PROFESSIONAL CATALYTIC CONVERTER DIAGNOSIS ON PETROL VEHICLES

To perform a correct catalytic converter diagnosis, the use of a 4 gas analyzer is mandatory, because this device can give us the information needed to detect the causes of the failure. The procedure to test a vehicle is simple:

1 Warm up the engine to normal working temperature (about 80°C).

2 Speed up the RPMs until 2000 rpms for 3 minutes, to ensure that the catalytic converter has reached its working temperature.

3 At 2000 rpm, introduce the IR 4 gas analyzer sensor on the pipe and proceed to test.

4 Use the data obtained to go to the diagnostic chart below.

Catalytic converters' failures that affect converter function and produce noise

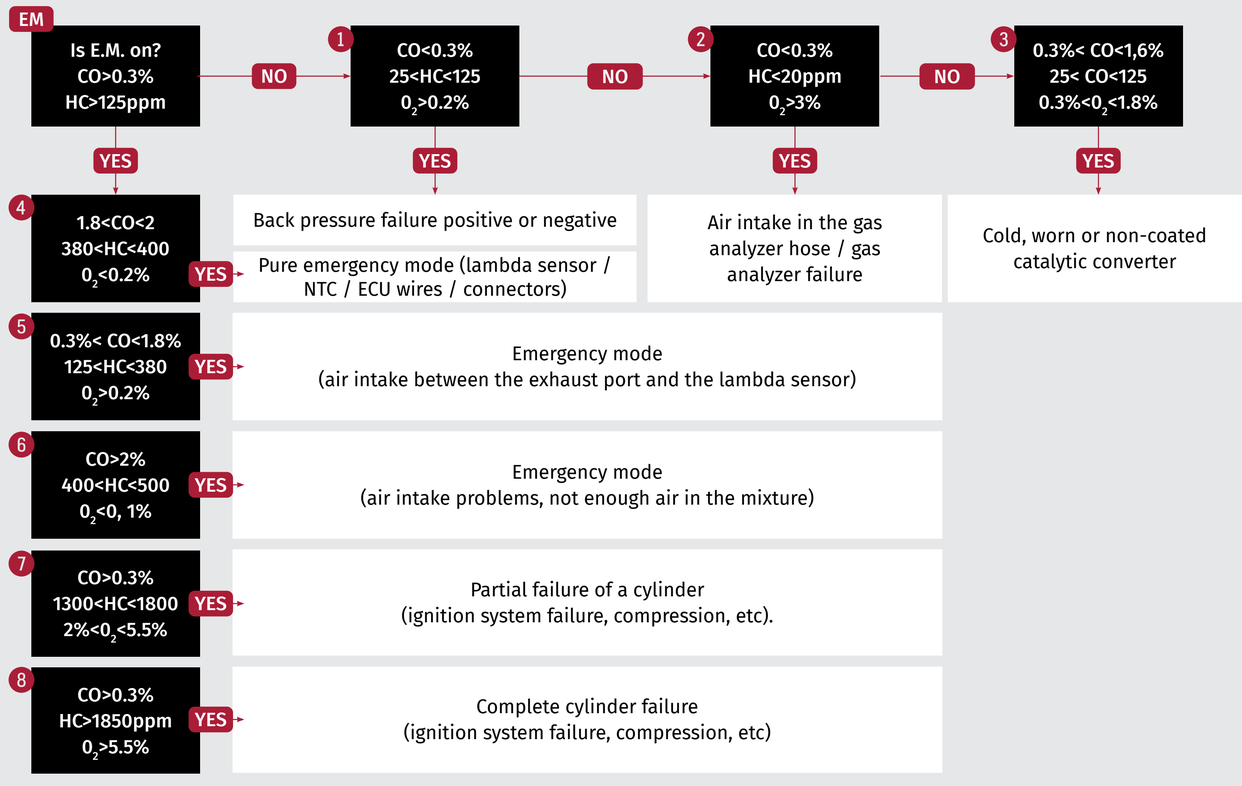
- Loose monolith inside catalytic converters' housing. No scratches or impact signs present in the housing and no melting signs (early stage*) 1 [see *fig. 1*]
- Monolith cracked (impacts with road objects, parkings, loose monolith, etc) 1 [see *fig. 2*]
- Monolith partially or totally melted [see *fig. 3*]
  - Wrong application (+ or - back pressure errors) 1
  - Non-homologated parts (+ or – back pressure errors) 1
  - Lambda sensor and/or engine temperature sensor malfunction 4
  - Partial or total failure of one or more cylinders (ignition problems) 7 8
  - Burned exhaust valves - compression issues in one or more cylinders 7 8
  - Air intake issues → lack of air in the mixture (partially blocked air filter, MAP sensor mailfunction) 6
  - Air leakages between exhaust manifold and catalytic converter 5
  - Rusty internal parts of the exhaust 1


fig.1


fig.2


fig.3

Fast analysis guide for measuring using 4 gas analyzer tester



* Early stages: refers to the time when the failure just appeared at the vehicle or a short period of time after, prior to cause a permanent damage of the catalytic converters' monolith. With the vehicle used and based on the severity of the issue, the unburned fuel will lead into a monolith fusion destroying the unit. Finding and fixing the problem in early stages through the use of a gas analyzer may save the customer from the need of replacing the catalytic converter and other parts as the silencers by a new one. [see *fig. 4*]

Catalytic converters' failures that don't produce noise

- Catalytic converter is cold 3
- Catalytic converter is worn out 3
- Empty catalytic converter housing (no monolith present). WARNING: for vehicles equipped at time of manufacture with a catalytic converter, driving with an empty converter housing or with the catalytic converter missing is illegal, will result in a failed emissions test and can be penalized by law. 3
- Catalytic converter is poisoned (putty paste, oil, lead, sulfur, external additives) 3 [see *fig. 5*]
- Wrong application in early stages (+ or - back pressure errors) 1
- Non-homologated parts early stages (+ or – back pressure errors) 1
- Lambda sensor and/or engine temperature sensor malfunction (early stages*) 4
- Partial or total failure of one or more cylinders (early stages*) 7 8
- Burned exhaust valves – compression issues in one or more cylinders (early stages*) 7 8
- Air intake issues, lack of air in the mixture (partially blocked air filter, MAP sensor malfunction) (early stages) 6
- Small air leakages between exhaust manifold and catalytic converter (early stages*) 5
- Rusty internal parts of the exhaust (early stages*) 1


fig.4

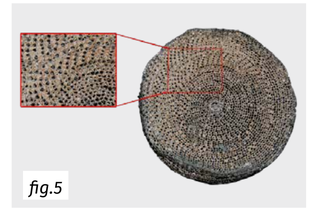


fig.5

DR1V

Advanced Gas Analyzer Reader (4G-AGAR)

Warranty portal

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