

Pro**Meister**



User Guide

Petrol & Diesel Engine Compression and Leakage Tester

Art. Nr: PT5372

RVNR-01

Safety



WARNING! Ensure Health and Safety, local authority and general workshop practice regulations are adhered to when using tools.

- DO NOT use tools if threads are damaged. Any defectives must be rectified before use, to avoid incorrect readings.
- Maintain tools in a good, clean condition for the best and safest performance.
- Ensure that a vehicle that has been jacked up, is adequately supported with axle stands.
- Wear approved eyes protection. A full range of personal safety equipment.
- Wear suitable clothing to avoid snagging. DO NOT wear jewellery and tie back long hair.
- Ensure any disconnected fuel pipes are plugged to avoid spillage.
- Ensure that the correct connector is used for the engine being tested.
- Always release the pressure from the gauge, before disconnecting the quick release coupling.
- Account for all tools parts being used and DO NOT leave them in or near the engine.
- Always refer to the vehicle manufacturer's service instructions, or a proprietary manual, to establish the current procedure and data.

Introduction

Up-to-date kit for compression testing on diesel vehicles. Contains 17 of the most common dummy glow plugs, covering 29 glow plug types, 33 manufactures and over 500 model / engine variants from 1999 to 2015. Also includes a set of injector adaptors if an alternative method of testing is required.

Specifications

Glow Plug Adaptors:

Alfa Romeo, Audi, BMW, Cadillac, Chrysler, Citroen, Dacia, Dodge, Fiat, Ford, Honda, Jaguar, Jeep, Lancia, Land Rover, Mazda, Mercedes, MG, Mini, Mitsubishi, Nissan, Peugeot, Porsche, Renault, Rover, Saab, Skoda, Suzuki, Toyota, Vauxhall / Opel, Volvo, VW

Gauge Pressure Range 0-70 bar (0-1000 psi)

Instructions

1. Overview of Compression Testing

When an engine's performance is down, or if misfiring occurs which cannot be attributed to the fuel systems, a compression test can provide diagnostic clues as to the engine's condition.

Compression should build up quickly in healthy engine. A very low compression reading on the first stroke, followed by gradually increasing pressure on successive strokes, indicates worn piston rings. A low compression reading on the first stroke, which does not build up during successive strokes, indicates leaking valves or a faulty head gasket (a cracked head could also be the cause). Deposits on the undersides of the valve heads can also cause low compression. If the pressure in any cylinder is considerably lower than the others, introduce a small quantity of clean oil into that cylinder through the access hole, and repeat the test. If the addition of oil temporarily improves the compression pressure, this indicates that bore or piston wear is responsible for the pressure loss. If there is no improvement, it suggests that the leakage is around the valves, or a faulty head gasket. A low reading from two adjacent cylinders suggests a faulty head gasket between the two cylinders. The presence of coolant in the engine oil may confirm this. If the compression is unusually high, the combustion chambers are probably coated with carbon deposits. If this is the case, the cylinder head should be removed and de-carbonised.

Instructions

2. Compression Testing

- Check the engine oil is at the correct level.
- Remove all of the glow plugs from the engine.
- Select the applicable adaptor from the kit and screw it into the first glow plug port, ensuring there is a good seal with the O-ring (if fitted). Connect the coupling on the pressure gauge hose to the adaptor, ensuring it locks into place.
- Turn over the engine using the starter motor and observe the gauge, looking for a steady increase in the reading and note the maximum reading obtained. Refer to the vehicle / engine manufacturer's workshop manual for compression data.
- Push the Re-set Valve (situated under the gauge) to release the pressure. The Re-set Valve allows the test to be repeated if required without disconnecting the tester from the glow plug port.

WARNING! Always release pressure via the re-set valve before disconnecting the tester.

- Disconnect the compression tester from the adaptor and remove the adaptor from the glow plug port. Install them into the next cylinder's glow plug port and repeat the tests. Continue the tests for all of the remaining cylinders in turn.

