

This test may well be carried out after a power balance test has indicated a low reading on one or more cylinders. The test information should be obtained from manufacturer's data. This will be quoted as the expected pressure, taking into account a time period of cranking and the engine revs at which it should be achieved.

If no figures are available then a rough guide might be used;

$(\text{Compression ratio} * 15) + 25$ will give an expected figure in lbf/in²

$(\text{Compression ratio} * 1) + 1.5$ will give an expected figure in bars

Typical Procedure – dry test.

1. Test battery and operation of the starter motor if such are fitted.
2. Run engine until it achieves normal running temperature.
3. Clean area of spark plugs to prevent dirt ingress into cylinders. Identify spark plug leads before you remove ALL spark plugs. Earth all of the plug leads and/or isolate ignition power source.
4. Hold or lock throttle and air slide/piston fully open. Some manufacturers require carburettors to be removed completely from the engine on certain models.
5. Fit gauge to cylinder.
6. Crank the engine over 4 or 5 compressions. Note how quickly the pressure rises.
7. Record the result.
8. Repeat the test on the remaining cylinders. Compare readings for commonality.

Wet or Oil Test.

This is carried out on cylinders showing an abnormally low reading. Injecting oil into the cylinder helps seal the piston rings in the piston and bore for a short period.

1. Inject some 'light' engine oil into the cylinder (usually just 1 shot from an oil can).
2. Note the new results.
3. Place a clean cloth above the spark plug hole and rotate the engine to expel any excess of oil left in the chamber.

Note that the engine will 'smoke' on start up after this test so it is essential to fit an exhaust gas extractor before running the engine. Sometimes the spark plug will foul on start up, be prepared to substitute a spark plug.

Readings;	Possible Typical condition:
All readings low;	General wear expected for high mileage engine. Air intake/filter blocked. Test carried out incorrectly. Faulty equipment. Discharged battery/starter system fault.
All readings within 15% of specification and with a variation of less than 10% between cylinders;	Normal.

Compression low on one or more non adjacent cylinders;	Leaking valves – incorrect clearances Leaking valves – worn or damaged seats or faces. Head gasket failure.
Compression low on one or more non adjacent cylinders but improves to near normal with addition of oil;	Piston / bore / ring wear.
Compression low on one or more non adjacent cylinders and does not improve to near normal with addition of oil;	Pistons, bore, or ring excessive wear or physical damage. Head gasket failure.
Results higher than expected;	Heavy build up of carbon deposits. Incorrect head gasket fitted. Engine may have been tuned. Blocked exhaust system.

Sample result with specification of 160 p.s.i.

Cyl. No.	1	2	3	4	5	6
Dry Test	155	120	120	110	110	175
Wet Test	165	125	125	155	115	185

Cylinder no.	Comment;
1	Cylinder in good condition.
2	Suspected head gasket failure between no. 2 & no. 3 cylinders.
3	Suspected head gasket failure between no. 2 & no. 3 cylinders.
4	Suspected cylinder bore/piston/ring wear or damage.
5	Suspected worn valve.
6	Suspected excessive carbon deposits.