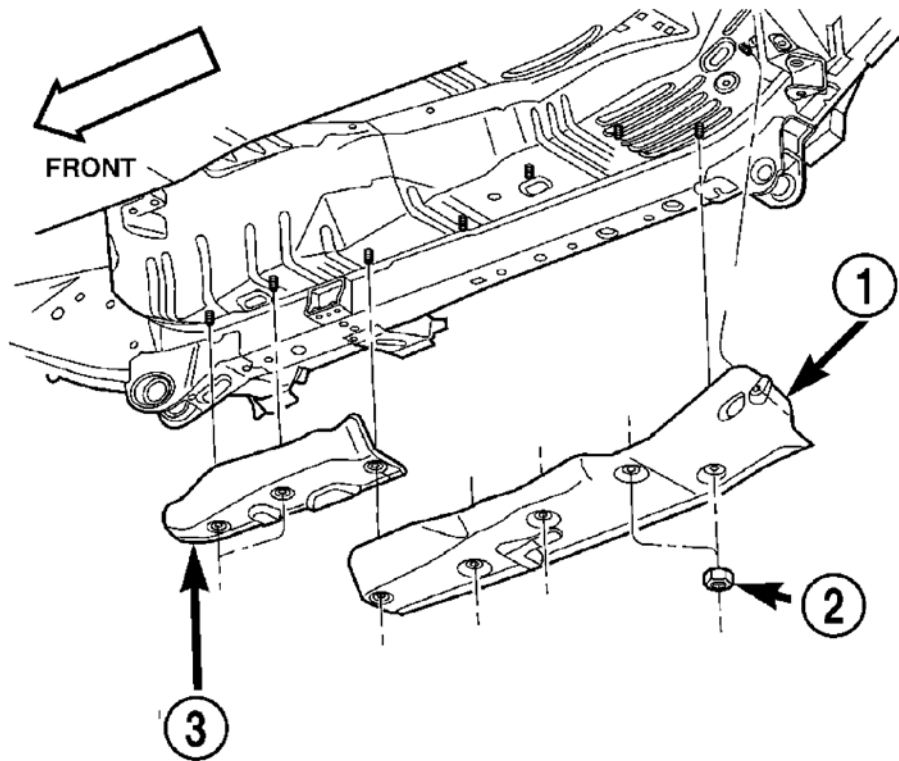
1 - CATALYTIC CONVERTER PIPE
2 - CLAMP
3 - MUFFLER/RESONATOR/TAILOPIPE ASSEMBLY
4 - HANGER ROD

1. Install muffler and tailpipe assembly in vehicle and attach to exhaust hangers.
2. Install muffler and tailpipe assembly to exhaust pipe.
3. Install clamp. Tighten nut to 32 N.m. (24 ft. lbs.).
4. Lower vehicle from hoist.

## SHIELDS-HEAT

### DESCRIPTION

### DESCRIPTION



80b89850

**Fig. 12: Front & Rear Floor Pan Heat Shields Typical**  
 Courtesy of CHRYSLER LLC

1 - REAR FLOOR PAN HEAT SHIELD
2 - HEAT SHIELD RETAINING NUTS
3 - FRONT FLOOR PAN HEAT SHIELD

Heat shields (1) (3) are needed to protect both the vehicle and the environment from the high temperatures developed by the catalytic converter. The catalytic converter releases additional heat into the exhaust system. Under severe operating conditions, the temperature increases in the area of the converter. Such conditions can exist when the engine misfires or otherwise does not operate at peak efficiency. See **Fig. 12**.

## **FILTER-DIESEL PARTICULATE**

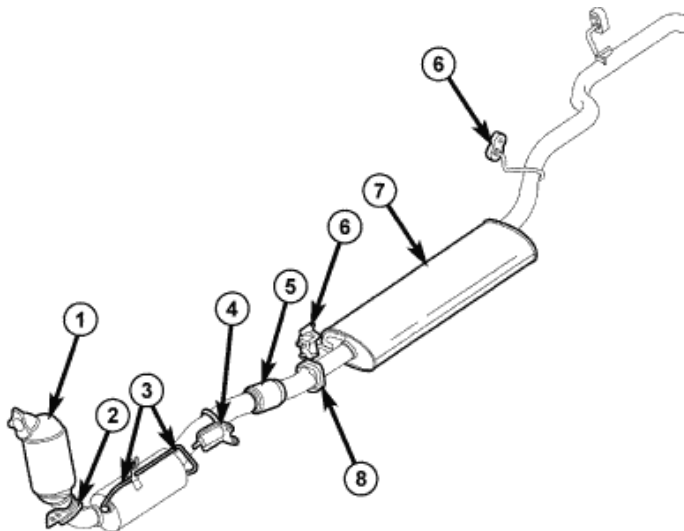
### **DESCRIPTION**

### **DESCRIPTION**

A diesel particulate filter DPF is installed for exhaust gas after-treatment. The DPF is located downstream of the main oxidation catalyst. The DPF filters, stores and burns particulate matter (soot) that is generated during the combustion process. The soot is oxidized to carbon dioxide CO<sub>2</sub> at exhaust temperatures over 600°C (1,112°F).