NOTE: A variation in compression readings between cylinders is often a better indication of engine problems than individual values of compression.

3. Cylinder Leakage Testing

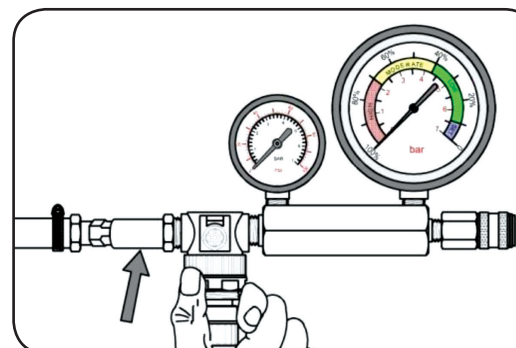
- Cylinder Leakage testing provides a more diagnostic approach to determining compression or cylinder/head problem areas than normal compression test routines. In operation, air is introduced to the regulator at a constant and pre-set rate. It is then introduced to each cylinder in turn and the rate that air is lost from the cylinder is registered as a percentage. Higher percentage loss indicates more serious faults. Additionally, the point at which the air escapes from the system provides an indication as to the problem area - see 'Fault Location' below.

Fault location - listen for air loss in the following:

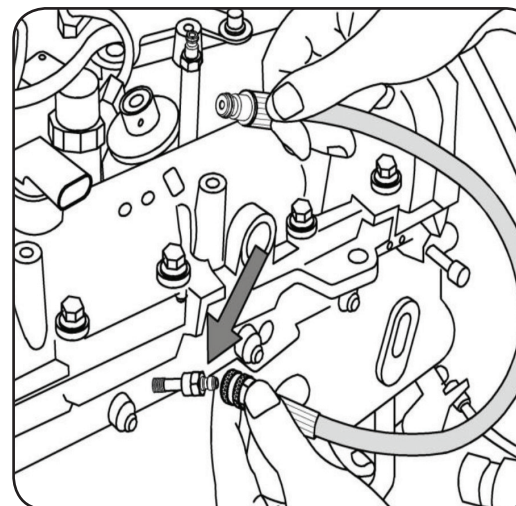
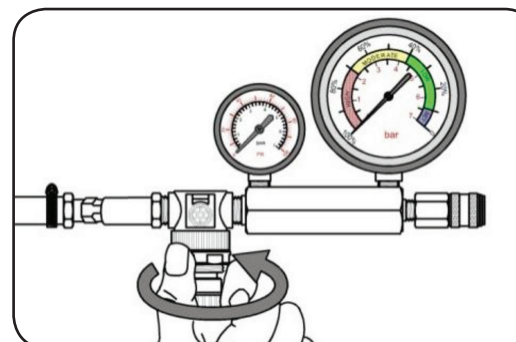
Detection Point	Potential Cause of Leakage
Oil dipstick tube	Bad rings / Damaged cylinder bore
Coolant filler	Cylinder wall cracks
Adjacent port	Head gasket leakage
Exhaust pipe	Exhaust valve leakage
Fuel injection throttle body	Inlet valve / Seat damage
Carburettor / Air intake	Inlet valve / Seat damage

NOTE: The Fault location chart is for guidance only, further inspection should be carried out to confirm the exact location and cause of any cylinder leakage.

Instructions

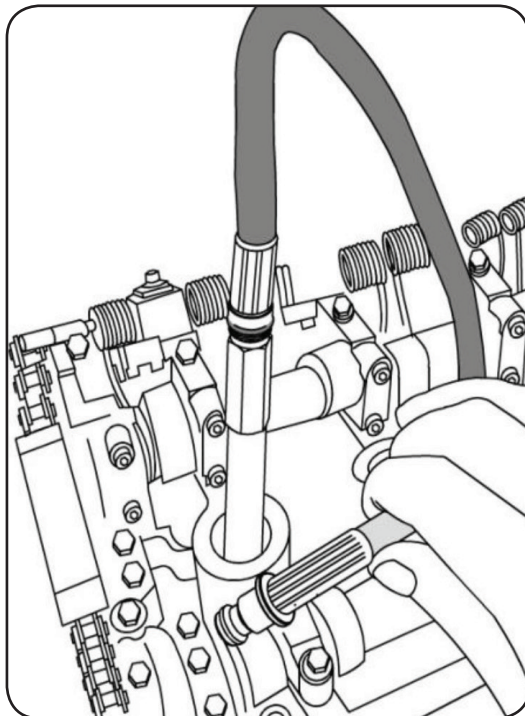


Connect the Cylinder Leakage Tester to the workshop air supply. Turn the regulator slowly clockwise until the gauge reads 0% (zero) at the end of the blue 'SET' band (no air loss). Set the regulator pressure by pushing the adjuster knob into the body of the regulator, this locks the regulator adjuster in position.

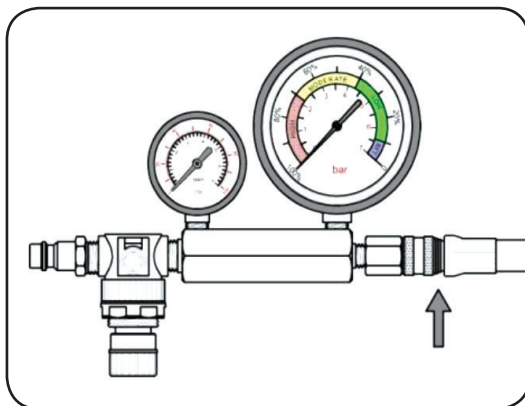


Diesel Engine: Fit the dummy glow plug or injector adaptor to engine and connect Hose Assembly onto the adaptor.

Instructions

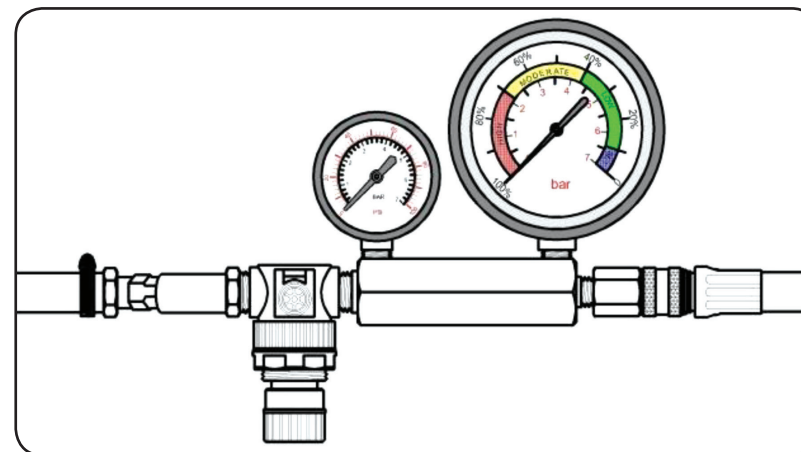


Petrol Engine: Fit the dummy spark plug adaptor to the engine. Assemble and connect Hose Assembly. Coupler on to the adaptor. For M14/M18 applications, Hose Assembly may be fitted directly into the spark plug aperture.



NOTE: As air is introduced to the cylinder the engine may try to rotate. This must be prevented by use of a suitable locking tool or the aid of an assistant to counter hold the crank shaft central bolt. Connect the male coupler end of the Hose Assembly onto the female quick connector of the Tester. Air will flow through the hose and into the cylinder. Check that no air is being released before it enters cylinder (from the tester, hose or adaptor connections).

