DRAPER

EN

Original Instructions
Version 1
April 2025

CYLINDER LEAKAGE TEST KIT

35884

Read this manual in full before using this product and retain it for future use. Always use the latest version of the manual. Please visit **drapertools.com/manuals** for the latest version.

Intended Use

This cylinder leakage kit is designed to detect common engine faults such as worn piston rings and valves, cracked cylinder heads and blown head gaskets. It is compatible with direct and indirect petrol engines that use 10, 12,14 and 18mm spark plug threads.

Any other application beyond the conditions established for use will be considered misuse. Draper Tools accepts no responsibility for improper use of this product.

Health and Safety Information

Important: Read all the Health and Safety instructions before attempting to operate, maintain or repair this product. Failure to follow these instructions may result in injury or damage to the user, the product or the vehicle.

- **ALWAYS** follow the vehicle manufacturer's instructions, warnings and service procedures.
- This tester should only be used by qualified trained personnel.

WARNING! Select neutral (or 'park' if automatic transmission) and keep hands clear of the engine as the engine rotation may occur when using this tester. The ignition must be turned off.

WARNING! Turn regulator knob to the fully closed position before connecting to the compressed air supply.

- Keep this tester kit in good working order and condition. **DO NOT** operate if any parts are damaged or missing as this may cause failure and/or personal injury.
- **DO NOT** leave any tools or part being used in or near the engine.
- **DO NOT** use the kit to perform a task for which it is not designed.
- **ALWAYS** wear suitable eye and hand protection.
- Wear suitable clothing, remove jewellery and tie long hair back.

Air Supply Safety Information

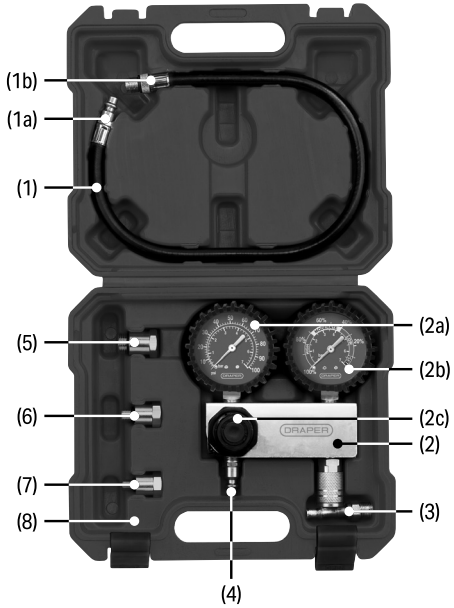
WARNING! Compressed air can cause severe injury.

- **ALWAYS** turn off and disconnect the air supply before connecting the pressure gauge, making any adjustments to the product or leaving it unattended.
- **NEVER** direct compressed air towards yourself or others.
- Ensure that compressed air is not blocked by or in contact with any part of your body.

- **ONLY** use clean, dry and regulated compressed air.
- Ensure that the product is compatible with the air supply before use.
- Ensure all connections are securely tightened.
- **DO NOT** exceed the maximum stated air pressure (required 40 – 100psi).
- **NEVER** carry the tester by the air line.

Identification

Carefully remove the product from the packaging and examine it for any signs of damage that may have occurred during shipment. If any part is damaged or missing, do not attempt to use the product. Please contact the Draper Helpline; contact details can be found at the back of this manual.



1. 600mm Flexible cylinder hose
   1a. Pressure quick connector
   1b. spark plug adaptor connector (fits to 5, 6 or 7)
2. Twin gauge (63mm diameter) controller
   2a. Pressure gauge (0-100PSI /0-7Bars)
   2b. Cylinder leakage gauge (0-7Bars)
   2c. Pressure regulator
3. ¼" BSP air supply replacement coupler
4. ¼" Euro air supply coupler
5. M18 X 1.5mm spark plug adaptor
6. M12 X 1.25mm spark plug adaptor
7. M10 X 1.0mm spark plug adaptor
8. Storage box

Please visit **drapertools.com** for our full range of accessories and consumables.

TDC (Top Dead Centre) Setting

- Run the engine until it reaches operating temperature.
- Remove the spark plugs, oil dipstick, radiator cap and air filter from carburettor. If fuel injected remove air filter or hose from the throttle body.
- Position No.1 piston at **TDC** on the compression stroke so that both inlet and exhaust valves are closed. **Note**: always rotate the engine in the normal operating direction. To position the piston correctly use a piston position gauge and remove the ram/ rocker cover so that the closed valves can be confirmed.

Connecting The Tester

1. Fit the pressure connector end (1a) to the gauge controller (2).
2. Connect the tester to the air supply using the coupler (4). Ensure the pressure regulator (2c) is rotated to the fully closed position before connecting the air. The air pressure should be between 40 and 100psi on the pressure gauge (2a).
3. Calibrate the leakage gauge (2b)
   – by turning the regulator knob (2c) until the needle point to zero on the gauge (this will typically occur between 15 – 20psi).
4. Then connect the end of the cylinder hose (1b) to the appropriate spark plug adaptor (5, 6 or 7) and then insert into the spark plug hole. **DO NOT** connect the tester until the leakage gauge (2b) has been calibrated.

- **Note**: Any leakage present in the connected cylinder will show on the cylinder leakage gauge (2b) as a percentage (%) loss. A cylinder that is not leaking will give a reading of approximately 20% in the green zone.

5. Test all the other cylinders at **TDC** and compare the leakage figures to determine which ones are faulty. Retest the cylinder/s showing high leakage.
6. Check the listening points to determine the cause of the leakage using a clean length of hose or a mechanic's stethoscope with the probe removed.

Listening point locations	Leakage From
Oil Dipstick Tube	Damaged or worn rings and/or cylinder wall **Note**: there is always some leakage past the piston rings, so you will always hear some leakage from the dipstick tube.
Radiator Filler	Cylinder wall cracks or head gasket
Adjacent Cylinder	Head gasket
Tail Pipe	Exhaut valve
Carburettor Air Inlet	Inlet valve
Fuel Injector Throttle Body	Inlet valve

Notes:

- If 90 – 100% excessive leakage shows on gauge the cylinder may not be at **TDC** on the compression stroke. Check to ensure the valves are closed.
- If piston rings or cylinder walls are scored excessive leakage will be identified.
- Cylinder readings should be uniform and a difference more than 15% indicates excessive leakage.
- Large engines tend to leak more than small engines.
- If leakage is excessive on a low mileage vehicle the piston rings may be stuck.
- The lower the pitch of the leakage sound the greater the leak.
- When carrying out repeat tests on the same cylinder, variations in the piston position and engine temperature can cause the gauge reading to differ by up to 10%.
- If the engine has multiple faults the tester may only indicate the most serious one.

Maintenance, Storage and Disposal

- After use, clean and store in the storage case supplied in a cool, dry, childproof area.

At the end of its working life, dispose of the product responsibly and in line with local regulations. Recycle where possible.

Warranty

12months - Visit **drapertools.com/warranty** for full details.

Contact Details

Draper Tools

Draper Tools Limited
Hursley Road
Chandler's Ford
Eastleigh, Hampshire
SO53 1YF,
UK

Delta International

Delta International BV
Oude Graaf 8
6002 NL
Weert
Netherlands

Website: drapertools.com
Email: sales@drapertools.com
Product Helpline: +44 (0) 23 8049 4344
Telephone Sales Desk: +44 (0) 23 8049 4333
General Enquiries: +44 (0) 23 8026 6355

Please contact the Draper Tools Product Helpline for repair and servicing enquiries.

© Published by Draper Tools Limited