

# 1975-79 EXHAUST EMISSION SYSTEMS

## Catalytic Converters – All Manufacturers

### DESCRIPTION & OPERATION

The catalytic converter(s) is installed in the exhaust system in front of the muffler so that all exhaust gas must pass through the converter(s). The converter is a device that reduces exhaust emissions. There are 2 types of catalytic converters, oxidation and 3-way converters. The oxidation converter contains material coated with platinum and palladium. This catalyst reduces Hydrocarbons (HC) and Carbon Monoxide (CO) emissions. The three-way converters contain material coated with platinum, palladium and rhodium. This catalyst reduces HC, CO, and Oxides of Nitrogen (NOx).

The material inside the converter is one of two types; coated one piece honeycombed block that is non-serviceable, or small beads of material that are coated with catalyst and are serviceable.

Catalytic converters normally operate at 1300-1600°F. If an overrich mixture enters the converter, the temperature can go much higher. A converter that is subjected to raw fuel or a misfiring cylinder can get hot enough to glow Red. If the problem is not caught early and corrected, it may melt the converter. If replacing a damaged converter, always correct the cause first.

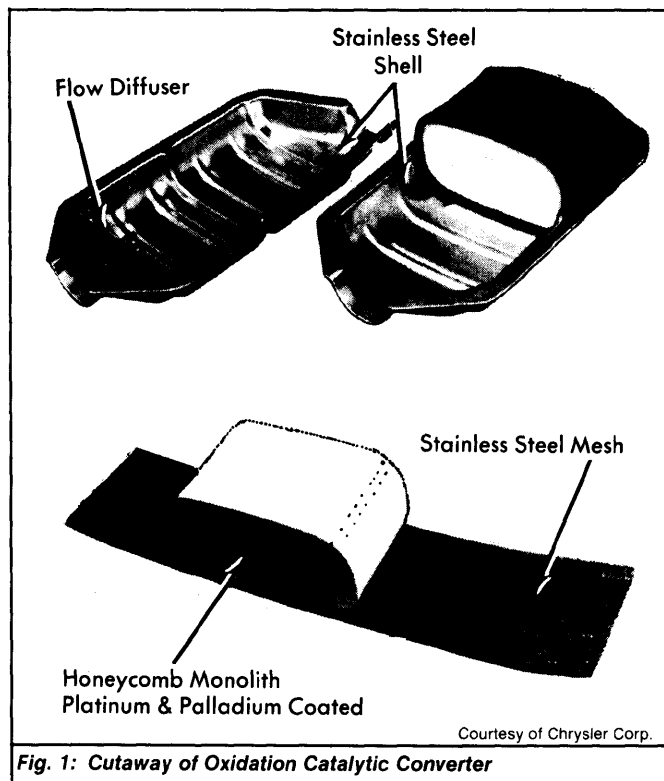


Fig. 1: Cutaway of Oxidation Catalytic Converter

**NOTE:** Use unleaded fuel only on vehicles using catalytic converters. If leaded fuel is used, the Tetra Ethyl Lead will coat the palladium, platinum and rhodium, rendering these catalyst inoperative. If this happens, the converter must be replaced.

### CATALYTIC CONVERTER

The 3-way catalytic converter is used in conjunction with the conventional oxidation catalytic converter. Chrysler Corp., Ford Motor Co. and General Motors Corp. use this converter on models with a feedback carburetor and oxygen sensor. Chrysler Corp. and General Motors Corp. use 2 separate converters while Ford Motor Co. uses a Dual Catalytic Converter.

The first converter in the exhaust system reduces mainly NOx. The second converter (oxidation catalyst) reduces HC and CO with the extra air provided by the air pump.

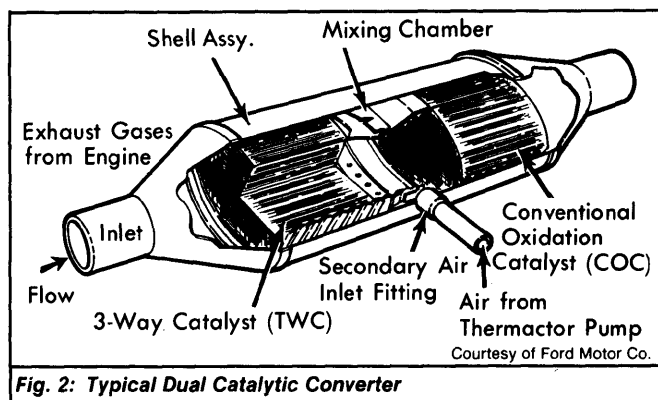


Fig. 2: Typical Dual Catalytic Converter

### CATALYST PROTECTION SYSTEM

Chrysler Corp. models manufactured in 1975 use a throttle opening system to protect the catalytic converter from excessive heat generated during high speed deceleration. The system consists of an engine speed switch and throttle opening solenoid. The speed sensor receives an engine speed (tach) signal and opens the throttle whenever the engine is above 2000 RPM. See TESTING and ADJUSTMENTS in the article for more information.