**OPERATION****OPERATION**

The oxidation catalysts raise the exhaust gas temperatures to regenerate the DPF, which is passive regeneration. If the passive regeneration cannot keep up with the build up of soot in the DPF, the ECM will actively regenerate the DPF to burn off the soot. Residue remains inside the DPF in the form of non burnable ash. Ash comes from the oils and other materials that are trapped in the oils and are present in the soot. Ash is not eliminated by the regeneration cycle. Excessive ash accumulation requires the replacement of the DPF. The DPF uses a silicon carbide wall-flow monolith with a platinum coating to trap particulates. The monolith contains a large number of square parallel channels, which run in the axial direction and are separated by thin porous walls. The channels are alternatively open at one end, but plugged at the other. The exhaust gases flow through the walls and escape through the pores in the wall material. Particulates, however, are too large to escape and are trapped in the monolith walls. The ECM starts the regeneration of the DPF if the soot load exceeds a performance map value. The ECM determines the load condition of the DPF based upon the exhaust gas pressure upstream and downstream of the DPF. A pressure differential sensor provides the pressure input to the ECM. During the regeneration process, the ECM raises the temperature in the DPF to burn off the soot accumulated. Under normal operation, the engine does not produce enough heat to oxidize the soot inside the DPF. This process requires temperatures above 550°C (1,022°F). After regeneration, the ECM reads the actual pressure difference at the DPF and compares it with a reference value. From this comparison, the ECM determines the ash quantity inside the DPF.

**REMOVAL****REMOVAL**

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**Fig. 13: Exhaust System - 2.8L Diesel - W/DPF**  
 Courtesy of CHRYSLER LLC

1 - MANIVERTER  
 2 - MANIVERTER TO DPF FLANGE

## 2007 Dodge Nitro R/T

### 2007 ENGINE Exhaust System And Turbocharger - Nitro

3 - PRESSURE SENSOR TUBING

4 - STEADY MOUNT

5 - FLEXIBLE BELLOWS

6 - ISOLATOR

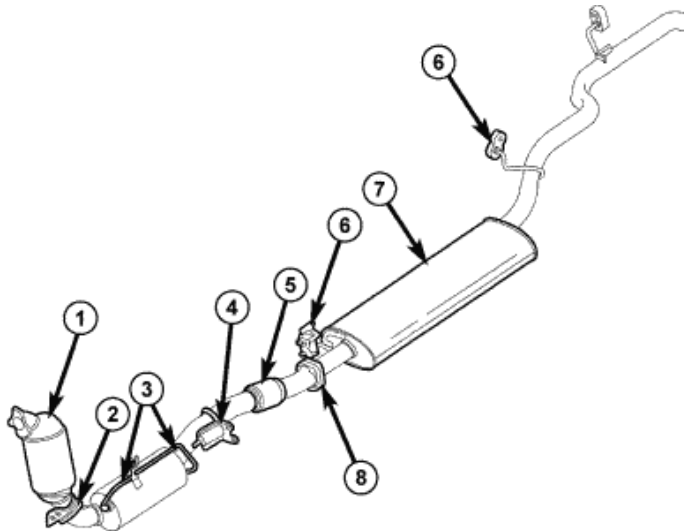
7 - MUFFLER/TAIL PIPE ASSEMBLY

8 - DPF TO MUFFLER FLANGE

1. Disconnect negative battery cable.
2. Raise and support vehicle.
3. Disconnect differential pressure hoses from pressure sensor tubing (3).
4. Disconnect oxygen sensor electrical connector.
5. Remove muffler and tail pipe to DFP flange nuts.
6. Remove the DFP to exhaust manifold nuts.
7. Remove steady rest mounting bolts (4).
8. Remove the diesel particulate filter assembly.

## INSTALLATION

## INSTALLATION



81a592cb

**Fig. 14: Exhaust System - 2.8L Diesel - W/DPF**  
Courtesy of CHRYSLER LLC

1 - MANIVERTER

2 - MANIVERTER TO DFP FLANGE

3 - PRESSURE SENSOR TUBING

4 - STEADY MOUNT

5 - FLEXIBLE BELLOWS

## 2007 Dodge Nitro R/T

### 2007 ENGINE Exhaust System And Turbocharger - Nitro

6 - ISOLATOR

7 - MUFFLER/TAIL PIPE ASSEMBLY

8 - DPF TO MUFFLER FLANGE

1. Position diesel particulate filter assembly in vehicle.
2. Install DPF to exhaust manifold bolts. Do not tighten at this time.
3. Install muffler/tailpipe to DPF flange nuts. Tighten nut to 32 N.m. (24 ft. lbs.).
4. Tighten DPF to exhaust manifold bolts to 32 N.m (24 ft. lbs.) Tighten muffler/tailpipe to DPF flange nuts to 34 N.m (24 ft. lbs.).
5. Lower vehicle.
6. Using scan tool, under ENGINE MISC. FUNCTIONS, perform DIESEL PARTICULATE FILTER REPLACEMENT function.

## TURBOCHARGER

### DIAGNOSIS AND TESTING

#### TURBOCHARGER-BOOST PRESSURE

Low turbocharger boost pressure can cause poor engine performance and driveability concerns. The following procedure will test the turbocharger boost pressure.

Causes of low boost pressure include the following:

- Restricted air inlet system
- Leak in charge air cooler system
- Restricted/high pressure drop across charge air cooler
- Damaged turbocharger compressor wheel housing
- Turbocharger wastegate stuck open
- Excessive exhaust restriction

Causes of excessively high boost pressure include:

- Turbocharger wastegate stuck closed
- Turbocharger wastegate signal line leaking or damaged
- Damaged wastegate command valve O-rings
- Wastegate command valve mechanically stuck in actuated position

Several Diagnostic Trouble Codes (DTCs) can be set that will indicate high or low system boost levels. There is a DTC for circuit faults relating to the electronically controlled wastegate command valve.

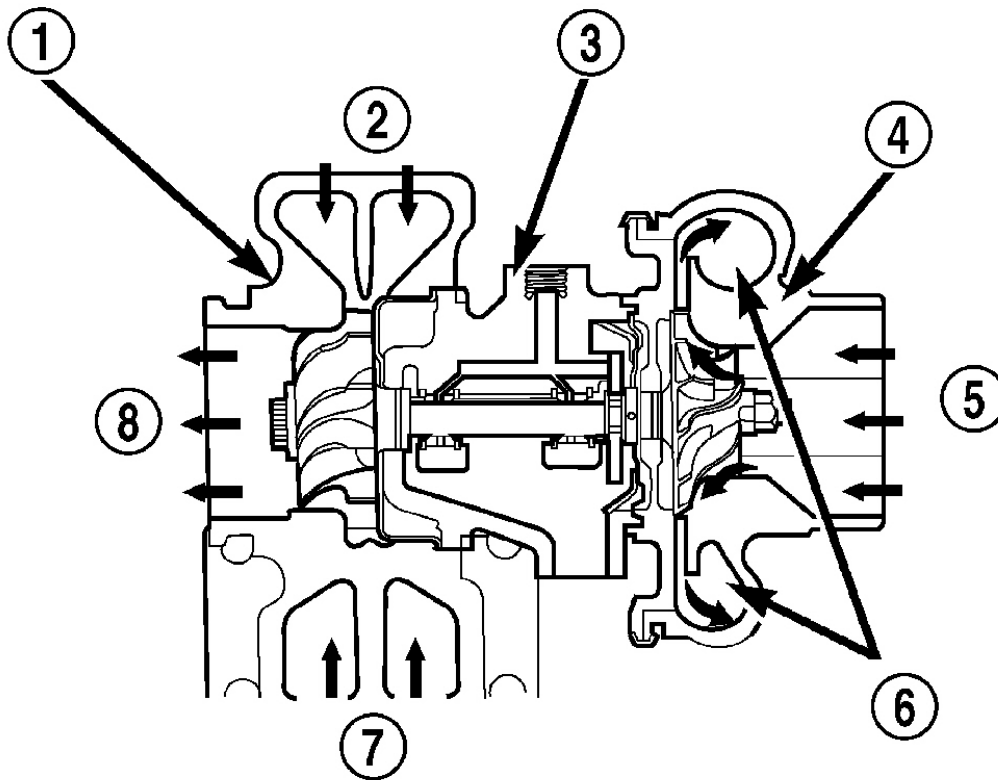
See **DIAGNOSIS AND TESTING** for diagnosing of low or high boost pressure due to leaks.



## TURBOCHARGER

### DESCRIPTION

#### TURBOCHARGER-DESCRIPTION



80b5cc50

**Fig. 15: Identifying Turbocharger Components**  
Courtesy of CHRYSLER LLC

- 1 - TURBINE SECTION
- 2 - EXHAUST GAS
- 3 - BEARING HOUSING
- 4 - COMPRESSOR SECTION
- 5 - INLET AIR
- 6 - COMPRESSED AIR TO ENGINE
- 7 - EXHAUST GAS
- 8 - EXHAUST GAS TO EXHAUST PIPE

## 2007 Dodge Nitro R/T

2007 ENGINE Exhaust System And Turbocharger - Nitro

**CAUTION:** The turbocharger is a performance part and must not be tampered with. The wastegate bracket is an integral part of the turbocharger. Tampering with the wastegate components can reduce durability by increasing cylinder pressure and thermal loading due to incorrect inlet and exhaust manifold pressure. Poor fuel economy and failure to meet regulatory emissions laws may result. Increasing the turbocharger boost **WILL NOT** increase engine power.

The turbocharger is an exhaust-driven supercharger which increases the pressure and density of the air entering the engine through the charge air cooler. With the increase of air entering the engine, more fuel can be injected into the cylinders, which creates more power during combustion.

The turbocharger assembly consists of four (5) major component systems. See **Fig. 15**

