



# PETROL ENGINE COMPRESSION TESTER KIT

MODEL NO: **VSE300D**

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 & 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. KEEP THESE INSTRUCTIONS SAFE FOR FUTURE USE.



Refer to instructions



Wear eye protection

## 1. SAFETY

- WARNING!** Ensure all Health and Safety, local authority and general workshop practice regulations are adhered to when using these tools.
- DO NOT** use tools if seals or threads are damaged. Any defective seal **MUST** be changed before use to avoid incorrect readings.
- Maintain the tools in a good, clean condition for best and safest performance.
- Ensure that a vehicle that has been jacked up is adequately supported with axle stands.
- Wear approved eye protection. A full range of personal safety equipment is available from your Sealey Stockist.
- Wear suitable clothing to avoid snagging, tie back long hair and **DO NOT** wear jewellery.
- Ensure any disconnected fuel pipes are plugged to avoid spillage.
- Ensure that the correct connector is used for the engine/vehicle being tested.
- Always release the pressure from the gauge before disconnecting the quick release coupling.
- Account for all tools, and parts being used and **DO NOT** leave them in or near the engine.
- WARNING!** Select neutral (or 'park' if automatic transmission) and keep hands clear of the engine as engine rotation may occur when using these tools. The ignition **MUST BE** turned off, and only switched on when instructed to do so.
- 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.
- When not in use, return all parts to the protective case and store this in a safe, dry, childproof location.
- WARNING!** The warnings, cautions and instructions referred to in this manual cannot cover all possible conditions and situations that may occur. It must be understood that common sense and caution are factors which cannot be built into this product, but must be applied by the operator.

## 2. INTRODUCTION

Features 300psi gauge with large rubber bumper. Includes extension for deep seated plugs and flexible extension hose. Suitable for petrol engines with 10, 12, 14 and 18mm spark plug threads. Supplied in carry-case.

