CATALYTIC CONVERTERS – ALL MODELS

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 stainless steel muffler shapped device that reduces exhaust emissions. There are two types of catalytic converters, oxidation and three-way converters. The oxidation converter contains material coated with platinium 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 hydrocarbons (HC), carbon monoxide (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.

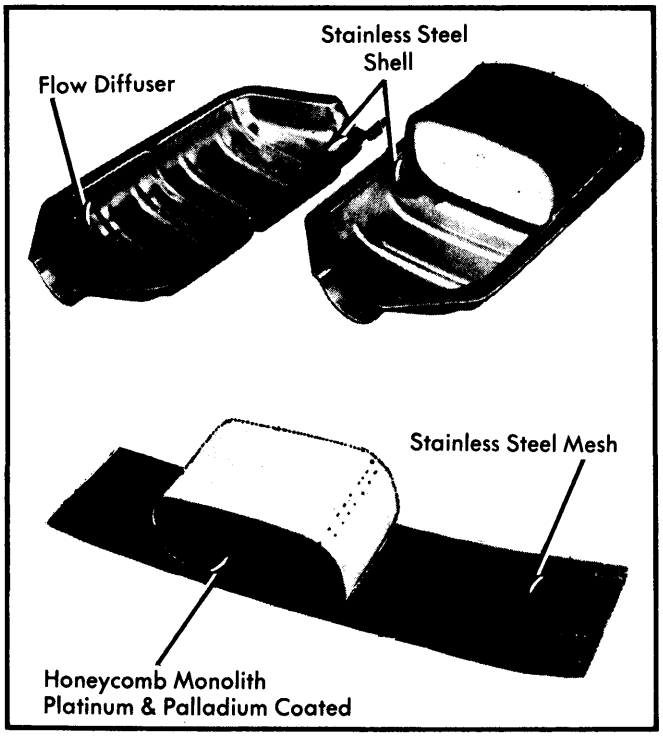

Fig. 1 Cutaway of Oxidation Catalytic Converter (Chrysler Corp. Shown, Ford Motor Co. Similar)

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

THREE-WAY CATALYTIC CONVERTER

The three-way catalytic converter is used in conjunction with the conventional oxidation catalytic converter. All models use this type of converter on vehicles with the Oxygen Sensor/Feedback Carburetor emission system. American Motors and Chrysler Corp. uses two separate converters while Ford Motor Co. and General Motors use a single converter.

The first converter in the exhaust system (three-way) reduces hydrocarbons (HC) and carbon monoxide (CO), but mainly oxides of nitrogen (NOx). The second converter (oxidation) reduces, with the extra air provided by the air pump, hydrocarbons (HC) and carbon monoxide (CO) only.

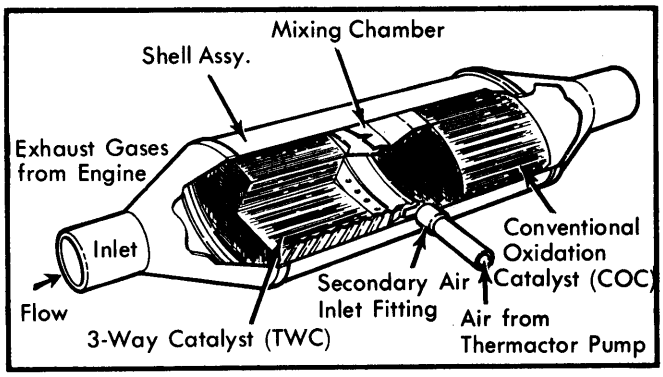

Fig. 2 Dual Catalytic Converter, Three-Way Catalyst in Front, Oxidation Catalyst in Back (Ford Motor Co. Shown, Other Manufacturers Use Two Separate Converters)

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 ONLY)

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.*

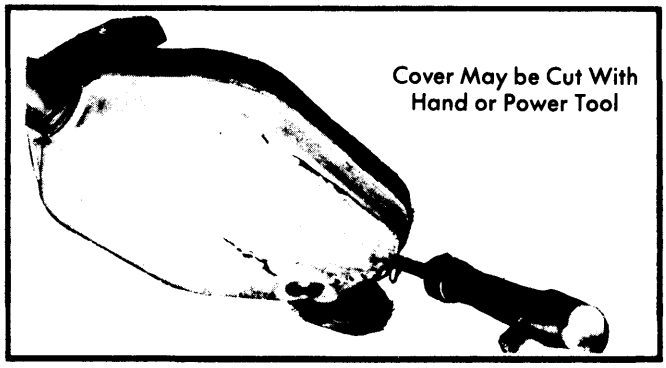

Fig. 3 Removal of Converter Bottom Cover on General Motors Vehicles Only

CATALYTIC CONVERTERS – ALL MODELS (Cont.)

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 suitable sealer (8998245 or equivalent) around edge of cover, using extra sealer at front and rear pipe openings.

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 AND GENERAL MOTORS ONLY)

1) Raise vehicle and attach vacuum aspirator device (J-25077 or equivalent) to exhaust pipe as shown in *Fig. 4*.

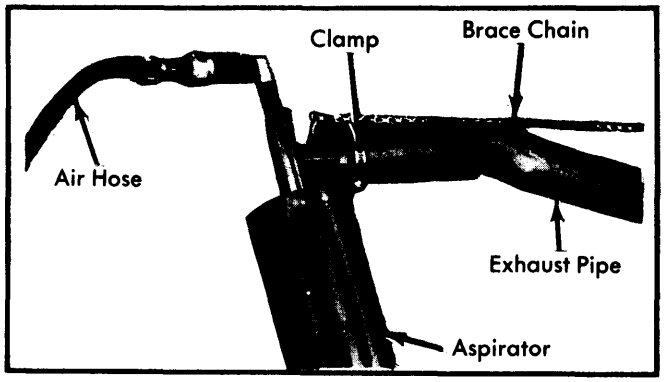

Fig. 4 Vacuum Aspirator Installation American Motors and General Motors Vehicles Only

2) Apply enough air pressure (minimum 60 lbs.) to hold catalyst beads in place while converter fill plug is removed.

3) Clamp on vibrator and catalyst receptacle as shown in *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 nickle-base, 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.

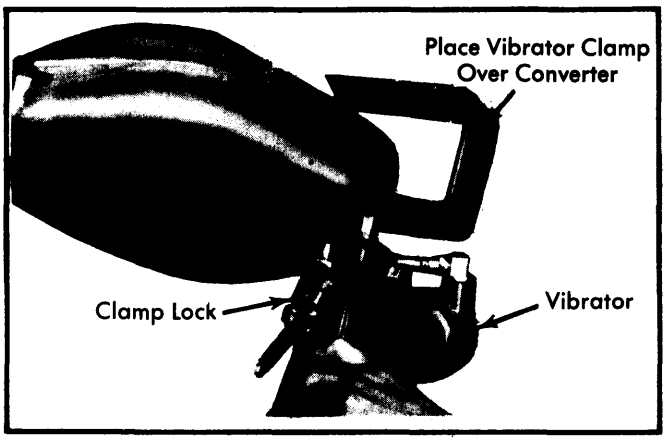

Fig. 5 Placement of Vibrator & Catalyst Container American Motors and General Motors Vehicles Only