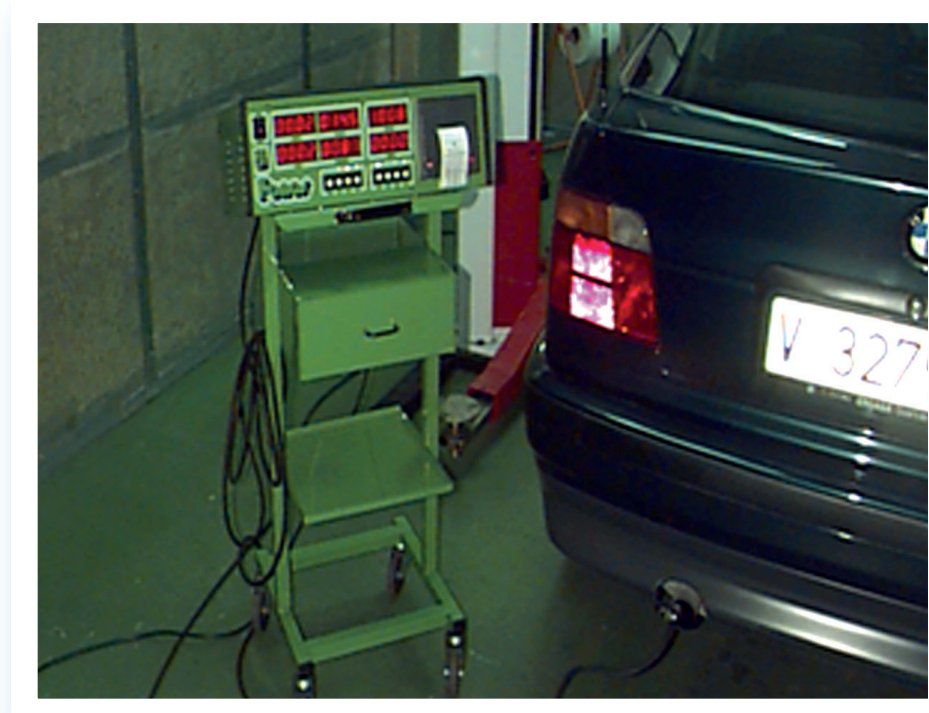


4 GAS ANALYSER TEST : CORRECT GAS VALUES FOR VEHICLES EQUIPPED WITH CATALYTIC CONVERTER SYSTEMS

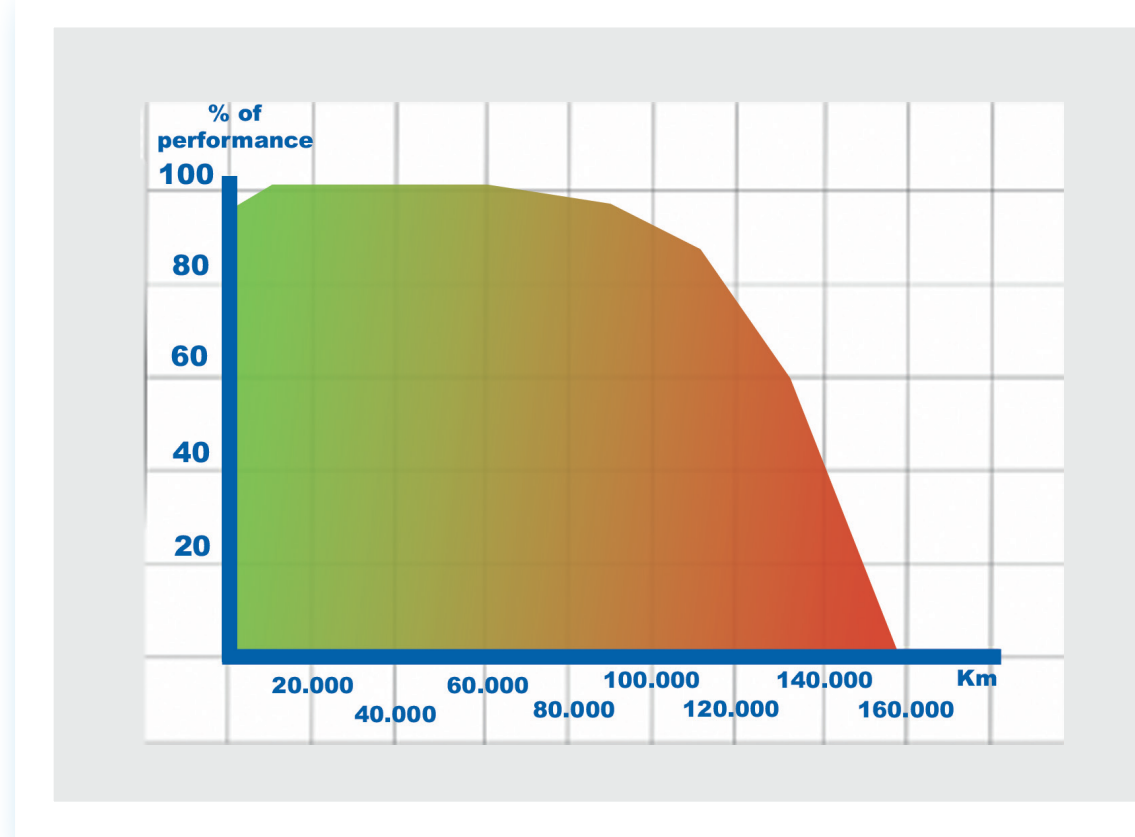
Checking the exhaust gases by means of an infrared 4-channel gas analyser:

