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 catalyst may be one of 2 types: a honeycomb-type block that is non-serviceable, or small ceramic beads that can be removed and replaced.

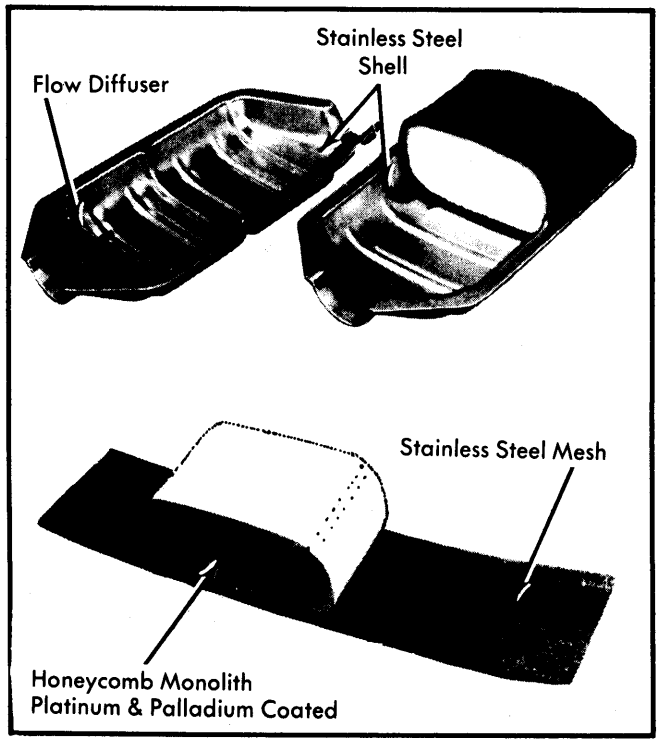

Fig. 1 Cutaway of Oxidation Catalytic Converter (Chrysler Corp. Shown, Ford Motor Co. Similar)

NOTE — *Use unleaded fuel only on vehicle using catalytic converters. If leaded fuel is used, the Tetra Ethyl 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 (TWC) converter is used in conjunction with the conventional oxidation catalytic (COC) converter. All models with the Oxygen Sensor/Feedback Carburetor system use this type of converter. American Motors, Chrysler Corp. and Ford Motor Co. use 2 separate converters, while General Motors uses only 1 converter.

On some Ford Motor Co. models, first converter in the exhaust system is a light off catalyst (LOC) converter. This is a single-bed converter designed to control exhaust emissions during engine warm-up, when main converter(s) is not at temperature required for maximum efficiency. On all other models, first converter in exhaust system (3-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.

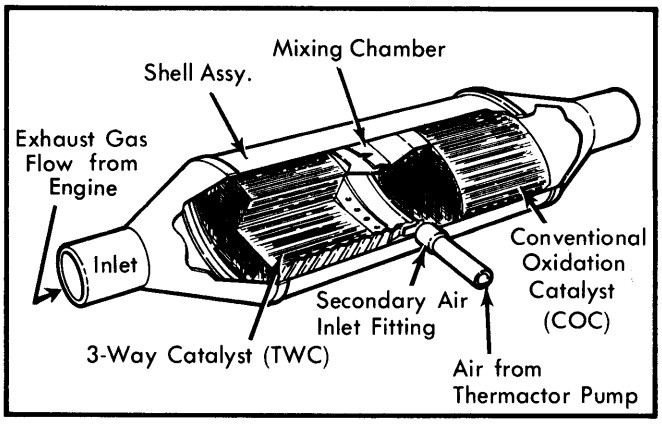

Fig. 2 Dual-Bed Catalytic Converter

NOTE — *Chrysler has a High Aspect Ratio (HAR) system on 6-cylinder models. It consists of 2 long narrow converters, 1 a "close-coupled" converter located in the exhaust pipe, the other located in the under-floor position.*

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 some 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.*

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.

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CATALYTIC CONVERTERS – ALL MODELS (Cont.)

