

In this example, the highest compression reading is 140 psi. The lowest allowable reading would be 105 psi (140 psi X 0.75). The lowest reading (115 psi) is within the allowable range.

## DIAGNOSIS

1. On a normal cylinder, compression should increase quickly and uniformly during each compression stroke of the engine until a top (or peak) reading is reached.
2. If compression is low on the first stroke, builds up on following strokes, but does not reach normal value, the piston rings may be worn or leaking.
3. If compression is low on the first stroke and does not increase on following strokes, leaking valves may be at fault.
4. If the compression value is higher than the manufacturer's specifications, carbon build-up may be present in the cylinder or on the piston.
5. If compression readings on two adjacent cylinders are 20 pounds (or more) lower than the other cylinders, the cylinder head gasket may be defective.
6. Recheck cylinders with low compression readings by injecting approximately one tablespoon of medium-grade oil into each cylinder (through the spark plug hole) and retesting. If compression readings increase, worn, broken, or poorly seated piston rings are indicated. If compression readings remain the same, leaking or damaged valves may be at fault.
7. Before re-installation of spark plugs, clean and re-gap all plugs. Reinstall spark plugs. Reconnect plug wires, paying close attention to the cylinders from which they were removed. Crossing spark plug wires will result in rough running, misfiring, poor gas mileage, and may cause damage to the catalytic converter or the engine.
8. Be sure to return the throttle plate to it's original position, and reconnect the coil wire or reconnect the ignition system primary connection.

**NOTE:** Periodically examine the valve core at the 14MM/18MM hose end for tightness using a standard valve core tightening tool.

## WARRANTY AND SERVICE

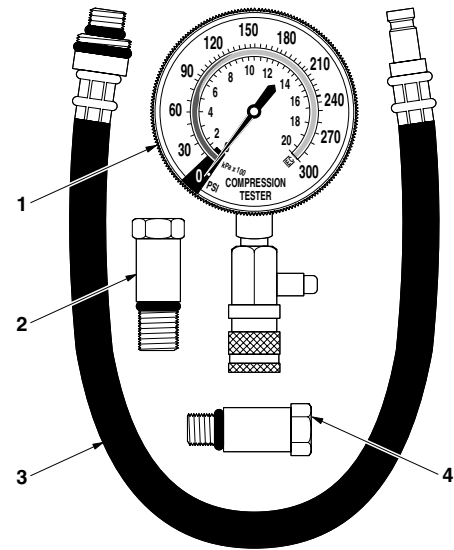
The Manufacturer warrants to the original purchaser that this unit is free of defects in materials and workmanship under normal use and maintenance for a period of one (1) year from the date of original purchase. If the unit fails within the one (1) year period, it will be repaired or replaced, at the Manufacturer's option, at no charge, when returned prepaid to the Service Center with Proof of Purchase. Installation labor is not covered under this warranty. The sales receipt may be used for this purpose. This warranty does not apply to damage caused by improper installation, accident, abuse, improper voltage, fire, flood, lightning, or other acts of God, or if the product was altered or repaired by anyone other than the Manufacturer's Service Center. The Manufacturer, under no circumstances shall be liable for any consequential damages for breach of any written warranty of this unit. This warranty gives you specific legal rights, and you may also have rights which vary from state to state. **THIS WARRANTY IS NOT TRANSFERABLE.** For service, send (prepaid) via U.P.S. (if possible) to manufacturer. Allow 3-4 weeks service time. If you have any questions, please contact your local store, distributor or the Manufacturer's Service Center. USA & Canada: (800) 544-4124; All others: (714) 241-6802 (6am - 6pm, 7 days a week PST); FAX: (714) 432-3979 (24 hr.)

Technical Service Center  
17352 Von Karman Ave.  
Irvine, CA 92614

# OPERATING INSTRUCTIONS COMPRESSION TESTER

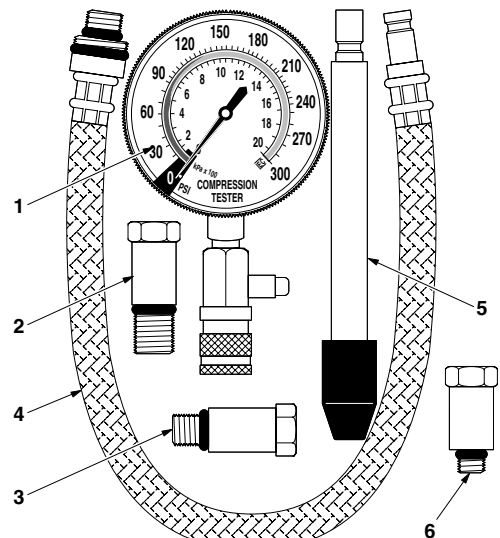
KIT #3612 AND KIT #3614

## KIT #3612 — COMPONENTS



ITEM	DESCRIPTION
1	Compression Gauge
2	14 mm Adapter
3	Spark Plug Hose Assembly (Rubber)
4	12 mm Adapter

## KIT #3614 — COMPONENTS



ITEM	DESCRIPTION
1	Compression Gauge
2	14 mm Adapter
3	12 mm Adapter
4	Spark Plug Hose Assembly (Braided Stainless Steel)
5	Direct Shaft
6	10 mm Adapter

## ABOUT THIS TOOL

The compression tester is a diagnostic tool which can help you identify worn or damaged pistons, rings, valves and gaskets. A compression check consists of measuring pressure at each cylinder at cranking speed. **ALWAYS** perform a compression check as part of the tune-up procedure.

