

Thank you for purchasing a Sealey product. Manufactured to a high standard this product will, if used according to these instructions and properly maintained, give you years of trouble free performance.

⚠ IMPORTANT: PLEASE READ THESE INSTRUCTIONS CAREFULLY. NOTE THE SAFE OPERATIONAL REQUIREMENTS, WARNINGS AND CAUTIONS. USE THE PRODUCT CORRECTLY AND WITH CARE FOR THE PURPOSE FOR WHICH IT IS INTENDED. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY AND WILL INVALIDATE THE WARRANTY. PLEASE KEEP INSTRUCTIONS SAFE FOR FUTURE USE.

1. SAFETY INSTRUCTIONS

- ❑ **WARNING!** Ensure all Health & Safety, local authority and general workshop practice regulations are strictly adhered to when using tools.
- ✗ **DO NOT** use equipment if damaged.
- ✓ Maintain the equipment in good and clean condition for best and safest performance.
- ✓ If required, ensure vehicle to be worked on is adequately supported with axle stands, ramps and chocks.
- ✓ Wear approved eye protection. A full range of personal safety equipment is available from your Sealey dealer.
- ✓ Wear suitable clothing to avoid snagging. Do not wear jewellery and tie back long hair.
- ✓ Account for all tools and equipment being used and do not leave them in, on or near engine.
- ✓ When not in use, place in protective case and store in a safe, dry, childproof area.
- ▲ **IMPORTANT:** Always refer to the vehicle manufacturer's service instructions, or a proprietary manual, to establish the current procedure and data. These instructions are provided as a guide only.

2. INTRODUCTION

2.1 Introduction

The Petrol Compression Test Kit comprises a Ø59mm gauge fitted with a 250mm hose and quick connect. The gauge scale reads from 0 - 21 bar (0 - 300 psi). The kit includes four extension hoses, seven plug thread adaptors from 10 to 18mm and a self-sealing quick connect. Supplied in a carry-case, the kit is suitable for most petrol engine cars and light commercial vehicles.



Fig.1

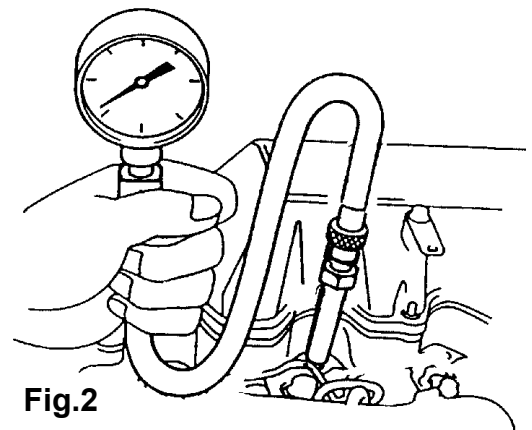


Fig.2

3. OPERATION

3.1 Test Procedure

- ❑ **WARNING! DO NOT** use long reach adaptors on engines with standard spark plugs, as engine damage may occur.
- ❑ **WARNING!** Always release the pressure via the Retest Valve BEFORE disconnecting the tester. Press the retest valve slowly to release the pressure gradually. Refer to Fig.1.

NOTE: A variation in compression readings between cylinders is often a better indication of engine problems than the absolute values of compression.