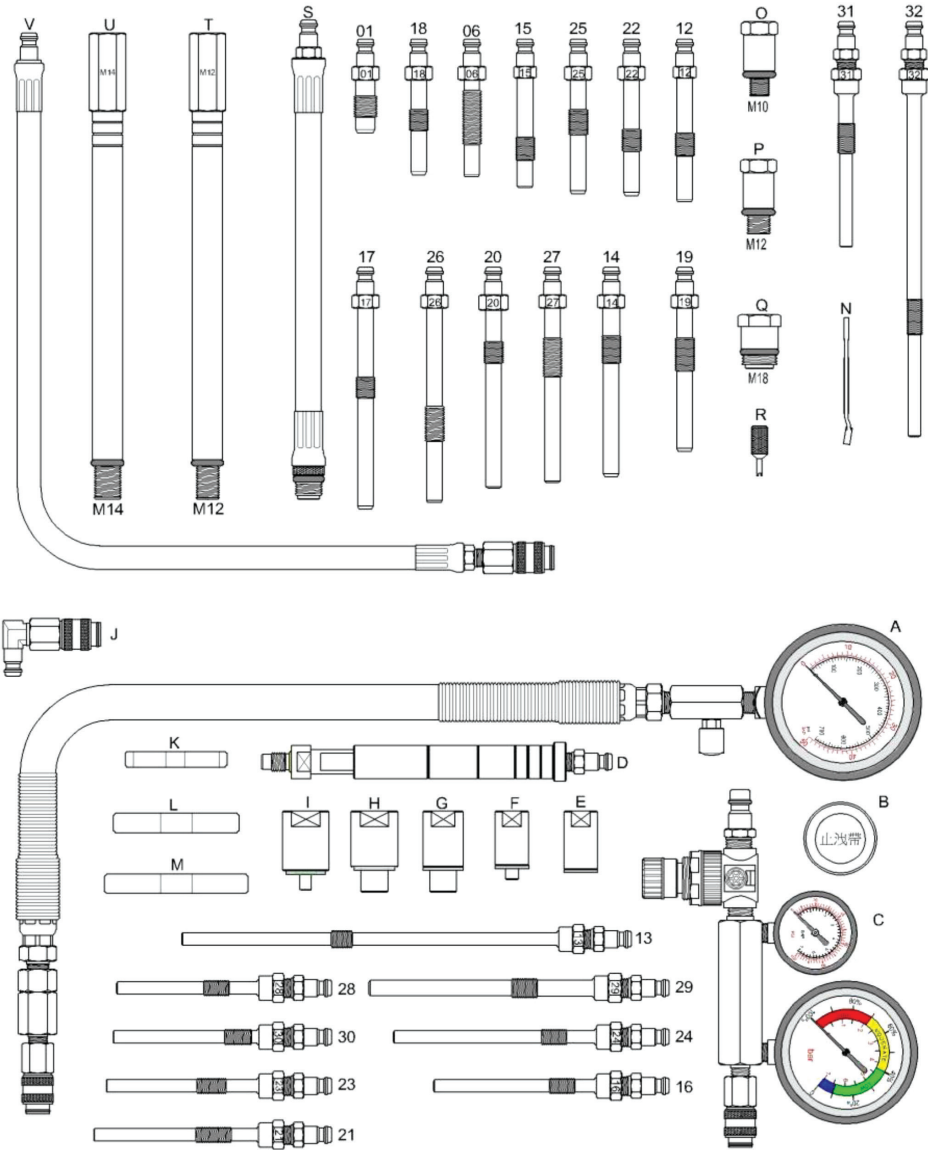
Instructions



The rate of air loss from the cylinder will be shown on the gauge as a percentage loss. Listen and look to locate the source of any excessive leakage. (Refer to the Fault location chart on page 3 for examples of leakage location and the potential cause).

NOTE: Ensure that the connections between the regulator assembly, connection hose, adaptor & cylinder head are secure before taking a reading from the gauge. Any additional air loss could affect the leakage indicated by the gauge. Repeat the leakage test on the remaining cylinders and compare the results to determine which of the cylinders may require attention and the potential cause of leakage.

