



# PETROL & DIESEL MASTER COMPRESSION & LEAKAGE TEST KIT 46PC

MODEL NO: **VS567**

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



Wear protective  
gloves



Wear safety  
footwear



Wear protective  
clothing



Hot surfaces

## 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.
- ☐ **WARNING:** Beware of hot engine parts which can cause burns.
- ☐ **WARNING:** Remove ignition key to prevent accidental engine turn over or starting.
- ☒ 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.
- ☐ **WARNING!** (Leakage Tester) Turn regulator knob fully anti-clockwise before connecting to compressed air. Excess pressure will damage the gauge and will invalidate the warranty.  
**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

Measures cylinder compression and leak-back percentages with precision. Suitable for diesel and petrol engines, including HDi, TDCi, Pumpe Duse and older models. Quick-connect fittings enable fast setup and seamless component changes. Easy-read 700psi gauges display pressure and leak-back data. Includes adaptors for clamp-on and Stanadyne injectors. Supplied in a storage case with Internal foam padding.

### 3. CONTENTS

M8, M10, M12, M18, M22, M24, Knurled Grip Adaptor, Right Angle Adaptor, Clamp On Adaptor, Universal Adaptor, Diesel Pressure Gauge, Dual Gauge Leak Tester, Adaptor Brackets; Small, Medium, Large, Spark Plug Adaptors, PTFE Tape, 11mm Spanner.

**NOTE:** See Parts List for item descriptors.



## 4. APPLICATIONS

Alfa, BMW, Chrysler, Daewoo, Fiat, Ford, Hyundai, Isuzu, Land Rover, LDV, Mazda, Mercedes, Mitsubishi, Nissan, Opel, PSA, Renault, Saab, Suzuki, Toyota, VAG, Vauxhall, Volvo.

## 5. SPECIFICATION

Model No: ..... VS567  
Nett Weight: ..... 5.7kg  
Reading: ..... Cylinder Leakage %

## 6. OPERATION

### 6.1. PETROL ENGINE

#### 6.1.1. Preparation

- 6.1.1.1. Start the engine and run for about 15 minutes until it reaches normal temperature.
- 6.1.1.2. Turn off the engine.
- 6.1.1.3. Disconnect the power to the ignition coils. The separation of the ignition cable alone can lead to damage of the ignition systems.
- 6.1.1.4. Remove all the spark plugs from the cylinder head, put these in the order in which they were fitted to the engine. This can be helpful for further diagnosis.
- 6.1.1.5. Clean the spark plug threads with suitable medium i.e. compressed air, gentle wire brush.
- 6.1.1.6. Screw the appropriate adapter or the hose directly into the spark plug threads. Tighten the hose and adapter by hand only. **DO NOT** use tools!
- 6.1.1.7. Now start the engine for at least 4 seconds, and give full throttle until the pressure on testers no longer rises.
- 6.1.1.8. Note the maximum value and repeat the test on all remaining cylinders.

#### 6.1.2. Results Analysis

- 6.1.2.1. At intact cylinders the pressure increases directly on start up to a peak value.
- 6.1.2.2. Check all cylinders by manufacturer's instruction, the difference between them may be up to 10%.
- 6.1.2.3. When a cylinder has no pressure and the spark plugs have traces of oil, the piston should be checked for damage. At high combustion temperatures, for example by uncontrolled combustion (coal oil on the spark plug) can cause damage to the piston (pitting) lead.
- 6.1.2.4. If the value is less on two adjacent cylinders than the value of the other cylinders, there is a defective cylinder head gasket in the transition zone between the two cylinders. This is also true if there is water and / or oil at the spark plugs.
- 6.1.2.5. If one cylinder has a lower pressure as indicated by the manufacturer, place a little engine oil into the cylinder and run the compression test again. If the pressure rises sharply, the piston rings are worn. If the pressure remains the same low level, the defect is a leaky valve or a defective camshaft. If the pressure indicated on all cylinders less than that stated by the manufacturer, the motor has age-related wear and for diagnosis the engine must be disassembled and measured.
- 6.1.2.6. Install all the spark plugs and cables in the correct order.  
**NOTE:** For all tests, the tester should always refer to vehicle specific data if available.

### 6.2. DIESEL ENGINE

#### 6.2.1. Preparation

**WARNING:** When testing by the glow plug chambers it is absolutely necessary to disconnect the fuel supply. It should not be injected diesel fuel. Otherwise there is a danger that the engine starts and it will cause injury and damage to the tester.

- 6.2.1.1. Start the engine for about 15 minutes until it reaches normal temperature
- 6.2.1.2. Turn off the engine. Disconnect the power supply of the injectors and remove if necessary, all injectors or glow plugs (the details of the test method can be found in the vehicle-specific service literature).
- 6.2.1.3. Install the appropriate adapter and the gauge in the injectors or glow plug chambers.
- 6.2.1.4. Now start the engine for at least 4 seconds until the pressure on testers no longer rises.
- 6.2.1.5. Note the maximum value and repeat the test on all remaining cylinders.

