



## ENGINE COMPRESSION TEST KIT CT3620



**IMPORTANT: PLEASE READ THE INSTRUCTIONS BEFORE USE. NOTE THE SAFE OPERATIONAL REQUIREMENTS, WARNINGS & CAUTIONS. USE THE PRODUCT CORRECTLY AND WITH CARE FOR THE PURPOSE FOR WHICH IT IS INTENDED. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY.**

### INTRODUCTION

This engine compression and cylinder leakage test kit is a valuable tool for diagnosis of engines, it can test the cylinder compression levels and leakage percentage on Both Petrol & Diesel Vehicles. It covers a wide range of modern engines including HDi, TDCi, and Pumpe Duse(PD), older diesel and most petrol engines, an ideal tool for cars, motorcycles, trucks, buses, agricultural and marine engines.

### SAFETY

- Do not touch and do tests on hot engines !
- Check all connections for leaks before and after testing.
- Remove the ignition key at assembly to avoid accidental starting.

- Diesel injection systems can build a very high pressure, never loosen the fuel lines, which are under pressure. Risk of injury !
- Do not smoke or cause sparks or flames within the vicinity.
- Keep a fire extinguisher to hand.

## INSTRUCTIONS

### Petrol Engine Test:

1. Start the engine for about 15 minutes until it reaches normal temperature.
2. Turn off the engine.
3. Disconnect the power to the ignition coils. The separation of the ignition cable alone can lead to damage of the modern ignition systems.
4. Remove all the spark plugs from the cylinder head, put these in the order in which they were developed. This can be helpful for further diagnosis.
5. Clean the spark plug threads with e.g. Compressed air.
6. Screw the appropriate adapter or the hose directly into the spark plug threads. Tighten the hose and adapter by hand only. Do not use tools!
7. Now start the engine for at least 4 seconds, and give full throttle until the pressure on testers no longer rises.
8. Note the maximum value and repeat the test on all remaining cylinders (step 5 to 8).

### Diesel Engine Test:

1. Start the engine for about 15 minutes until it reaches normal temperature.
2. Turn off the engine.
3. Disconnect the power supply of the injectors and remove if necessary, all injectors or glow plugs (the details of the test method can be found in the vehicle-specific service literature).
4. Install the appropriate adapter and the gauge in the injectors or glow plug chambers.



**WARNING:** When testing by the glow plug chambers it is absolutely necessary to disconnect the fuel supply. It should not be injected diesel fuel. Otherwise there is a danger that the engine starts and it will cause injury and damage to the tester.

5. Now start the engine for at least 4 seconds until the pressure on testers no longer rises.
6. Note the maximum value and repeat the test on all remaining cylinders (step 3 to 6).

## Test Result of Petrol and Diesel engine

- At intact cylinders the pressure increases directly on start up to a peak value.
- Check all cylinders by manufacturer's instruction, the difference between them may be up to 10%.
- When a cylinder has no pressure and the spark plugs have traces of oil, the piston should be checked for damage. At high combustion temperatures, e.g. by uncontrolled combustion (coal oil on the spark plug) can cause damage to the piston (pitting) lead.
- If the value is less on two adjacent cylinders than the value of the other cylinders, there is a defective cylinder head gasket in the transition zone between the two cylinders. This is also true if there is water and / or oil at the spark plugs.
- If one cylinder has a lower pressure as indicated by the manufacturer, give a little engine oil into the cylinder and run the compression test again. If the pressure rises sharply, the piston rings are worn. If the pressure remains the same low level, the defect is a leaky valve or a defective camshaft.
- If the pressure indicated on all cylinders less than that stated by the manufacturer, the motor

has age-related wear and for diagnose the engine must be disassembled and measured.

- Install all the spark plugs and cables in the correct order.