Turbine section

Compressor section

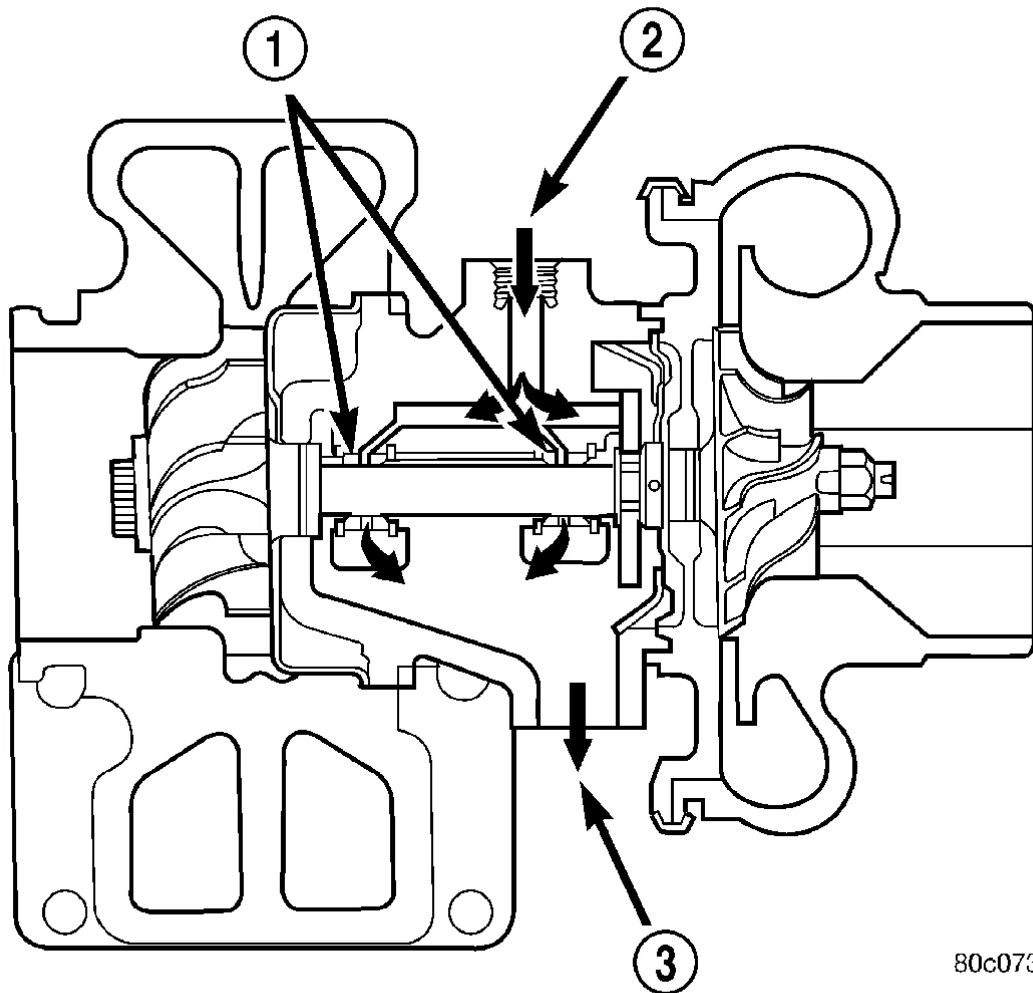
Bearing housing

Variable veins

Actuator

**OPERATION**

**OPERATION**



80c073cf

**Fig. 16: Turbocharger Oil Supply & Drain**  
 Courtesy of CHRYSLER LLC

- 1 - BEARINGS
- 2 - OIL SUPPLY (FROM ENGINE BLOCK)
- 3 - OIL RETURN (TO OIL PAN)

Exhaust gas pressure and energy drive the turbine, which in turn drives a centrifugal compressor that compresses the inlet air, and forces the air into the engine through the charge air cooler and plumbing. Since heat is a by-product of this compression, the air must pass through a charge air cooler to cool the incoming air and maintain power and efficiency.

**Increasing air flow to the engine provides:**

Improved engine performance

## 2007 Dodge Nitro R/T

### 2007 ENGINE Exhaust System And Turbocharger - Nitro

- Lower exhaust smoke density
- Improved operating economy
- Altitude compensation
- Noise reduction.

The turbocharger is lubricated by engine oil that is pressurized, cooled, and filtered. The oil is delivered to the turbocharger by a supply line (2) that is tapped into the engine block. The oil travels into the bearing housing, where it lubricates the shaft (1) and bearings. See **Fig. 16**. A return pipe (3) at the bottom of the bearing housing, routes the engine oil back to the crankcase.

The most common turbocharger failure is bearing failure related to repeated hot shutdowns with inadequate "cool-down" periods. A sudden engine shut down after prolonged operation will result in the transfer of heat from the turbine section of the turbocharger to the bearing housing. This causes the oil to overheat and break down, which causes bearing and shaft damage the next time the vehicle is started.

Letting the engine idle after extended operation allows the turbine housing to cool to normal operating temperature. The following chart should be used as a guide in determining the amount of engine idle time required to sufficiently cool down the turbocharger before shut down, depending upon the type of driving and the amount of cargo.