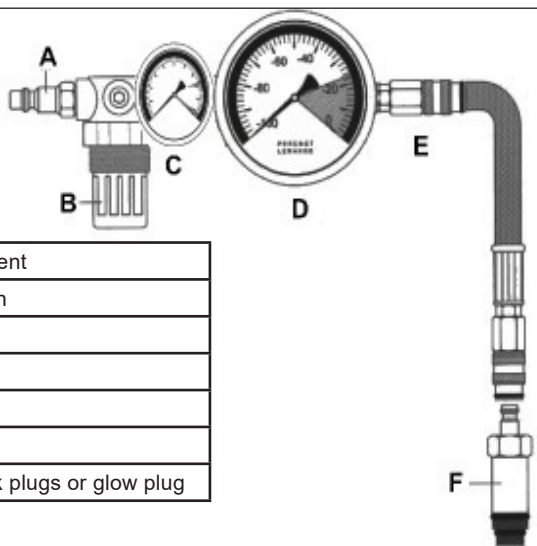
#### 6.2.2. Results Analysis

- 6.2.2.1. Cylinder pressure increases directly on start up to a peak value.
- 6.2.2.2. Check all cylinders using manufacturer's instruction, the difference between them may be up to 10%.
- 6.2.2.3. When a cylinder has no pressure and the spark plugs have traces of oil, the piston should be checked for damage. High combustion temperatures, for example by uncontrolled combustion (coal oil on the spark plug), can cause damage to the piston (pitting). If the value is less on two adjacent cylinders than the value of the other cylinders, there is a defective cylinder head gasket in the transition zone between the two cylinders. This is also true if there is water and / or oil at the spark plugs.
- 6.2.2.4. If one cylinder has a lower pressure as indicated by the manufacturer, give a little engine oil into the cylinder and run the compression test again. If the pressure rises sharply, the piston rings are worn. If the pressure remains the same low level, the defect is a leaky valve or a defective camshaft.
- 6.2.2.5. If the pressure indicated on all cylinders less than that stated by the manufacturer, the motor has age-related wear and for diagnose the engine must be disassembled and measured.
- 6.2.2.6. Install all the spark plugs and cables in the correct order.  
**NOTE:** For all tests, the tester should always refer to vehicle specific data if available.

### 6.3. CYLINDER LEAK TEST (fig.1)

**NOTE:** The leakage tester serves for the diagnostics of engine defects, e.g. of the inlet/exhaust valves, the pistons/piston rings and the cylinder head/cylinder head gaskets. The leakage tester detects and localizes engine defects quickly.

fig.1



Item	Component
A	Compressed air connection
B	Pressure regulator
C	Gauge
D	Leakage test gauge
E	Connector for adapter
F	Adapter for injectors, spark plugs or glow plug

### 6.3.1. Procedure

- 6.3.1.1. Apply vehicle's hand brake and warm up engine.
- 6.3.1.2. The piston of the cylinder in question has to be adjusted at TDC (top dead centre).
- 6.3.1.3. Dismantle spark plug/injection nozzle.
- 6.3.1.4. **IMPORTANT:** Before go to the next step, turning the pressure regulator (B) completely to the left. Failure can damage the tester.
- 6.3.1.5. Connect tester to compressed air outlet (A).
- 6.3.1.6. The input pressure of the compressed air must be between 6 & 12 bar.
- 6.3.1.7. Turn pressure regulator (B) until the instrument's pointer has reached 0%.
- 6.3.1.8. Fix pressure regulator (B); (press down; initial pressure has to be the same for all cylinder).
- 6.3.1.9. Screw testing adapter (C) into the engine's spark plug thread.
- 6.3.1.10. Connect testing adapter (C) to tester (outlet).
- 6.3.1.11. Read pressure loss;
- 6.3.1.12. If pointer exceeds 23% the engine is defective.
- 6.3.1.13. If pointer remains within the green area (0-23%) pressure loss is acceptable.

### 6.3.2. Results Analysis

**NOTE:** The leak can be determined by listening for the noise of escaping air or by feeling the air stream.

**NOTE:** Take care avoid contact with any hot or moving parts.

- 6.3.2.1. Differences between the individual cylinder up to two graduation lines (= 4% pressure loss) are acceptable.
- 6.3.2.2. The leakage on engines which have run less than 5000 kilometres may be higher, because the cylinder, the piston and the piston rings have not yet reached their full smoothness.
- 6.3.2.3. Necessary testing pressure: 6 to 12 bar.

## 7. MAINTENANCE

- 7.1. Keep all components free of any swarf and clean with lightly oiled rag after each use.
- 7.2. Store securely in a dry and clean location.

## 8. END OF LIFE

- 8.1. Dispose of all contents/elements in adherence to local, regional and national guidelines.



### 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.



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**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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