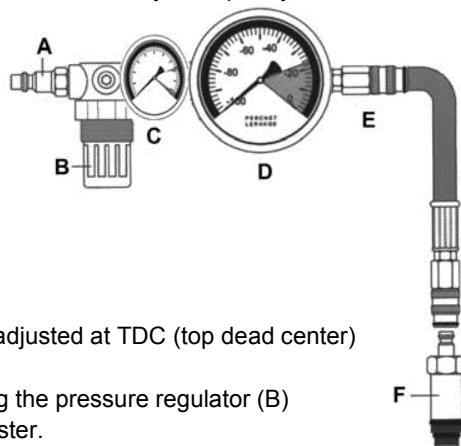
## Cylinder Leakage Tester

The leakage tester serves for the diagnostics of engine defects, e.g. of the inlet/ exhaust valves, the pistons/piston rings and the cylinder head/cylinder head gaskets.

The leakage tester detects and localizes engine defects accurately and quickly.

### CONSTRUCTION

- A Compressed air connection
- B Pressure regulator
- C Gauge
- D Leakage test gauge
- E Connector for adapter
- F Adapter for injectors, spark plugs or glow plug



1. Warm up engine, apply vehicle's hand brake
2. The piston of the cylinder in question has to be adjusted at TDC (top dead center)
3. Dismantle spark plug/injection nozzle
4. **IMPORTANT:** Before go to the next step, turning the pressure regulator (B) completely to the left. Failure can damage to the tester.
5. Connect tester to compressed air outlet (A).
6. The input pressure of the compressed air must be between 6 & 12 bar.
7. Turn pressure regulator (B) until the instrument's pointer has reached 0%
8. Fix pressure regulator (B); (press down; initial pressure has to be the same for all cylinder)
9. Screw testing adapter (C) into the engine's spark plug thread
10. Connect testing adapter (C) to tester (outlet)
11. Read pressure loss;

-Pointer exceeds 23% - the engine is defect.

-Pointer remains within the green area (0-23%) pressure loss is acceptable.

The leak can be spotted by listening to the noise of the escaping air or by feeling the air stream:

#### Location of places of noise:

- intake manifold
- exhaust manifold
- oil filler neck
- cooling liquid filler neck

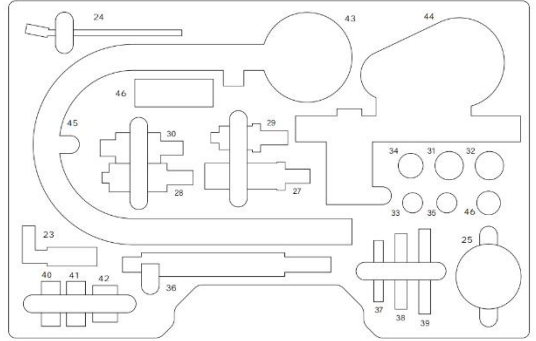
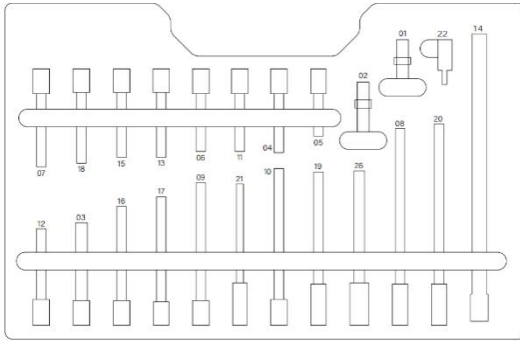
#### Defecting

- inlet valve defect
- exhaust valve defect
- piston/piston ring defect
- cylinder head gasket defect

**CAUTION : Risk of burning on warmed-up engines – do not touch any of hot parts.**

- Differences between the individual cylinder up to two graduation lines (= 4% pressure loss) are acceptable.
- The leakage on engines which have run less than 5000 kilometers may be higher, because the cylinder, the piston and the piston rings have not yet reached their full smoothness.
- Necessary testing pressure: 6 to 12 bar