- 3.1.1 Run the engine until it reaches the normal operating temperature.
- 3.1.2 Stop the engine and disconnect all spark plug wires, numbering them according to the cylinder to which they were connected.
- 3.1.3 Loosen all spark plugs by about half a turn, but do not remove them.
- 3.1.4 Using an air hose or wire brush, remove all the dirt and debris from the spark plug wells.
- 3.1.5 Remove the spark plugs and place them on a clean, flat surface in the cylinder order in which they were removed.
- 3.1.6 Remove the air filter and set the throttle plates to the wide open position, taking care not to damage the linkage or throttle components.
- ▲ **IMPORTANT:** After test, failure to return the throttle plates to the closed position before starting the engine can cause serious damage to the engine.
- 3.1.7 Disconnect the ignition system, following the manufacturer's recommendations in the vehicle servicing manual.
- 3.1.8 Select the spark plug adaptor and/or hose required for the vehicle. Screw the adaptor and/or hose into a spark plug well. Hand tighten only. **DO NOT** use a wrench. Refer to Fig. 2.
- 3.1.9 Connect the coupling on the gauge hose to the fitting on the spark plug hose. Ensure the hose couplings are fully engaged.
- 3.1.10 Crank the engine for at least five compression strokes, or until the pressure reading on the gauge stops rising.
- 3.1.11 Record the compression reading, then push the side release valve to relieve the pressure.
- 3.1.12 Repeat the test and record the reading. Relieve the pressure and remove the hose from the spark plug well.
- 3.1.13 Repeat paragraphs 3.1.8 to 3.1.12 for the remainder of the cylinders.

3.3 Valve Seal and Spring Replacement

- 3.3.1 Turn the engine so that the piston of the cylinder to be worked on is at Top Dead Centre (TDC), with both valves closed.
- 3.3.2 Choose the proper spark plug hose and remove the valve core from the end.
- 3.3.3 Thread the spark plug hose into the spark plug hole of the subject cylinder.
- 3.3.4 Connect the garage air supply and apply air pressure.

NOTE: If the garage air hose uses a different quick coupler system than the spark plug hose, use the quick coupler of the VSE206 kit and attach it to the garage air hose.

- 3.3.5 Replace the seals and springs as required, with the air pressure holding the valves closed.
- 3.3.6 Disconnect the spark plug hose at the quick coupler.
- 3.3.7 Carry out the same procedure on each cylinder that requires valve parts replacing.

4. TEST RESULTS

4.1 Gauge Readings

- 4.1.1 On a normal cylinder, the gauge needle should travel up the scale on each compression stroke until it reaches peak value. All cylinders should indicate a pressure that is within the vehicle manufacturer's specifications, and the reading should not vary by more than 10% from cylinder to cylinder.
- 4.1.2 If the gauge needle does not travel up the scale, or if it remains at the same value for several strokes and then starts to climb, the problem could be a valve sticking.
- 4.1.3 If the compression reading is considerably higher than the vehicle manufacturer's specification, the problem may be carbon build-up in the cylinder. It may also indicate that either the piston, or the cylinder head, has been modified.
- 4.1.4 If a reading on two adjacent cylinders is 20 psi (or more) lower than the other cylinders, the problem may be a cracked cylinder head or defective main gasket. Under these conditions, both coolant and oil may be found in both cylinders under these conditions.
- 4.1.5 If the readings are low, or vary widely between cylinders, pour a teaspoon of SAE 30 oil into each cylinder and retest them. If the readings increase considerably, the problem may be poorly seated, or worn, piston rings. If the readings remain about the same, the valves and/or associated components may be the problem. A burned or damaged piston may also cause the same results.

5. COMPLETION OF TESTS

- 5.1 Clean, regap and reinstall the spark plugs in the same order in which they were removed, or install new spark plugs.
- 5.2 Reconnect each spark plug wire to the plug it was connected to prior to removal.
- 5.3 Return the throttle plates to the closed position.

▲ **IMPORTANT:** After test, failure to return the throttle plates to the closed position before starting the engine can cause serious damage to the engine.

- 5.4 Reconnect the ignition system wiring disconnected at paragraph 3.1.7.

NOTE: It is our policy to continually improve products and as such we reserve the right to alter data, specifications and component parts without prior notice.

IMPORTANT: No liability is accepted for incorrect use of product.

WARRANTY: Guarantee is 12 months from purchase date, proof of which will be required for any claim.

INFORMATION: For a copy of our latest catalogue and promotions call us on 01284 757525 and leave your full name and address, including postcode.



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