

New Catalyst System for Next Stage Rotary Engine [Reference exhibit]

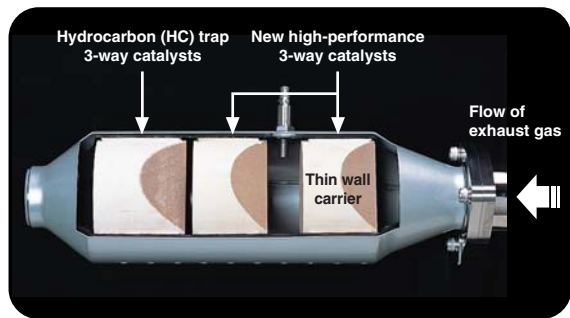
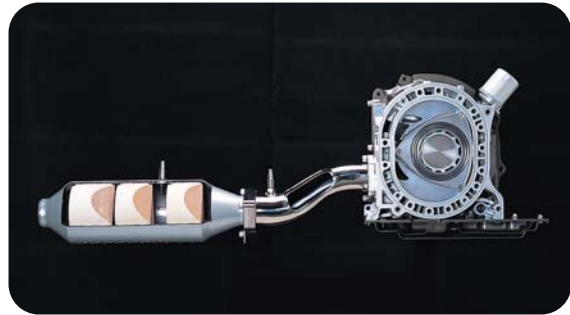
Anticipating further stringent emission regulations in the future, Mazda is now developing new catalytic converters exclusively for use with the next-generation RENESIS, based on Mazda's unique and advanced catalytic technologies.

High-performance three-way catalysts with HC trap three-way catalysts

These new units combine extremely heat-resistant, high-performance three-way catalysts with HC (hydrocarbon) trap three-way catalysts to deliver superior performance, even immediately after the engine is started.

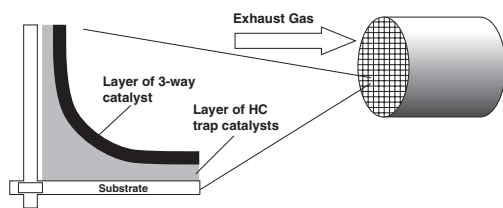
High-performance three-way catalysts employ a new oxidizing agent that maintains a large surface area even at high temperatures. They also contain an additive to maintain the effectiveness of the activated materials, and thanks to the catalyst-layer structure, the activated precious-metal components have enhanced efficiency. As a consequence, these new units exhibit superior resistance to high-temperature exhaust gases combined with the ability to scrub exhaust even at low temperatures. Mazda's high-performance three-way catalysts use a ceramic honeycomb carrier with thinner walls than conventional designs that heat up too quickly, allowing almost instantaneous exhaust purification after starting the engine.

Mazda's first HC trap three-way catalysts use zeolite to physically trap hydrocarbons when the exhaust gases are cool and then release them as temperature rises, at which point they react with oxygen to form H₂O and CO₂. This unit reduces HC emissions by 50% for the first 20 seconds after the engine is started, after which the high-performance three-way catalyst begins purification of exhaust gases.



New catalytic system

HC trap 3-way catalyst structure



System diagram for HC trapping and exhaust purification

