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> Lang Tools CLT-2 Cylinder Leakage Tester Instruction Manual

## Lang Tools CLT-2

# Lang Tools CLT-2 Cylinder Leakage Tester Instruction Manual

Model: CLT-2

## 1. INTRODUCTION

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The Lang Tools CLT-2 Cylinder Leakage Tester is a precision instrument designed to measure an engine cylinder's ability to hold compressed air. This tool is essential for diagnosing engine issues such as worn piston rings, burnt valves, or blown head gaskets by identifying the source and severity of air leakage. It complements a standard compression tester by providing more specific diagnostic information.

## 2. SAFETY INFORMATION

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Always observe the following safety precautions when using the Lang Tools CLT-2 Cylinder Leakage Tester:

- Wear appropriate personal protective equipment, including safety glasses, during operation.
- Ensure the engine is cool before performing any tests.
- Disconnect the battery to prevent accidental engine cranking.
- Use compressed air safely. Ensure air lines and connections are secure and rated for the pressure used.
- Never exceed the maximum recommended input air pressure for the tester (100 PSI).
- Keep hands and clothing clear of moving engine parts.
- Perform tests in a well-ventilated area.

## 3. PACKAGE CONTENTS

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Verify that all components are present and undamaged upon opening the package:

- Lang Tools CLT-2 Cylinder Leakage Tester unit with two 2-1/2" gauges and precision regulator.
- M14 standard reach adapter on a 26" hose assembly.
- M14 long reach solid adapter.
- Storage case.



Figure 3.1: The Lang Tools CLT-2 Cylinder Leakage Tester showing the main unit, hose, and adapters.



Figure 3.2: The CLT-2 Cylinder Leakage Tester neatly stored within its protective case.

## 4. PRODUCT OVERVIEW AND COMPONENTS

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The CLT-2 tester consists of a main body with two gauges, a precision regulator, and various adapters for connecting to engine cylinders.

# CYLINDER LEAKAGE TESTER WITH 2 GAUGES

## CLT-2



1. M68 gauge
2. M68 percentage gauge
3. Precision regulator
4. M14 long reach adapter
5. Reducer adapter
6. 26-inch hose with M14 adapter

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Figure 4.1: Key components of the CLT-2 Cylinder Leakage Tester. 1. Input Air Pressure Gauge (0-100 PSI/0-7 bar), 2. Cylinder Leakage Percentage Gauge (0-100%), 3. Precision Regulator, 4. M14 Long Reach Adapter, 5. Reducer Adapter, 6. 26-inch Hose with M14 Adapter.

# GAUGES



1. Easy to read large M68 (2-1/2") dial
2. Dual scale ranges from 0-100 PSI and 0-7 bar
3. Multicolored band for measuring low, moderate and high leakage, and a scale range from 0-100%
4. Durable protective rubber boot

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Figure 4.2: Detailed view of the gauges. The left gauge displays input air pressure (PSI and bar). The right gauge indicates cylinder leakage percentage with colored bands for low, moderate, and high leakage.

- **Input Air Pressure Gauge:** Displays the incoming shop air pressure, with a dual scale for PSI and bar.
- **Cylinder Leakage Percentage Gauge:** Shows the percentage of air leaking from the cylinder, with colored bands to indicate leakage levels (low, moderate, high).
- **Precision Regulator:** Allows adjustment of the input air pressure to the cylinder.
- **Hose Assembly with Adapters:** Connects the tester to the spark plug hole of the engine cylinder. Includes M14

standard and long reach adapters.

## 5. SETUP

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### 1. Prepare the Engine:

- Ensure the engine is cool.
- Remove all spark plugs from the engine.
- Disable the ignition system (e.g., disconnect coil packs or ignition module) and fuel system (e.g., pull fuel pump fuse) to prevent accidental starting.

### 2. Position the Piston:

- Rotate the crankshaft until the piston of the cylinder to be tested is at Top Dead Center (TDC) on its compression stroke. This ensures both intake and exhaust valves are closed.
- You can verify TDC compression by feeling for compression as you rotate the engine, or by observing valve movement.

### 3. Connect the Tester:

- Select the appropriate M14 adapter (standard or long reach) and thread it into the spark plug hole of the cylinder being tested.
- Connect the hose assembly from the tester to the adapter.
- Connect your shop air supply to the quick-connect fitting on the tester. Ensure your shop air supply is capable of providing at least 100 PSI.