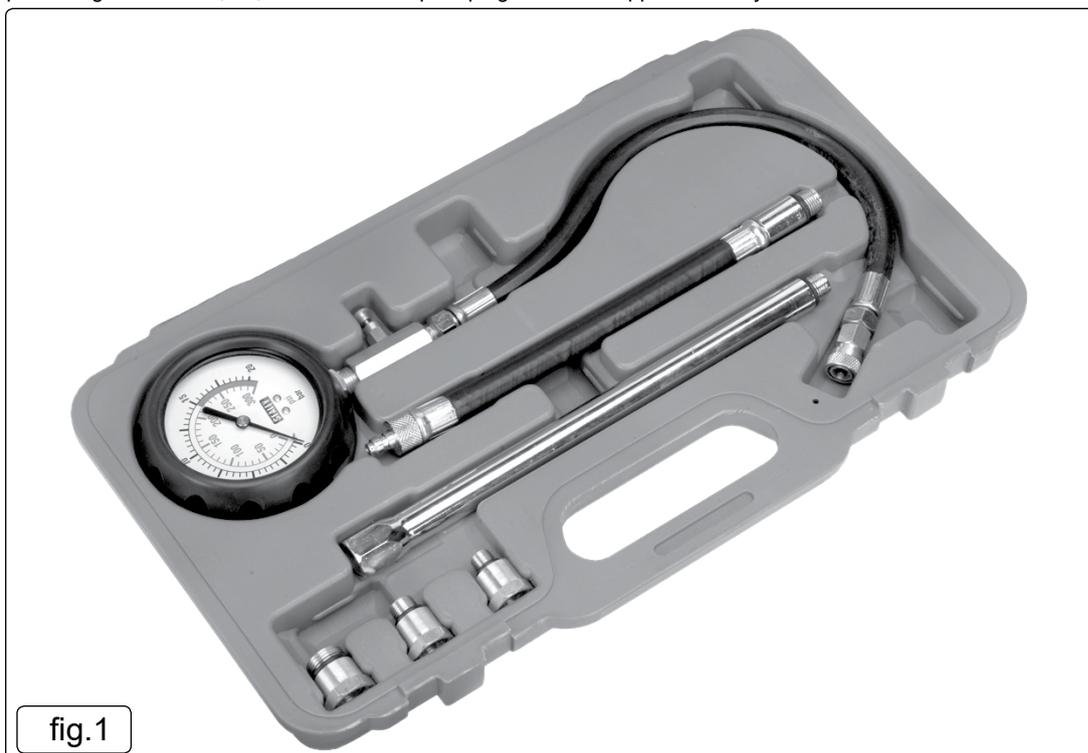


fig.1

### 3. OPERATION

#### 3.1. OVERVIEW OF COMPRESSION TESTING.

When an engine's performance is down, or if misfiring occurs which cannot be attributed to the ignition or fuel systems, a compression test can provide diagnostic clues as to the engine's condition. Compression should build up quickly in a healthy engine. A very low compression reading on the first stroke, followed by gradually increasing pressure on successive strokes, indicates worn piston rings. A low compression reading on the first stroke, which does not build up during successive strokes, indicates leaking valves or a faulty head gasket (a cracked head could also be the cause). Deposits on the undersides of the valve heads can also cause low compression. If the pressure in any cylinder is considerably lower than the others, introduce a small quantity of clean oil into that cylinder through the access hole, and repeat the test. If the addition of oil temporarily improves the compression pressure, this indicates that bore or piston wear is responsible for the pressure loss. If there is no improvement, it suggests that the leakage is around the valves, or a faulty head gasket. A low reading from two adjacent cylinders suggests a faulty head gasket between the two cylinders. The presence of coolant in the engine oil will confirm this. If the compression is unusually high, the combustion chambers are probably coated with carbon deposits. If this is the case, the cylinder head should be removed and de-carbonised. As a rough guide, engines having a compression pressure in excess of 100psi (6.9 bar), should not exceed a compression loss of more than 10psi (0.69 bar). On older engines with lower compression pressure, loss should not exceed 0.35 bar (5psi).

#### 3.2. COMPRESSION TESTING.

3.2.1. Check the engine oil is at the correct level.

3.2.2. Remove all of the spark plugs from the engine.

3.2.3. Select the applicable adaptor (3 metal adaptors or flexible hose adaptor) from the kit and screw it into the first spark plug port, ensuring there is a good seal with the O-ring. Connect the extension if required and couple to the pressure gauge hose, ensuring it locks into place.

3.2.4. Turn over the engine using the starter motor and observe the gauge, looking for a steady increase in the reading (see 3.1) and note the maximum reading obtained. Refer to the vehicle/engine manufacturer's workshop manual for compression data.

3.2.5. Depress the Re-set Valve (situated under the gauge) to release the pressure. The Re-set Valve allows the test to be repeated if required without disconnecting the tester from the spark plug port.

☐ **WARNING!** Always release pressure via the Re-set Valve **BEFORE** disconnecting the Tester.

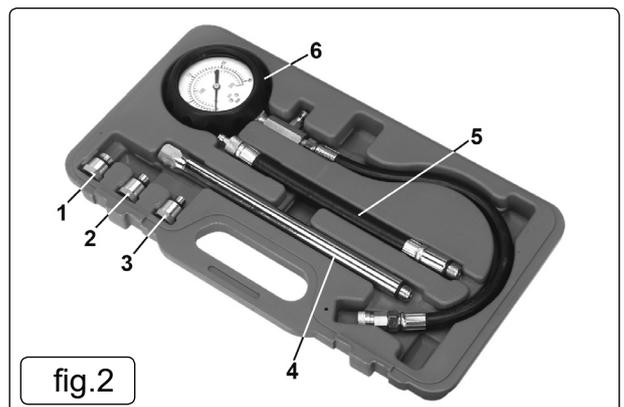
3.2.6. Disconnect the compression tester from the adaptor/flexible hose and remove the adaptor from the spark plug port. Install them into the next cylinder's spark plug port and repeat the tests. Continue the tests for all of the remaining cylinders in turn.

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

COMPRESSION CONDITION	ACTION/DIAGNOSIS
Low compression reading on some cylinders.	(a) Use oil in cylinder to see if rings are worn. (b) If compression increases, rings and/or cylinder wall are worn. (c) If compression does not rise, do a cylinder leakage test to determine source of problem.
High relative compression readings and relatively equal cylinder readings.	If excessive exhaust emissions, lack of power, poor performance, or poor fuel consumption do a cylinder leakage test to determine source of problem.
Lower relative compression readings. One or more cylinders lower than others.	Do a cylinder leakage test to determine source of problem.

### 4. PARTS

No.	Part No.	Description
1	VSE300D.01	18mm Thread Adaptor
2	VSE300D.02	12mm Thread Adaptor
3	VSE300D.03	10mm Thread Adaptor
4	VSE300D.04	14mm Thread Extension
5	VSE300D.05	14mm Hose & Connector
6	VSE300D.06	Compression Tester



#### ENVIRONMENT PROTECTION



Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of in a manner which is compatible with the environment. When the product becomes completely unserviceable and requires disposal, drain any fluids (if applicable) into approved containers and dispose of the product and fluids according to local regulations.

**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 this product.

**Warranty:** Guarantee is 12 months from purchase date, proof of which is required for any claim.

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