### HEAT SHIELDS

The combustion reaction, which is furthered by the converter, releases additional heat. Temperature in the catalytic converter can reach 1600°F under normal conditions. Special heat shields are used to protect underbody and components from this extreme heat.

### SERVICE

#### MAINTENANCE

There is no scheduled maintenance for the catalytic converter(s) since they are designed to last the life of the car. However, on converters that are filled with catalyst coated beads (American Motors and General Motors), bead removal and replacement is possible.

#### SHELL REPLACEMENT

**General Motors Corp. – 1)** Remove bottom cover by making a shallow, close cut to bottom outside edge.

**NOTE:** A shallow cut is required to avoid damage to inner shell.

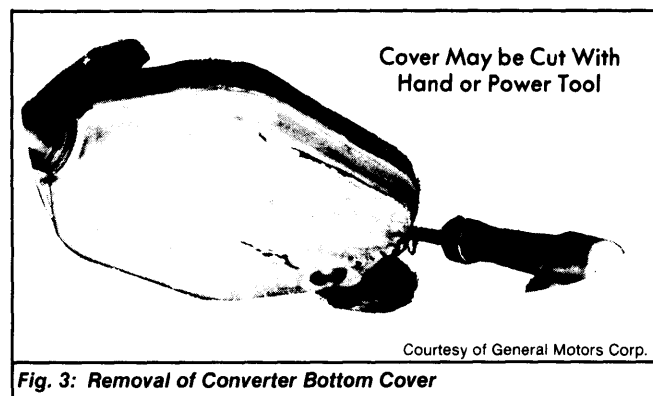


Fig. 3: Removal of Converter Bottom Cover

**2)** Remove insulation and check inner shell for damage. If damage is found, entire converter must be replaced.

**3)** If no damage is found, position new insulation into replacement cover. Apply sealer (8998245) around edge of cover, using extra sealer at front and rear pipe openings.

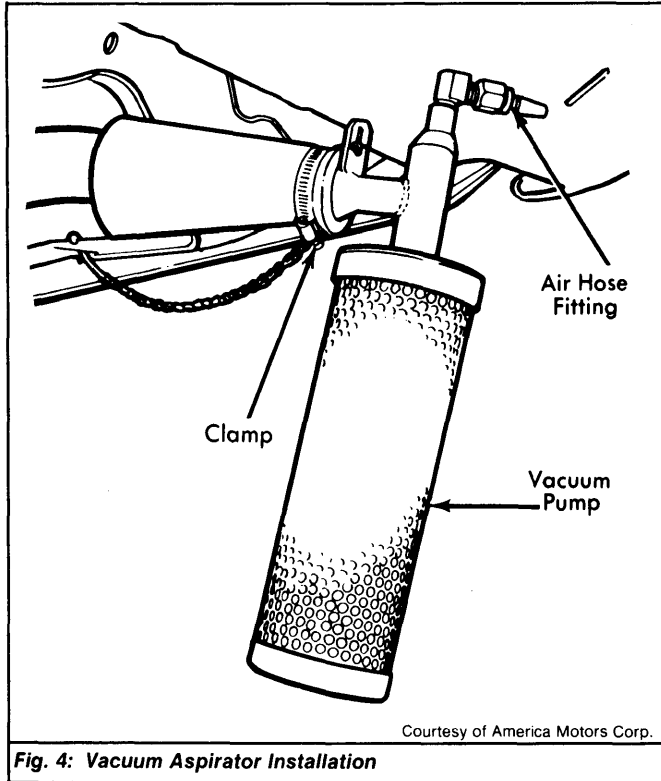
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## Catalytic Converters – All Manufacturers (Cont.)

4) Install replacement cover on converter and position retaining channel along edges. Complete the installation by attaching clamps (provided with replacement cover) to both ends of converter.

### CATALYST REPLACEMENT

**American Motors Corp. & General Motors Corp.** – 1) Raise vehicle and attach vacuum aspirator device (J-25077) to exhaust pipe. See Fig. 4.



