

Carbon Dioxide Leak Tester for Engines

COMPONENTS

- 1 Connecting unit for specific adapter
- 1a Adapter connection
- 1b Connection for lower housing
- 1c Vent valve
- 2 Suction ball
- 3 Universal rubber cone
- 4 Lower housing
- 5 Upper housing
- 6 Suction ball connection
- 7 Contrast agent
- 8 Empty bottle



INTENDED USE

This cylinder head leakage tester was designed to test cylinder head gaskets. By using a CO²-sensitive contrast agent, you can detect any malfunctioning gaskets in the transition section between cooling system and combustion chamber quickly and easily.

EFFECTIVENESS

The contrast agent changes its color from blue to yellow, as soon as it gets in contact with combustion gases in the cooling system. Normally, the contrast agent changes its color in the lower part of the housing. A comparison with the contrast agent in the upper part of the housing makes visible even the slightest change of color. Both parts of the housing work as a filter at the same time. An unintentional suction of coolant affects only the sensibility of the contrast agent in the lower part of it. A leakage of the cylinder head gasket will be shown in the upper part of the housing. Various gases can cause the contrast agent to develop a blue coloring. Thereby, those gases will be absorbed in the lower part of the housing, while combustion gases will cause a yellow coloring of the contrast agent in the upper part.

SAFETY INSTRUCTIONS

- Use the tool for the intended purpose only.
- While testing, both engine and coolant heat up to a very high degree. Risk of burn! Always keep an appropriate distance to all parts of the engine and the cooling system.
- If engine is running and the coolant is hot, the cooling system is under pressure. Open the cooling system carefully!
- Be careful when working on running engine. Loose clothing, tools and other objects can be caught by rotating parts and cause serious injury.
- Keep children and other unauthorized persons away from the work area.
- Do not allow children to play with the tool or its packaging.
- If you remove the ignition key before repairing, you can prevent the engine from being started accidentally and resulting injury or damage.
- This manual serves as a brief guide and does not replace a workshop manual. Always refer to the vehicle-specific service literature, particularly the technical data such as torque values and instructions for disassembly/assembly, etc.

CONTRAST AGENT

1. The contrast agent should be checked after each testing. Hold the tool in front of your mouth and, while activating the suction bulb, breathe out slowly. The CO² in your breath should be concentrated enough to cause a reaction.
2. Contrast agent can be used repeatedly. Therefore, activate the suction bulb several times, until a greenish-blueish coloring appears.
3. Avoid any pollution of the contrast agent: Acid, soap etc. cause a color change.
4. The contrast agent is free from acid/base and is not harmful. It may cause a discoloration of clothing though, when getting in contact with it.
5. A change of color to a slight green can be caused through storage. This is normal and does not affect its effectiveness and sensibility.

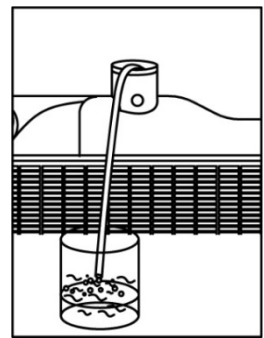
MAINTENANCE

- In case of an unintentional suction of coolant, clean the tester with washing up liquid and rinse with water.
- Dry the tester before refilling with new contrast agent.
- Never use bases, soaps or paint thinner for cleaning.

INSTRUCTION

1 Preparation

Bleed the coolant up to 3 - 4 cm under the filler hole. This way, there won't be any coolant sucked in unintentionally while testing. Keep in mind that the air cushion is not too big, so that small amounts of combustion gases can be detected, too. Carefully remove any residual gases in the air cushion by using compressed air. Small amounts of combustion gases accumulate in the air cushion after a longer period of time. Do not 'blow' with your mouth - the CO² in your breath causes a change of color to yellow and therefore causes an incorrect testing result. Close the cooling system, again.



2 Filling contrast agent

Fill test fluid into the upper and lower housing, up to the mark.

3 Preparation for test with vehicle-specific adaptor

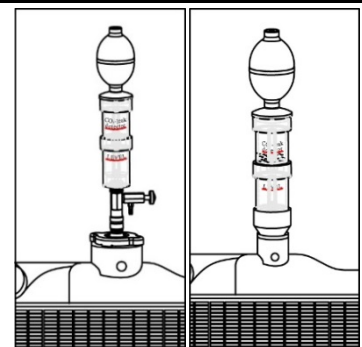
Dismantle rubber cone by pulling.
Install the terminal for vehicle-specific adaptor.
Secure the plug-in connection with upper knurled threaded sleeve.



4 Testing with/without vehicle specific adaptor

After a short test drive, fit the tester into the filler hole and accelerate impulsively a few times to create the highest level of combustion pressure possible. Activate the suction ball several times (10 - 15 times). A test with a vehicle specific adaptor responds more accurate, since it provides a 100% sealing from outside air.

Caution: The cooling system is under pressure, when engine is running and the coolant is hot.



5 Test without the suction ball

Procedure as described above, but with activating the suction ball. The air cushion gets pushed through the tester by the cooling system.

6 Analysis

- If the contrast agent changes color after the test, there is a leakage. A possible cause could be a crack in the cylinder head, a broken cylinder head gasket etc.
- If there is no visible change of color, there is no leakage in the section between combustion chamber and cooling system.

Run steps 1-3 of chapter "CONTRAST AGENT" after each test.