## 6. OPERATING INSTRUCTIONS

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### 1. Set Input Pressure:

- With the shop air connected, slowly open the precision regulator on the tester until the left gauge (Input Air Pressure) reads 100 PSI (or the desired test pressure, typically 100 PSI for most applications).
- The right gauge (Cylinder Leakage Percentage) should now indicate the percentage of air leaking from the cylinder.

### 2. Observe Leakage:

- Note the reading on the Cylinder Leakage Percentage Gauge.
- Listen for the sound of escaping air to pinpoint the source of the leak:
  - **Intake Manifold/Throttle Body:** Leaking intake valve.
  - **Exhaust Pipe:** Leaking exhaust valve.
  - **Oil Filler Cap/Dipstick Tube:** Worn piston rings.
  - **Radiator/Coolant Reservoir:** Blown head gasket or cracked cylinder head/block.
  - **Adjacent Spark Plug Hole:** Blown head gasket between cylinders.

### 3. Repeat for Other Cylinders:

- Close the precision regulator and disconnect the tester from the cylinder.
- Rotate the crankshaft to bring the next cylinder to TDC compression and repeat the testing process.

# MEASURES ABILITY OF ENGINE CYLINDER TO HOLD COMPRESSED AIR USING SHOP AIR



Figure 6.1: The CLT-2 Cylinder Leakage Tester connected to an engine cylinder, demonstrating typical usage during a diagnostic procedure.

## 7. INTERPRETING READINGS

The Cylinder Leakage Percentage Gauge features a multicolored band to help interpret results:

- **Green Band (Low Leakage):** Typically indicates acceptable leakage for a healthy engine. Exact acceptable

percentages vary by manufacturer, but generally below 10-15% is considered good.

- **Yellow Band (Moderate Leakage):** Suggests a noticeable leak that may require attention. This could be an early sign of wear or a minor issue.
- **Red Band (High Leakage):** Indicates significant air loss, pointing to a serious internal engine problem that requires immediate diagnosis and repair.

Always compare readings across all cylinders. A significant difference between cylinders is often more indicative of a problem than a high reading on a single cylinder if all cylinders show similar high readings (which might suggest general engine wear).

## 8. MAINTENANCE

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- After each use, wipe the tester and its components clean with a soft, dry cloth.
- Store the tester and all adapters in its protective case to prevent damage.
- Inspect hoses and fittings regularly for signs of wear, cracks, or damage. Replace any damaged components immediately.
- Do not expose the gauges to extreme temperatures or harsh chemicals.

## 9. TROUBLESHOOTING

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Problem	Possible Cause	Solution
No pressure reading on input gauge.	No shop air supply, regulator closed, or faulty connection.	Ensure shop air is connected and active. Open the precision regulator. Check all air line connections.
Engine crankshaft rotates when air is applied.	Piston not at Top Dead Center (TDC) compression stroke.	Reposition the piston to TDC compression. Ensure the engine cannot rotate freely.
Inconsistent or fluctuating readings.	Loose connections, damaged hose, or unstable air supply.	Check all connections for tightness. Inspect the hose for damage. Ensure a stable shop air supply.
Air escaping from an unexpected location.	Incorrect diagnosis of leak source.	Re-evaluate the listening points. Ensure the correct cylinder is being tested and its piston is at TDC compression.

## 10. SPECIFICATIONS

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- **Model:** CLT-2
- **Brand:** Lang Tools
- **Input Pressure Gauge:** 2-1/2" diameter, 0-100 PSI / 0-7 bar dual scale
- **Leakage Percentage Gauge:** 2-1/2" diameter, 0-100% scale with multicolored bands (low, moderate, high)
- **Hose Length:** 26 inches
- **Adapters Included:** M14 standard reach, M14 long reach solid
- **Material:** Metal components, durable rubber boots for gauges
- **Item Weight:** Approximately 2.75 pounds (1.25 kg)
- **UPC:** 763279060020

## 11. WARRANTY AND SUPPORT

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For information regarding warranty coverage, technical support, or replacement parts for your Lang Tools CLT-2 Cylinder Leakage Tester, please contact Lang Tools directly through their official website or customer service channels. Keep your purchase receipt as proof of purchase.