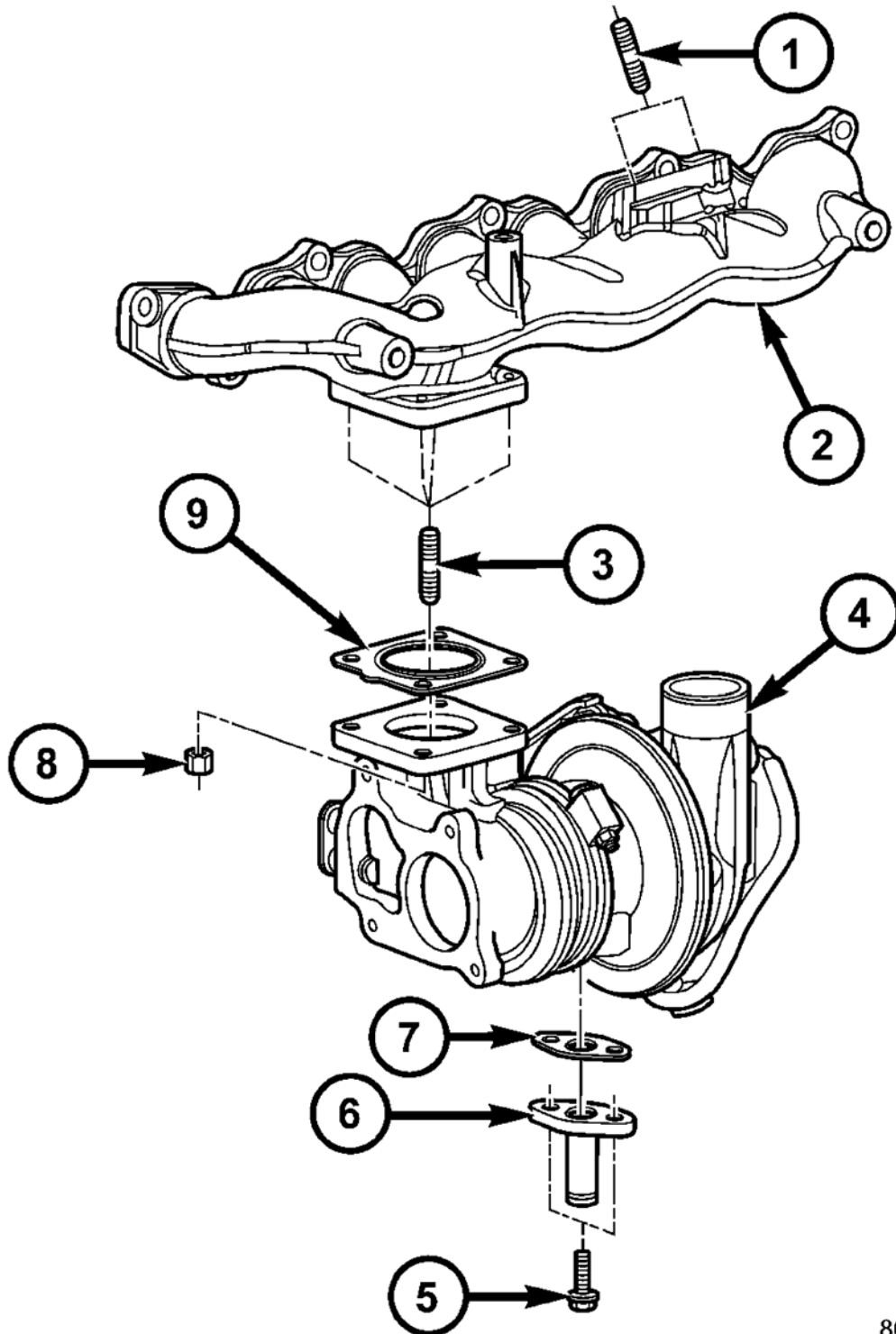
<b>TURBOCHARGER "COOL DOWN" CHART</b>			
<b>Driving Condition</b>	<b>Load</b>	<b>Turbocharger Temperature</b>	<b>Idle Time (in minutes) Before Shut Down</b>
Stop & Go	Empty	Cool	Less than 1
Stop & Go	Medium	Warm	1
Highway Speeds	Medium	Warm	2
City Traffic	Max. GCWR	Warm	3
Highway Speeds	Max. GCWR	Warm	4
Uphill Grade	Max. GCWR	Hot	5

**REMOVAL**

**REMOVAL**

2007 Dodge Nitro R/T

2007 ENGINE Exhaust System And Turbocharger - Nitro



80cb4415

**Fig. 17: Exhaust Manifold And Turbocharger Assembly**  
Courtesy of CHRYSLER LLC

## 2007 Dodge Nitro R/T

### 2007 ENGINE Exhaust System And Turbocharger - Nitro

- 1 - EGR VALVE MOUNTING STUDS
- 2 - EXHAUST MANIFOLD
- 3 - TURBOCHARGER TO EXHAUST MANIFOLD MOUNTING STUDS
- 4 - TURBOCHARGER ASSEMBLY
- 5 - TURBOCHARGER OIL RETURN FITTING ATTACHING BOLT
- 6 - TURBOCHARGER OIL RETURN FITTING
- 7 - OIL RETURN FITTING GASKET
- 8 - RETAINING NUT
- 9 - TURBOCHARGER TO EXHAUST MANIFOLD GASKET

1. Disconnect negative battery cable.
2. Disconnect the MAF and Inlet air pressure sensors wiring harness connectors, disconnect the air outlet duct from the turbocharger, and remove air cleaner assembly. Refer to **REMOVAL** .
3. Remove charge air cooler inlet hose from turbocharger. See **REMOVAL**.
4. Drain cooling system.
5. Remove coolant recovery pressure container. Refer to **REMOVAL** .
6. Disconnect the turbocharger actuator vacuum hose and position aside.
7. Remove turbocharger upper heat shield.
8. Raise and support the vehicle.
9. Remove the lower splash shield.
10. Disconnect the front exhaust pipe from the turbocharger.
11. Remove the turbocharger support bracket.
12. Disconnect turbocharger oil return line at turbocharger.
13. Lower the vehicle.
14. Remove the turbocharger oil supply line.
15. Remove turbocharger to exhaust manifold retaining nuts and separate turbocharger from exhaust manifold.

#### CLEANING

#### CLEANING

All old gaskets should be inspected for any tears or signs of prior leakage. If any gaskets show such indications, they should be replaced with new gaskets. All gasket mating surfaces must be cleaned of old gasket material to produce a smooth and dirt free sealing surface for the new gasket.

