



STEM COMPRESSION TESTER P/N MV5525

Always read instructions carefully prior to use.

General Description

The **Mityvac** Stem Compression Tester measures how much pressure a cylinder of the engine will produce. The dial face of the tester gauge has three scales of measure, pounds per square inch (psi), bar and kilograms per centimeter squared (kg/cm²).

To test the compression level of a given cylinder, thread the Compression Test Hose Assembly into the spark plug hole of the cylinder to be tested.

The **Mityvac** Stem Compression Tester can perform two tests, the dry compression test and the wet compression test. The result of performing these tests will provide an indication of the condition of the piston rings, the cylinders, and valve-train.

Precautions & Diagnostic Notes:

WARNING: DO NOT use the ignition switch during the compression test on any fuel injected vehicles. Use of a remote starter switch to crank the engine is recommended. Fuel injectors on many late model vehicles are triggered by the ignition switch during the cranking mode, this could result in a fire hazard or contamination of the engines oil crankcase with fuel.

Always use eye protection when performing compression tests.

An engine in good operating condition will produce a certain amount of pressure in each cylinder. Normally, the cylinders should be within 10 percentage points of one another and within the manufacturer's specifications. The pressure should rise smoothly on each stroke of the engine, until it reaches a peak.

If the pressure reading fails to rise, or it remains the same for several strokes of the engine and begins to rise, the likely cause of the problem is a sticking valve.

If two adjacent cylinders show pressure readings of 20 or more pounds below the other cylinder readings, suspect a blown head gasket.

If a cylinder shows a pressure reading of 15 or more pounds higher than the other cylinders, the probable cause is carbon build-up inside the cylinder.

Dry Compression Test Procedures:

1. Refer to the appropriate service manual for the compression specifications specific to the engine you are testing.
2. Start engine and allow engine to run until it reaches normal operating temperature (usually about 15 minutes.) Turn engine OFF.
3. Install an auxiliary starter switch in the starting circuit.
4. Loosen all spark plugs approximately one turn. While wearing eye protection, use compressed air to carefully remove dirt and debris from the area around the spark plugs.
5. Remove spark plugs one at a time, marking the number of the cylinder they were removed from and place them on a clean flat surface. This will aid you in identifying problem cylinders, by allowing the comparison of spark plug appearance to the compression level of a given cylinder.
NOTE: When testing engines with two spark plugs per cylinder, it is only necessary to remove the spark plugs located on the exhaust side.
6. On vehicles with standard distributors, disconnect the coil wire (high tension lead) from the distributor cap and secure it to a suitable ground or disable the ignition by disconnecting the positive (BAT) terminal from the ignition coil.
7. On vehicles with a distributorless ignition, disable the ignition system by removing the electronic ignition (control) module fuse or disconnect the crank angle sensor.
NOTE: Refer to the appropriate service manual to determine which fuse or component to temporarily remove or disconnect.
8. Remove air cleaner from carburetor or throttle body and secure throttle linkage in wide-open throttle (WOT) position.
NOTE: NEVER place anything inside the throttle body; damage to the fuel injector(s) could result. On vehicles equipped with port fuel injection, remove throttle linkage covers (as necessary) and secure throttle linkage in the wide-open throttle (WOT) position.
9. Crank engine several times to ensure removal of any foreign matter that may have fallen into the cylinders during preparation for test.

10. Insert end of the universal rubber adapter into spark plug hole of the cylinder to be tested and hold firmly in position.
11. Connect test hose to gauge assembly (using Quick-Disconnect Coupler.)
12. Crank the engine at least five compression strokes or until the pressure reading stops increasing on gauge.
13. Read the pressure level in the gauge and record reading along with the cylinder number being tested. Example: #1-150 psi, #2-145 psi, etc.
14. Repeat this test on each cylinder. If any of the cylinder readings are found to be low or uneven, perform wet compression test.
15. When compression test is complete, return the spark plugs to their respective cylinders, the throttle and ignition components to their normal positions.

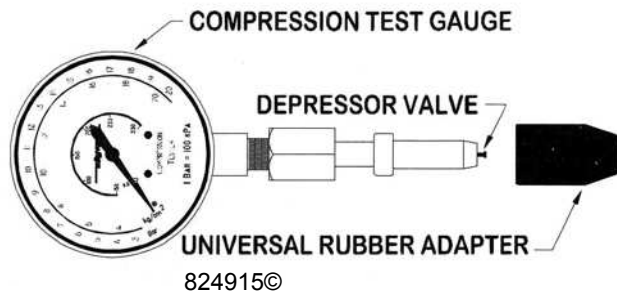
Wet Compression Test Procedure

CAUTION: DO NOT perform the wet compression test on any diesel engine. The higher compression in a diesel engine may cause engine damage or injury to the technician.

The wet compression is a way to remove the influence of the piston rings, pistons and cylinders from the compression test. After completing the dry compression test, squirt approximately one teaspoon of engine oil into the spark plug holes and crank engine several times to seal piston rings. Repeat the above listed steps of the dry compression test.

NOTE: If the readings during the wet compression test are greater, then air is leaking around worn or damaged piston rings. If the reading is approximately the same for both wet and dry tests then the valves, valve lifters or the camshaft lobes are worn. Any low reading of cylinder compression indicates worn or damaged parts.

Product Diagrams & Contents



CAUTION!
TO AVOID PERSONAL INJURY AND/OR VEHICLE DAMAGE:
While some precautions are specified in this manual, and should be noted to avoid personal injury or vehicle damage, it is not possible for these cautions to cover all conceivable ways in which service or testing might be done, or all possible hazardous consequences of each way, nor could Lincoln possibly know or investigate all such ways. It is therefore the responsibility of anyone using this manual or any other Mityvac product, to satisfy him or herself completely that neither personal safety nor vehicle safety will be jeopardized by the service methods selected. Any such injury or damage is entirely the user's responsibility. This device is not to be used in any manner on the human body.