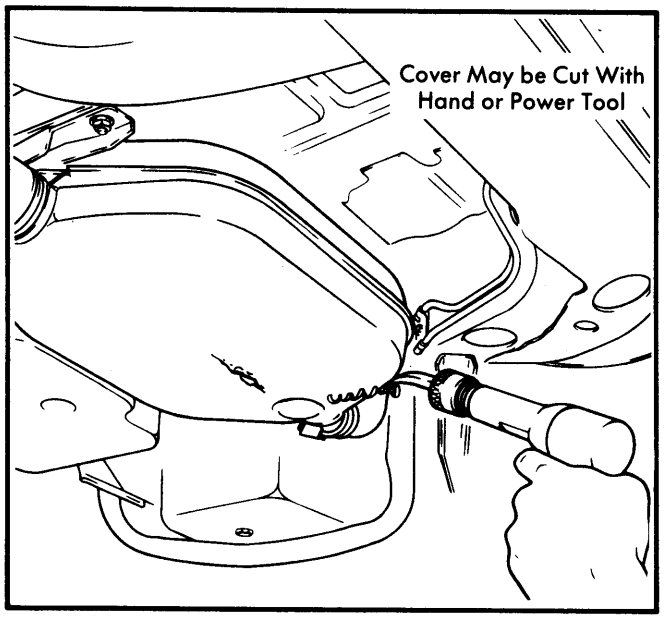

Fig. 3 Removal of Converter Bottom Cover on General Motors Vehicles Only

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*.

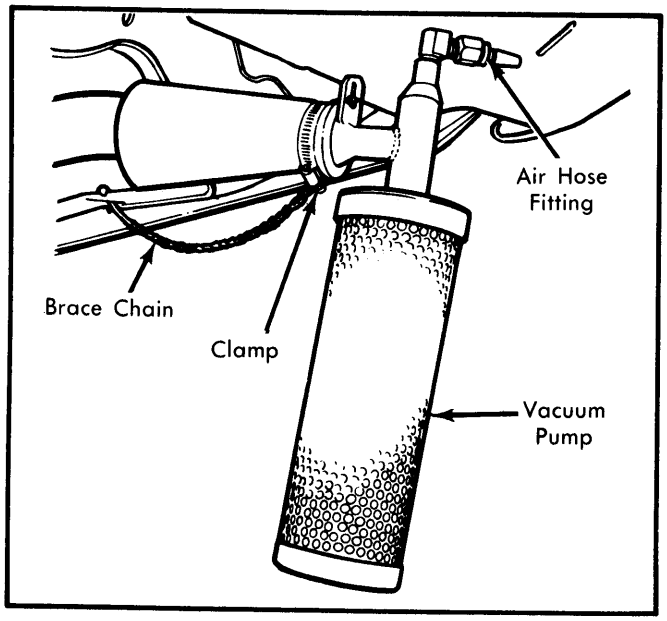

Fig. 4 Vacuum Aspirator Installation American Motors and General Motors Vehicles Only

2) Attach air supply to air hose fitting on vacuum pump. Apply enough air pressure (minimum 80 psi) to hold catalyst beads in place. Drive small chisel between fill plug and converter housing, making sure not to damage housing. Continue driving small chisel into plug, until plug is deformed enough to remove with pliers.

CAUTION – *Do not pry plug from converter housing or damage to housing may result.*

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) Allow vibrator to operate about 10 minutes to remove all catalyst beads.

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.

NOTE – *If any pellets exit out tailpipe during refilling, converter is defective and must be replaced.*

9) Apply suitable anti-seize compound to fill plug. Install plug and tighten. If equipped with press-type fill plug, install "bridge-and-bolt" type service plug and tighten to 28 ft. lbs.

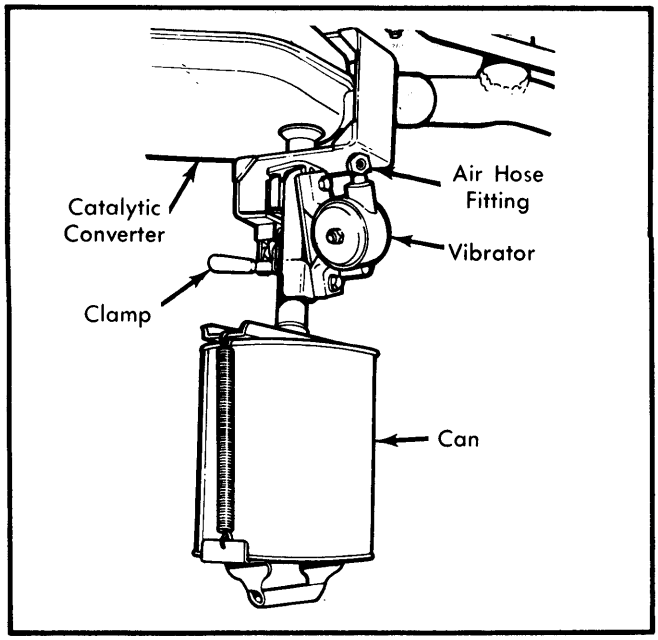

Fig. 5 Placement of Vibrator & Catalyst Container American Motors and General Motors Vehicles Only

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