#### INSTALLATION

#### INSTALLATION

1. Connect turbocharger to exhaust manifold with new gasket. Torque retaining nuts to 32 N.m.

## 2007 Dodge Nitro R/T

### 2007 ENGINE Exhaust System And Turbocharger - Nitro

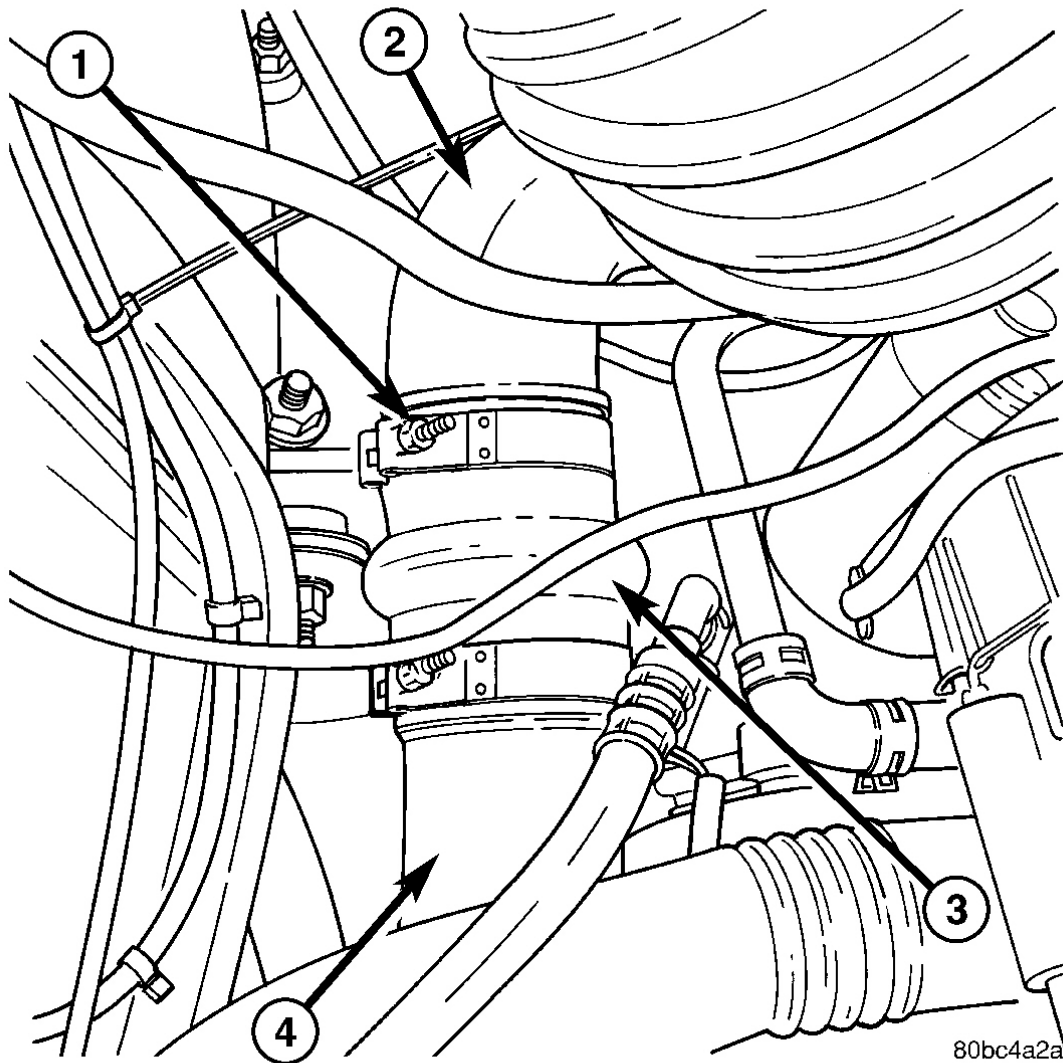
**NOTE:** After tightening the exhaust manifold to specification using a diagonal-cross pattern, retrace the pattern checking the correct torque value again.

2. Install exhaust manifold and turbocharger assembly with new gasket in position on studs in cylinder head. Install retaining nuts and tighten to 36 N.m.
3. Install thermostat housing. Refer to **INSTALLATION** .
4. Install accessory drive belt. Refer to **INSTALLATION** .
5. Raise vehicle on hoist.
6. Connect turbocharger oil return line at turbocharger.
7. Connect exhaust pipe at turbocharger downpipe.
8. Lower vehicle from hoist.
9. Connect oil supply line at turbocharger. Tighten banjo fitting to 24 N.m (18 ft. lbs.).
10. Install exhaust manifold heat shield. Tighten retaining bolts to 24 N.m (18 ft. lbs.).
11. Reposition EGR cooler and or EGR valve assembly on exhaust manifold. Tighten retaining nuts and bolt to 32.4N.m.
12. Connect EGR pipe to EGR valve. Torque bolts to 32 N.m (24 ft. lbs.).
13. Connect EGR cooler coolant hoses at cooler.
14. Install coolant recovery pressure container. Refer to **INSTALLATION** .
15. Refill cooling system. Refer to **STANDARD PROCEDURE** .
16. Connect charge air cooler inlet hose at turbocharger.
17. Install air cleaner assembly.
18. Connect air inlet hose to turbocharger.
19. Connect negative battery cable.

## CHARGE AIR COOLER AND PLUMBING

## DIAGNOSIS AND TESTING

## LEAKS



**Fig. 18: Air Inlet Duct Rubber Sleeve, Air Inlet Duct, Clamp & Turbocharger**  
Courtesy of CHRYSLER LLC

- 1 - CLAMP
- 2 - TURBOCHARGER
- 3 - AIR DUCT RUBBER SLEEVE
- 4 - AIR INLET DUCT

Low turbocharger boost pressure and low engine performance can be caused by leaks in the charge air cooler or plumbing. Fuel staining on the exhaust manifold can also be an indication that there are leaks in the air system. The following procedure outlines how to check for leaks in the charge air cooler system.

