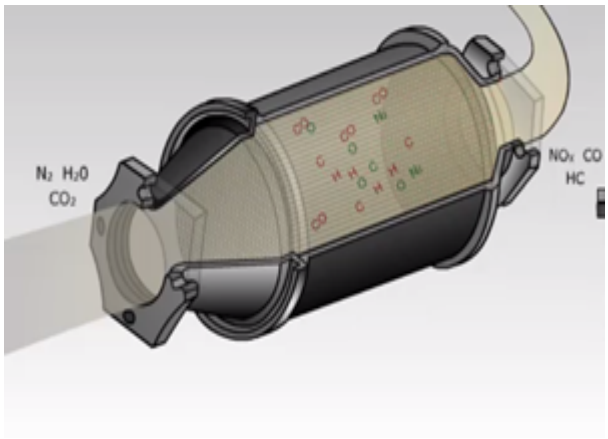
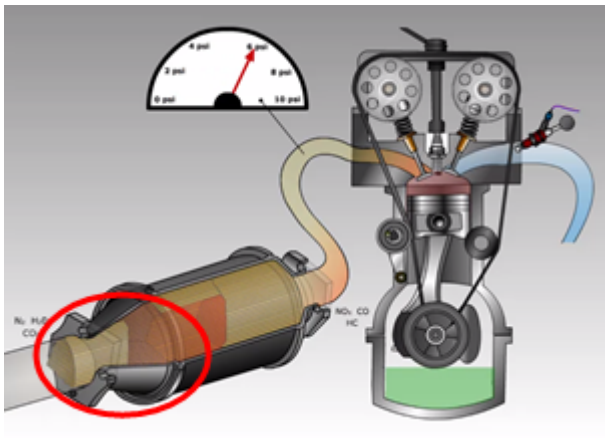
Failed Catalytic Converter



A catalytic converter is required to meet emissions standards by limiting smog.



Rapid temperature changes or extreme temperatures can cause major damage to the honeycomb structure inside the catalytic converter, and obstruction of airflow out the exhaust.

The Catalytic Converter -- often referred to as the cat -- contains a honeycomb structure that is coated with a catalyst such as platinum or palladium. When the catalyst becomes hot, the chemical structure of the exhaust gasses passing over it will change, so that gases that cause smog are removed. Oxides of nitrogen, which contribute to smog, are converted into nitrogen and oxygen. Carbon monoxide and hydrocarbons are broken down, then combine with the free oxygen to make carbon dioxide and water.

Excessive unburned fuel in the exhaust can cause the catalyst to reach extremely high temperatures, which can damage the catalyst materials. When these materials are damaged, the chemical reactions inside the converter decrease, and the exhaust output will contain more harmful gasses. A defect as simple as a stuck-open thermostat or bad spark plug can cause the failure of a catalytic converter.

Damage to the catalytic converter can also occur as a result of rapid temperature change. The cat normally operates at temperatures above 400 degrees fahrenheit. Rapid cooling can cause the internal ceramic structure to break apart and obstruct the exit into the exhaust pipe. Engine management defects that allow too much fuel into the cat can also cause the honeycomb structure to break apart. When the cat becomes plugged there is a noticeable drop in engine power, and the check engine light may illuminate.

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