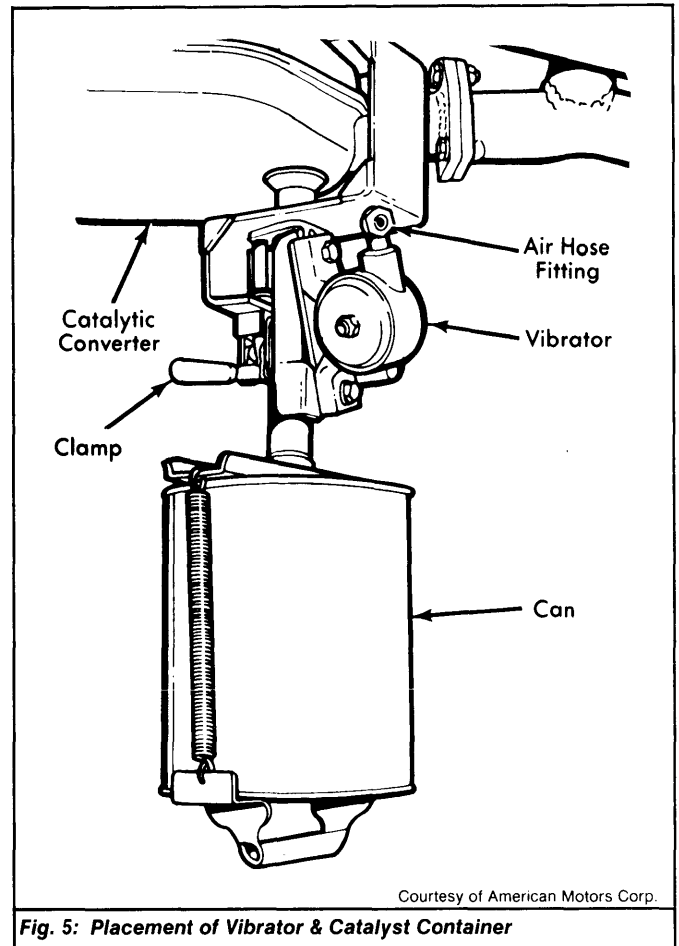
**Fig. 4: Vacuum Aspirator Installation**

- 2) Apply enough air pressure (minimum 60 psi) to hold catalyst beads in place while converter fill plug is removed.
- 3) Clamp on vibrator and catalyst receptacle. See Fig. 5. Disconnect air supply from vacuum aspirator and attach it to vibrator unit.
- 4) Using similar air pressure, vibrator should operate to empty the converter of the catalytic beads in about 10 minutes.
- 5) When all catalyst material is removed, disconnect air supply and remove container from converter and discard beads.
- 6) Fill container with approved replacement catalyst and install a fill tube fixture to the vibrator device.
- 7) Attach air supply to both vibrator and aspirator. With container attached to fill tube, catalyst will begin to move into converter.
- 8) When catalyst stops flowing, disconnect air supply to vibrator and note level of catalyst. It should be even with fill plug. Add more catalyst if required.
- 9) Apply anti-seize compound to fill plug. Install plug and tighten to 60 ft. lbs. If equipped with press-type fill plug, install "bridge-and-bolt" type service plug and torque to 28 ft. lbs.

### TESTING

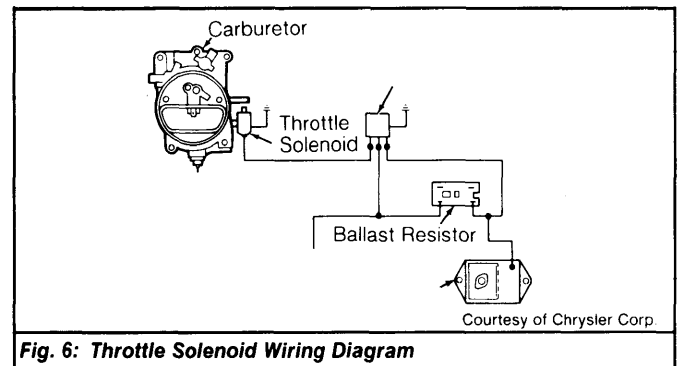
**NOTE: No testing procedures are available for other manufacturers.**

**1975 Chrysler Corp. Models** – 1) Disconnect throttle solenoid and apply battery voltage. Solenoid should extend and remain out. If not, replace solenoid.



**Fig. 5: Placement of Vibrator & Catalyst Container**

- 2) Reconnect wire. Connect a tachometer to engine. Start engine. Raise engine speed and watch that solenoid extends when engine reaches 1800-2000 RPM.
- 3) Slowly release throttle and ensure throttle solenoid retracts below 1800 RPM. If not, check electrical circuits to engine speed switch. See Fig. 6.



**Fig. 6: Throttle Solenoid Wiring Diagram**

### ADJUSTMENT

**1975 Chrysler Corp. Models** – With engine at warm operating temperature, disconnect solenoid wire. Apply battery voltage to solenoid. Operate throttle lever to allow solenoid to extend. Adjust solenoid if engine is not 1450-1550 RPM.