This procedure can also be used to check for leaks in the wastegate signal line or the wastegate canister.



## 2007 Dodge Nitro R/T

### 2007 ENGINE Exhaust System And Turbocharger - Nitro

1. Loosen clamp (1) and remove air inlet hose (3) from turbocharger.
2. Insert Special Tool 9022 Adapter into the turbocharger inlet. Tighten tool clamp to 8 N.m (72 in. lbs.).

**CAUTION: Do not apply more than 138 kPa (20 psi) air pressure to the charge air cooler system; severe damage to the charge air cooler system may occur.**

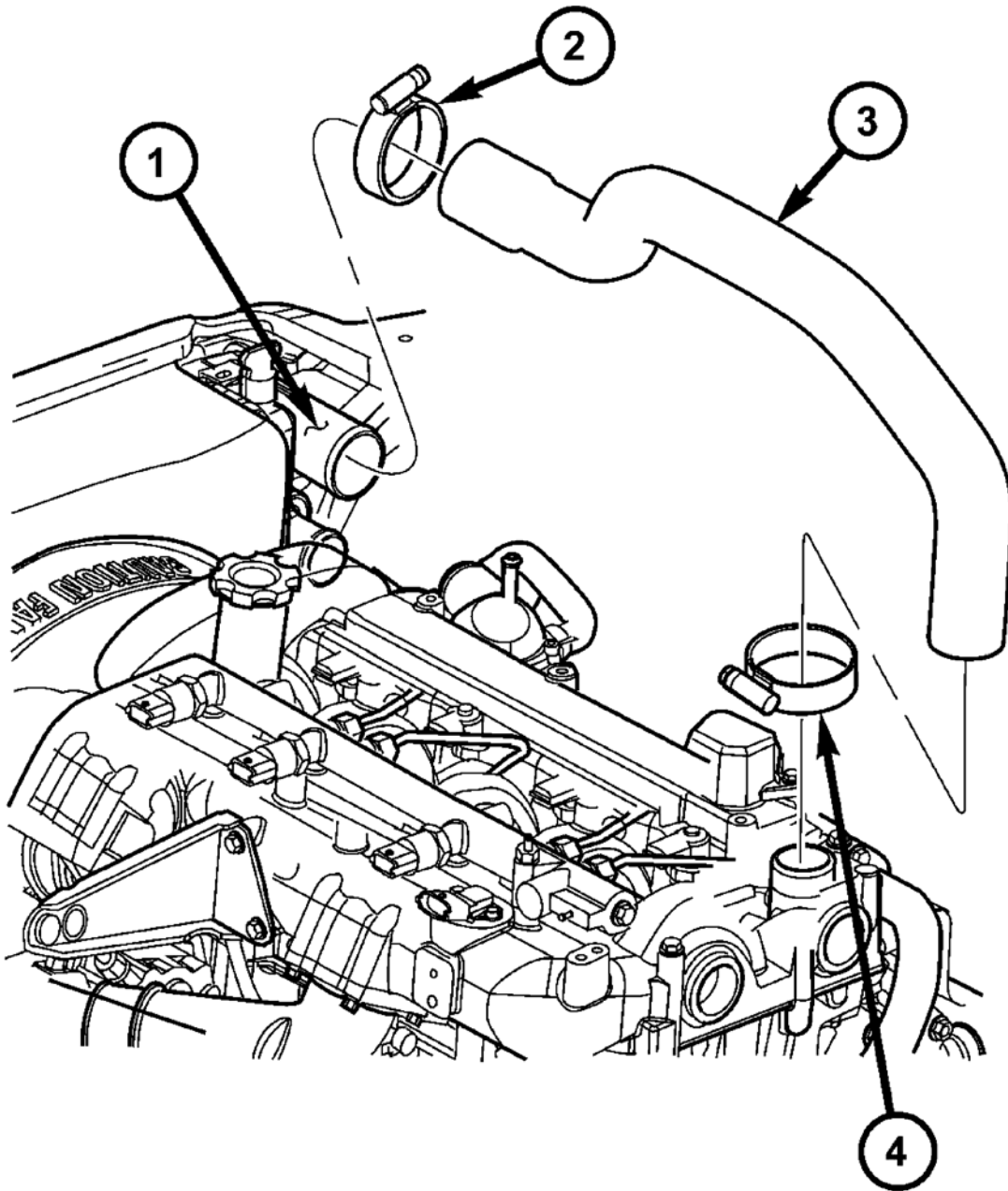
3. Connect a regulated air supply to air fitting on Tool 9022 Adapter. Set air pressure to a maximum of 138 kPa (20 psi).
4. Using soapy water check the rubber sleeves, charge air cooler and intake manifold for leaks.
5. Using soapy water check for leaks at the wastegate signal line, wastegate canister and wastegate command valve.