- ensure that the catalytic converter is working above 350° C. To do this, simply run the vehicle until the ventilator fan comes on and then accelerate it to 2.000 rpm for a period of three minutes. After this procedure, sample the gases at 2.000 rpm with the gas analyser and diagnose the condition of the system.

CO less than 0.2%
CO ₂ more than 13.5%
HC less 15 ppm.
O ₂ less than 0.2%
Lambda btw. 0.99 & 1.01
R.P.M. 2.000



FAILURE OF THE CATALYTIC CONVERTER DUE TO NATURAL WEAR OF THE UNIT



- Throughout the vehicle's life, due to usage, a fine layer of combustion residues is deposited on the surface of the precious metals, reducing the capacity of the catalytic converter to transform the harmful gasses before they are released into the atmosphere. When this happens, the catalytic converter must be replaced by a new unit.

- It is considered that the useful life of a catalytic converter is of some 100.000 to 140.000 km. The lifetime of the catalytic converter will depend on various factors such as the quality of the fuel being used, the way in which the vehicle is driven, the frequency and quality of the maintenance of the vehicle, etc.

- Walker® recommend to check the emission control system every 20.000 km or once a year in order to determine the condition of the catalytic converter and all the elements linked to this important system.

DAMAGED MONOLITH DUE TO INCORRECT LEVEL OF BACKPRESSURE WITHIN THE EXHAUST SYSTEM

The use of non-homologated parts and/or the presence of cracks in the catalytic converter or exhaust system can lead to variations in system backpressure, creating continuous leakage of unburned fuel (HC) that will reduce the service life of the converter. This situation generates small fusions of the monolith surface which in most cases leads to the detachment of the monolith inside the catalytic converter housing where, because it collides with the metallic walls of the catalytic converter housing, it eventually breaks, forming the typical shape of "spherical biscuit" that we usually see on opening a noisy catalytic converter.



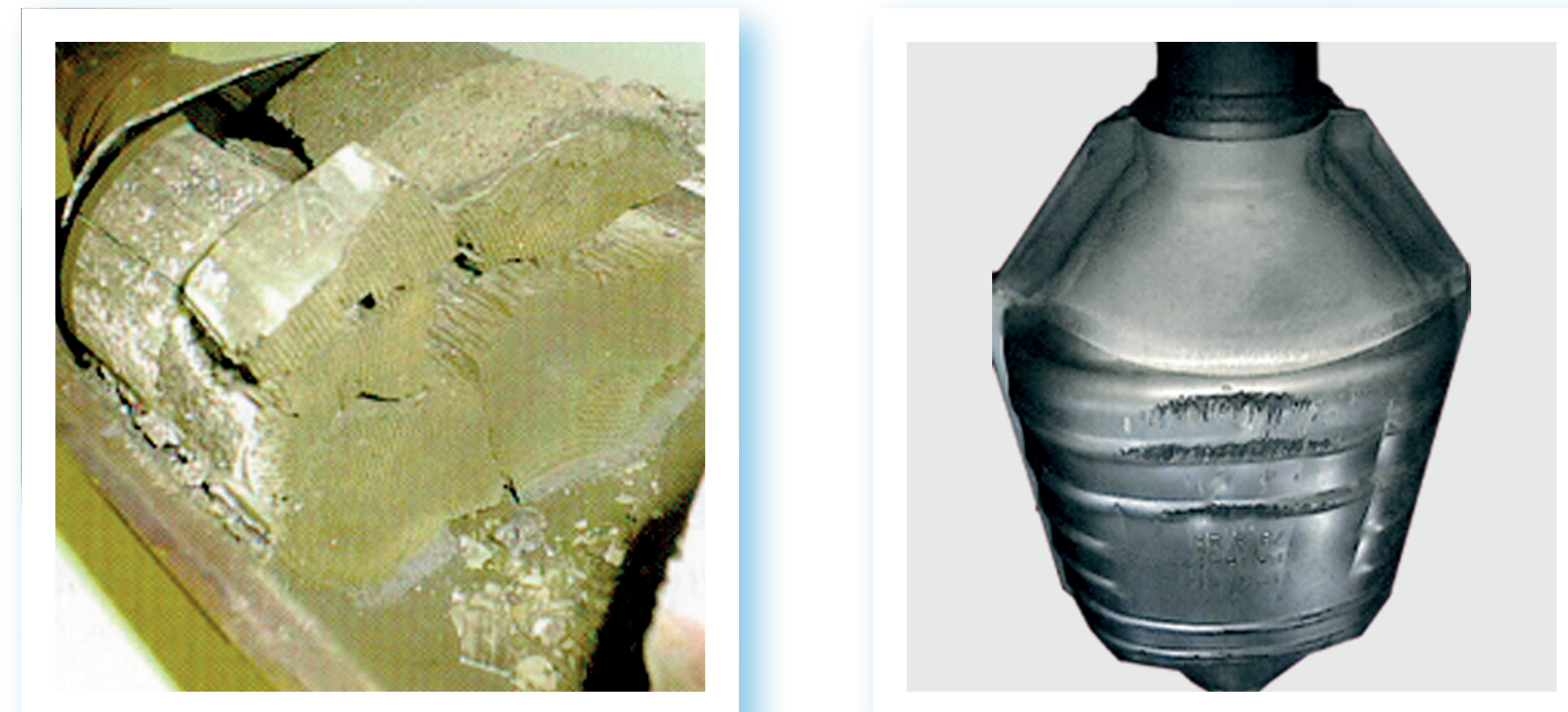
MELTED MONOLITH DUE TO THE COMBUSTION OF UNBURNED FUEL (HC) INSIDE THE CATALYTIC CONVERTER

