

## Engine compression testing

I was always taught to do an engine compression test three ways.

The *actual* pressure is not critical – a modern engine should be around 150lbs psi +/- ; an older engine maybe 100lbs psi. You are looking for *relative*, not actual values.

The length of the gauge hose makes little difference – it is the same for all cylinders – it is the *difference* between cylinders that is important. (Same techniques work on any number of cylinders).

Preparation: Notepad & pen & hi-lighter, pump can of engine oil, very well-charged battery, compression tester.

For all 3 tests

Remove *all* the spark plugs

Disconnect the ignition coil pack, remove the fuel pump fuse, ignition on – it's a drive-by-wire throttle - put a brick on the gas pedal for wide-open-throttle, don't open it from under the hood.

**Test 1** – engine cold – install tester to #1 cylinder – throttle wide open – crank until pressure gauge reaches it's highest reading, usually 4 or 5 cranks – record the result – reset the gauge - repeat after a few moments if you wish

Move tester to #2 cylinder & repeat test 1 for remaining cylinders.

**Test 2** – engine cold – inject a 'tea-spoon-full' of oil into all cylinders – put a rag over the plug holes - repeat test 1 on all 4 cylinders.

Then – re-install plugs, coil & fuel – remove the brick! - start & drive ( there will be smoke!) until engine is *fully* warm – at least 4 or 5 miles – this will blow the oil out

**Test 3** – repeat test 1 on all four cylinders on the warm engine.

You will now have 12 (or 24) readings

*Within* each test, all pressures should be within about 10% of each other – highlight any *major* differences

If *two adjacent* cylinders are low compared to the others = head gasket failure

If test 2 is generally higher than test 1 = worn rings

If *one* cylinder is low compared to others = ring or valve or head gasket failure

– if test 2 for that cylinder is higher than test 1 = ring failure

- if test 2 is the same = valve failure (or possible, rare, head gasket failure – leak-down test needed).

Cylinder >>	#1	#2	#3	#4
Test 1 - cold				
Test 2 – cold + oil				
Test 3 - warm				