#### **REMOVAL**

#### **REMOVAL-INLET HOSE**

2007 Dodge Nitro R/T

2007 ENGINE Exhaust System And Turbocharger - Nitro



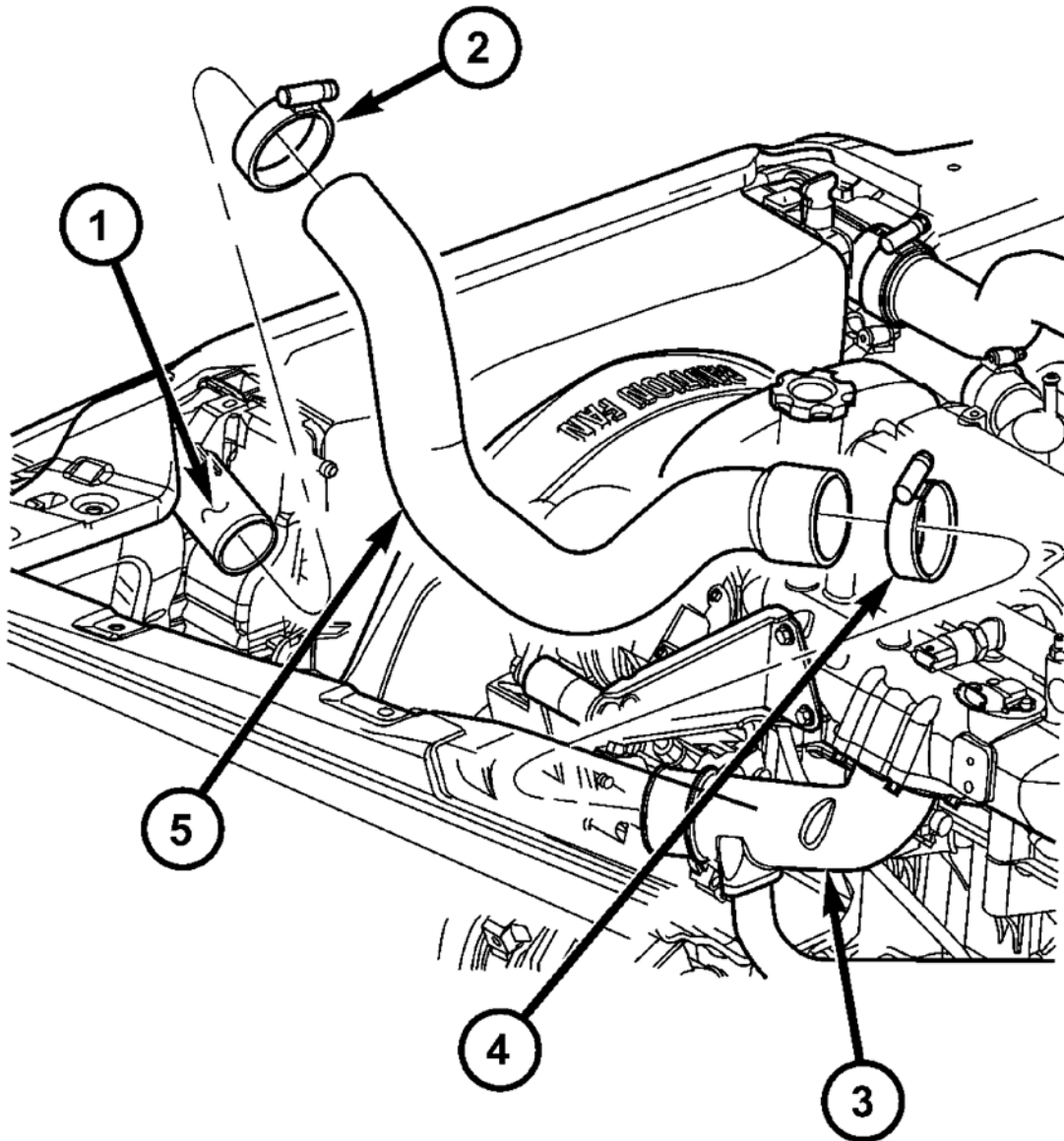
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**Fig. 19: Charge Air Cooler, Hose Clamps, Charge Air Cooler Inlet Hose**  
Courtesy of CHRYSLER LLC

- 1 - CHARGE AIR COOLER
- 2 - HOSE CLAMP
- 3 - CHARGE AIR COOLER INLET HOSE
- 4 - HOSE CLAMP

1. Open and support hood of vehicle.
2. Loosen hose clamps at both ends of charge air cooler (CAC) inlet hose. See **Fig. 19**.
3. Remove CAC inlet hose (3) from turbocharger and CAC.

REMOVAL-OUTLET HOSE



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**Fig. 20: Charge Air Cooler, Hose Clamps, Intake Manifold Inlet & Charge Air Cooler Outlet Hose**  
Courtesy of CHRYSLER LLC

1 - CHARGE AIR COOLER

## 2007 Dodge Nitro R/T

### 2007 ENGINE Exhaust System And Turbocharger - Nitro

- 2 - HOSE CLAMP
- 3 - INTAKE MANIFOLD INLET
- 4 - HOSE CLAMP
- 5 - CHARGE AIR COOLER OUTLET HOSE

1. Raise and support hood on vehicle.
2. Loosen hose clamps at both ends of charge air cooler (CAC) outlet hose (5). See **Fig. 20**.
3. Remove hose (5) from CAC and intake manifold inlet. See **Fig. 20**.

#### INSTALLATION

##### INSTALLATION-INLET HOSE

1. Install charge air cooler (CAC) inlet hose on turbocharger and CAC.
2. Tighten hose clamps.
3. Close hood.

##### INSTALLATION-OUTLET HOSE

1. Install charge air cooler (CAC) outlet hose on CAC and intake manifold inlet.
2. Tighten both hose clamp on CAC outlet hose.
3. Close hood.