## SAFETY TIPS

1. Always wear safety eye protection.
2. Put transmission in "park" (for automatic) or "neutral" (for manual). Set parking brake and block drive wheels.
3. Be sure to disable the ignition system to prevent the car from starting (see TEST PROCEDURES, step 4).
4. This compression tester is designed for use on spark-ignited gasoline engines which do not exceed 250 psi. Use of this tool for any other purpose may result in personal injury, damage to the tool, or damage to your vehicle.

## BEFORE TESTING

To ensure that compression readings are accurate, perform the following pre-test procedures.

1. Make sure the vehicle battery is fully charged, and the starter system is in good condition.
2. Warm up the engine until normal operating temperature is reached.
3. Be sure to remove **ALL** spark plugs before performing the compression test.
4. On carbureted models, open choke plate to allow air flow through the carburetor during testing (see TEST PROCEDURES, step 3).

## TEST PROCEDURES

**CAUTION:** Engine parts and surrounding areas will be hot.

1. Stop engine. Carefully disconnect all spark plug wires from spark plugs. Number spark plug wires to aid in proper reinstallation.

**NOTE:** To prevent damage to spark plug wires, be sure to disconnect wires by first twisting then pulling on the wire's boot and not on the wire itself.

2. Remove all spark plugs and place in order corresponding to the cylinders from which they were removed. (This procedure is used to associate cylinder or compression problems by inspecting the condition of a malfunctioning cylinder's spark plug.)

**NOTE:** To prevent thread damage on vehicles with aluminum heads, wait approximately ten minutes before removing spark plugs.

3. Locate the intake throttle plate (or carburetor throttle plate). Secure the plate wide open for testing.

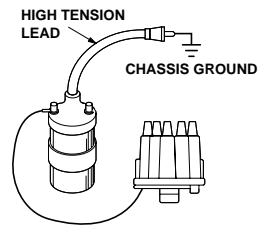
**NOTE:** You may also have an assistant help you by holding the accelerator pedal down.

**CAUTION:** Be sure to return the throttle plate to its original (closed) position after testing or before starting vehicle. Failure to comply can result in serious engine damage.

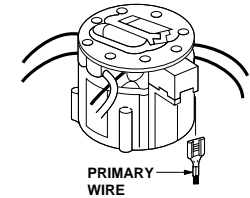
4. Disable the ignition system:

**NOTE:** These are typical ignition systems. Refer to your vehicle's service manual for additional information on your vehicles ignition system and how to safely disable it.

**For electronic or conventional breaker point ignition systems:** Remove the high tension (coil) wire from the distributor cap and connect to a known good ground to avoid spark discharge, or disconnect coil primary connector.



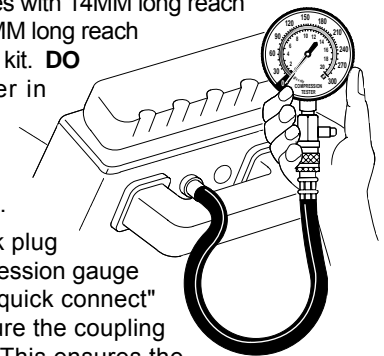
**For General Motors HEI systems:** Disconnect the primary (or battery) connection from the distributor cap and wrap with tape to avoid accidental grounding.



5. Disconnect the spark plug hose from the compression gauge. Screw the plug end of the hose into the spark plug hole. **HAND TIGHTEN ONLY.**

**NOTE:** On engines with 14MM long reach plugs, use the 14 MM long reach adapter included in kit. **DO**

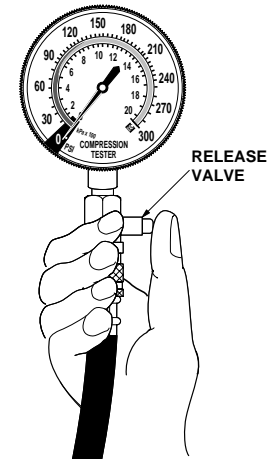
**NOT** use adapter in short reach holes – it may hit the top of the piston and damage the engine.



6. Connect the spark plug hose to the compression gauge by means of the "quick connect" coupling. Make sure the coupling snaps into place. This ensures the hose is "locked" into the gauge.
7. Crank the engine for at least five compression strokes.

**NOTE:** Engine should be cranked the same number of strokes for each cylinder.

8. Record the reading from the compression gauge for reference. Press the side release valve to release pressure from the gauge. Disconnect the spark plug hose from the compression gauge. Connect the hose to the next cylinder, and repeat steps 5 through 8 (repeat for each cylinder to be tested).



## READING TEST RESULTS

The compression check identifies variations in compression between cylinders. Compression is considered normal if the lowest compression reading is at least 75% of the highest reading, as shown in the following example:

Cylinder	Cyl 1	Cyl 2	Cyl 3	Cyl 4	Cyl 5	Cyl 6
Reading (psi)	130	125	140	125	130	115

In the above example, the highest compression reading is 140 psi. The lowest acceptable compression reading will be 105 psi (140 psi X 0.75). The lowest actual reading is 115 psi, so compression is within the acceptable range.