Lab - Leak Down Test

Students: 1. _____ Date: _____
2._____ Block:_____
3._____

Fill in each box with the appropriate information.

VEHICLE IDENTIFICATION			
Year:		Make:	
Model:		Colour:	

SYSTEM INVESTIGATION

1 The Leak Down Test will reveal specific information about the condition of the engine that a Compression Test cannot show.

In order for this test to provide accurate results, the engine should be up to operating temperature. The engine will begin cool down, so you must work quickly.

PREPARATION

2

- ☐ **Check service manual for the correct specifications regarding your vehicle**
- ☐ Engine must be up to proper operating temperature.
- ☐ Clean the areas around the spark plugs with compressed air
- ☐ Remove the Spark Plug Wires by the Boot - NOT by the wire!
- ☐ Use the correct special spark plug socket to remove the plugs

Debris around the spark plugs can fall into the engine when the plug is removed, which could damage your engine!

Label the plug wires to prevent mixing them up

Keep the spark plugs in order! "Reading" the spark plugs can help find or locate potential engine problems!

Do not drop spark plugs! They are made with fragile ceramic insulators - a cracked insulator ruins the spark plug

- ☐ Ensure radiator is FULL
- ☐ Block the throttle valve to WIDE OPEN
- ☐ Determine FIRING ORDER of the engine and record below (circles are cylinders):

Pulley End ○○○○○○○○

- ☐ Fully thread the Air Adapter by hand into the spark plug hole
- ☐ Rotate the engine to TOP DEAD CENTER of COMPRESSION of #1 (Tip: feel the pressure of compression with your thumb over the spark plug hole, then remove distributer cap and ensure rotor is pointing at #1)

STOP! INSTRUCTOR'S INITIALS: ☐

PROCEDURE

3

☐ Connect tester to shop air, zero the gauge

☐ Connect Air Adapter to tester

☐ Record leakage in percentage

☐ Analyse results below before continuing to the next cylinder

ANALYSIS

4 Test each cylinder individually. With the aid of a stethoscope or a screwdriver handle held to your ear, listen for air or look for results of air leakage at the following points. Indicate (✔) where leakage occurs. Rotate engine to the NEXT firing cylinder and test.

Cyl	Leakage (%)	Intake	Oil Filler	Tail Pipe	Rad	Other Cylinder
1	_____	_____	_____	_____	_____	_____
2	_____	_____	_____	_____	_____	_____
3	_____	_____	_____	_____	_____	_____
4	_____	_____	_____	_____	_____	_____
5	_____	_____	_____	_____	_____	_____
6	_____	_____	_____	_____	_____	_____
7	_____	_____	_____	_____	_____	_____
8	_____	_____	_____	_____	_____	_____

RESULTS

★ Leakage should be ideally less than 20%

★ Air escaping through intake: Leaky intake valve
★ Air escaping through exhaust: Leaky exhaust valve
★ Air escaping through oil filler cap: Worn rings or cylinder
★ Air escaping through another cylinder: Blown head gasket, cracked head, block
★ Air escaping through radiator: Blown head gasket, cracked head or block

5 Based on your results, what are the likely problems of this motor?

STOP! INSTRUCTOR'S INITIALS: