

Catalytic Converters

What is a Catalytic Converter?

A catalytic converter is part of the exhaust system of a car



$2CO + O_2 \rightarrow 2CO_2$ They convert harmful carbon monoxide and hydrocarbons
 $HC + O_2 \rightarrow CO_2 + H_2O$ into nitrogen, carbon dioxide and water
 $2NO \rightarrow 2NO_2 \rightarrow N_2 + 2O_2$

The Clean Air Act

Passed in 1970, this law made it mandatory that all vehicles be equipped with a catalytic converter to help control air pollution levels.

The Act also made it illegal for manufacturers and vehicle dealerships to remove a catalytic converter.

The Act was amended in 1990, making it illegal for any individual, mechanic, or fleet operator to remove a catalytic converter that was not damaged.

Catalytic Converters are the most commonly stolen vehicle component

Catalytic converter thefts went up over 3,000% from 2007 to 2008 according to the Insurance Services Office

That's more thefts than 2004 - 2007 combined.



Why Are They so Commonly Stolen?

Catalytic converters contain three valuable, precious metals:

45
Rh
Rhodium
\$1,040/ounce

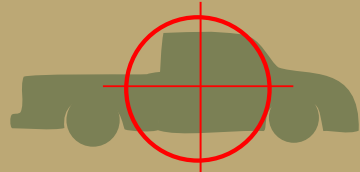
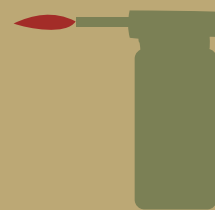
46
Pd
Palladium
\$667/ounce

78
Pt
Platinum
\$1,366/ounce

prices as of June 20, 2013

How Are Catalytic Converters Stolen?

An unprotected catalytic converter can easily be stolen and removed in only a single minute with a handheld blowtorch. Small saws are also often used.



Large vehicle such as SUVs and pickup trucks are most commonly targeted, as they are easy to crawl underneath.

The process is so quick, thieves are able to clear parking lots in broad daylight without being seen.

Catalytic Converter Anti-Theft Methods

Some catalytic converters can be spot-welded to surrounding metal parts, deterring thieves from sawing them off. These do not deter thieves who use torches.

A Cat Cuff is a device that secures the converter to the frame of the vehicle, preventing it from being removed.

The Cat Clamp is a cage that surrounds the converter, preventing thieves from reaching it.

Newer, aftermarket converters contain much less of the precious metals, and thieves may not target them because of this.

What Are My Replacement Options?

Two-Way Converter

An older type of catalytic converter found on cars manufactured before 1981. Does not control NO_x emissions.

Three-Way Converter

Used on cars manufactured after 1981. Controls NO_x emissions in addition to carbon monoxide.

Three-Way + Air Converter

Works the same as a three-way converter, with the addition of air that is pumped into the converter, aiding in the oxidation process.

High-Flow Converter

Increases the power of the vehicle while still remaining within legal emissions standards.

Sources

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