When high amounts of unburned hydrocarbons (HC) exit the combustion chambers along with the exhaust gases and come in to contact with the surface of the monolith, which in normal working conditions is over 450°C, the fuel auto-ignites and increases the temperature up to 1850°C, causing a rapid and continuous fusion of the monolith which generally leads to the total destruction of the catalytic converter. These failures generally occur because of ignition or intake problems (Wrong air/fuel ratio in the cylinders).

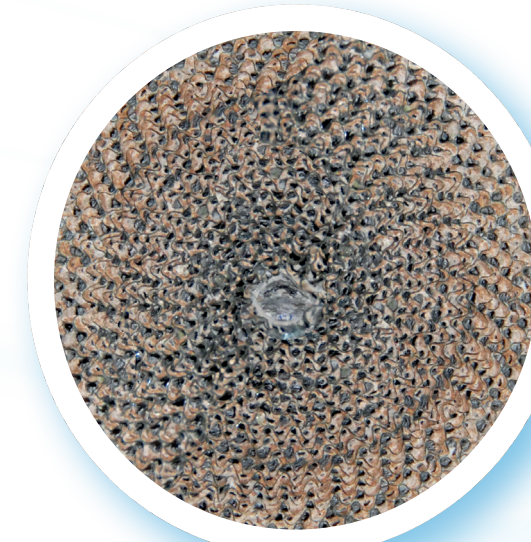


FRACTURED MONOLITH DUE TO EXTERNAL IMPACTS OR DENTS OF MORE THAN 1MM DEEP ON THE OUTER HOUSING

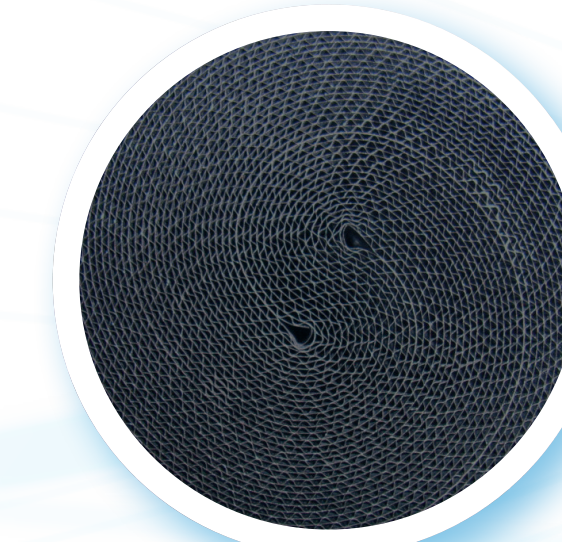
Any impact capable of causing a dent or scratch of more than 1mm deep in the catalytic converter housing has sufficient energy to fracture the ceramic monolith that is situated inside, leaving it useless, and possibly causing serious damage to the engine and the rest of the emission control system components (diesel particulate filter, selective reduction catalytic converters, other silencers, etc.) because of the sudden increase in the levels of back-pressure inside the system.



DAMAGED MONOLITH DUE TO CHEMICAL POISONING



Monolith completely clogged by phosphorous deposits. This is the result of failures that cause the engine to burn more than 1 litre of oil per 1.000 km (eg. piston rings wear problems).



Chemical pollution of the monolith due to the use of lead, generally coming from leaded gasoline or anti-detonant additives not designed for use in catalysed vehicles.



Monolith partially clogged due to the use of rich air to fuel mixtures. Dirty air filters, intake problems and air leaks before the lambda sensors are often the cause of this failure.