

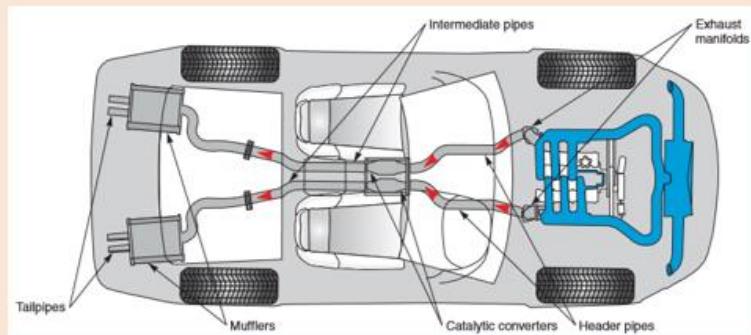


Engine Exhaust System

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The General Layout of the Exhaust System

- The exhaust system transfers the exhaust gases from the engine to the tail pipe.
- It reduces the combustion noise.
- It treats the emissions by the after-treatment facilities.



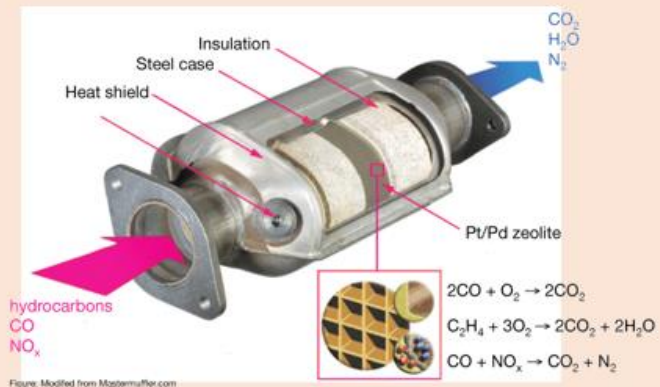
The Conduction (Exhaust Manifold)

- A cast iron pipe that collect the exhaust gases from all the cylinders.
- Its design affect the back-pressure on each cylinder.
- It also affects the amount of the residual gases in the cylinders.
- This will affect the combustion temperature and type of emissions.



The Catalytic Converter

- It is called the three-way catalyst.
- It comprises a perforated monolith which is covered by precious substances such as Pt, Pd, and zeolite.
- It converts HC, CO, and NO_x to CO₂, H₂O, and N₂.



The Muffler (Silencer)

- It reduces the combustion noise to acceptable limits.
- It is literally a steel compartment installed between the exhaust pipe and the tail pipe.
- It is sub-divided to smaller compartments with perforated barriers.



The Muffler

- The exhaust gases flow through a puzzle-like passages to dampen the noise to acceptable levels.



The Lambda (λ) Sensor

- It is used to measure the oxygen content in the exhaust gases.
- An electric signal is sent to the engine ECU to rectify the Air to Fuel ratio to a preloaded level.
- This will guarantee a better performance and fuel consumption.