# Parts List



Part No.	Description	Thread Length	Lower Shaft Length	Lower Shaft Ext. Length
1	Glow Plug Adapter M12 x 1.25	12mm	8mm	-
2	Glow Plug Adapter M10 x 1.25	12mm	8mm	-
3	Glow Plug Adapter M12 x 1.25	11mm	41mm	-
4	Glow Plug Adapter M10 x 1.25	22.5mm	23.5mm	-
5	Glow Plug Adapter M10 x 1.25	18.5mm	10.5mm	-
6	Glow Plug Adapter M10 x 1.25	28mm	16mm	-
7	Glow Plug Adapter M10 x 1.25	23mm	9.5mm	-
8	Glow Plug Adapter M10 x 1.25	28mm	55mm	3mm
9	Glow Plug Adapter M10 x 1.25	26mm	59mm	-
10	Glow Plug Adapter M10 x 1.25	29mm	73mm	-
11	Glow Plug Adapter M10 x 1.25	15mm	27mm	-
12	Glow Plug Adapter M10 x 1.00	12mm	23mm	-
13	Glow Plug Adapter M10 x 1.00	12mm	31mm	-
14	Glow Plug Adapter M10 x 1.00	12mm	14mm	-
15	Glow Plug Adapter M10 x 1.00	10mm	59mm	-
16	Glow Plug Adapter M10 x 1.00	12mm	47mm	-
17	Glow Plug Adapter M10 x 1.00	12mm	42mm	-
18	Glow Plug Adapter M10 x 1.00	10mm	64mm	5mm
19	Glow Plug Adapter M10 x 1.00	12mm	57mm	5mm
20	Glow Plug Adapter M8 x 1.00	12mm	52mm	-
21	Glow Plug Adapter (No Thread)	No Thread	59mm	-
22	Spark Plug Adapter M14 x 1.25	Hose Length: 250mm		
40	Spark Plug Adapter M10 x 1.00	-	-	-
41	Spark Plug Adapter M12 x 1.25	-	-	-
42	Spark Plug Adapter M18 x 1.50	-	-	-
23	38mm Adaptor with Knurled Grip	-	-	-

24	63mm Right Angle Adaptor	-	-	-
25	Double Offset Ring Spanner 11/12mm	-	-	-
26	Teflon Tape	-	-	-
27	Glow Plug Adapter M22 x 1.50	25mm	7mm	-
28	Glow Plug Adapter M24 x 1.50	14mm	6mm	-
29	Glow Plug Adapter M20 x 1.50	14mm	7mm	-
30	Glow Plug Adapter M24 x 2.0	11mm	12.5mm	-

<b>Part No.</b>	<b>Description</b>	<b>Length</b>	<b>Diameter (mm)</b>	<b>Quantity</b>
31	Clamp-On Adaptor 1	41mm	23.7x19	1pc
32	Clamp-On Adaptor 2	38mm	23.7x19	1pc
33	Clamp-On Adaptor 3	29.8mm	17x14	1pc
34	Clamp-On Adaptor 4	42mm	20x17	1pc
35	Clamp-On Adaptor 5	34.3mm	17x13.9	1pc
36	Universal Adaptor Body	175mm	13x11	1pc
37	Small Adaptor Bracket	-	-	1pc
38	Medium Adaptor Bracket	-	-	1pc
39	Large Adaptor Bracket	-	-	1pc
43	Padded Compression Gauge	70mm Dia, 0-50 BAR/0-700 PSI with 520mm Hose & Quick Fit Coupler		
44	Padded Twin Gauge Leak Tester	70mm Dia Leak Percentage Gauge, 0-7BAR; 40mm Dia Compression Gauge, 0-7BAR/0-100PSI.		
45	Extension Rubber Hose	460mm with Quick Fit Coupler		
46	Accessory Kit	Gasket, O-Ring, Valve Core, Round Sleeve		