

A condition that causes all four cylinders supplied by either side of the carburetor to misfire may be traced to leaking intake manifold gaskets, a cracked manifold, a stuck or burned intake valve in any one of the four cylinders, or plugged nozzles or passages in that side of the carburetor. Tests for these conditions should be made in the sequence given above. A one, two or three cylinder miss is never caused by the carburetor.

There are a great many conditions indicated by a vacuum gauge. Most instrument manufacturers print as many symptoms on the gauge dial as space will permit (fig. 2). The sixteen conditions shown in this illustration were made up by the manufacturer of a popular make of equipment. Study and refer to these conditions, as they cover the possible situations quite thoroughly.

### Compression Test

After the correct mixture of gas is drawn into the cylinders, the engine must be capable of compressing it enough so that its burning will deliver maximum power to the pistons.

A compression test should always be made to determine the ability of the pistons to compress the gas after it is drawn into the cylinders.

Run engine until it is at operating temperature. Remove all the spark plugs to relieve strain on starter and battery. Open throttle to wide open position to relieve the vacuum and permit a full supply of air to enter manifolds. Either screw the compression gauge in one of the spark plug holes or, if it has a tapered rubber end, hold it securely in the spark plug hole. Crank the engine with the starter from four to eight revolutions.

Cadillac V-8 engines should have a pressure of 100 to 105 lbs. at cranking speed and cylinders should be equal within 5%. A good cylinder can be determined by the first movement of the gauge. If the gauge hand reads approximately 60 pounds on the first compression stroke, the valves and rings are in good condition and 3 or 4 more revolutions should show 100 lbs. pressure.

When the gauge reads 20 to 40 lbs. on the first stroke and takes 3 or 4 more revolutions to build up pressure than do the other cylinders, this usually indicates sticking valves or worn or stuck piston rings. When the above condition exists, squirt a small amount of heavy cylinder oil in the spark plug hole and make another test. If compression comes up nearly equal to other cylinders, the trouble is undoubtedly rings. If it does not come up, then the trouble is valves. Free up valves and test again.