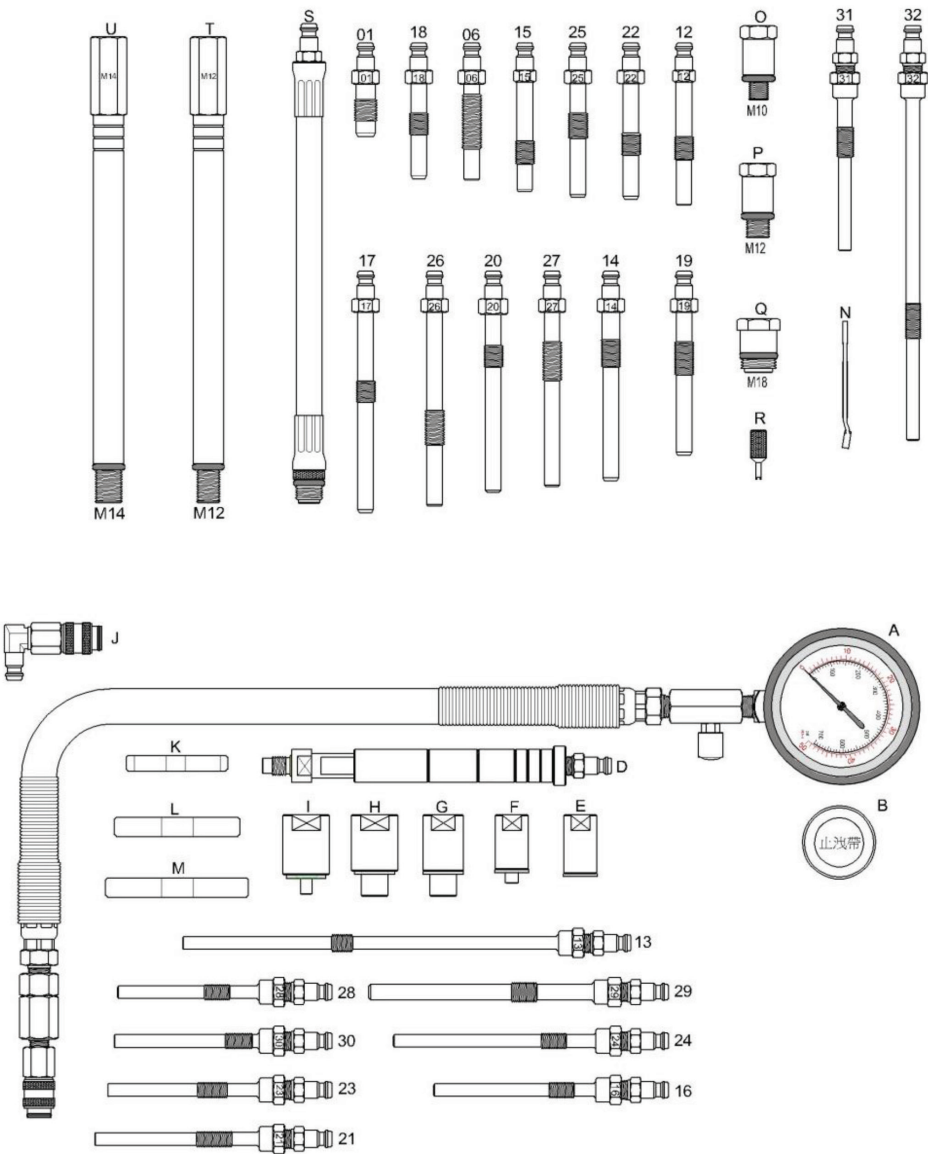
Petrol & Diesel Engine Compression and Leakage Test Kit



Petrol & Diesel Engine Compression and Leakage Test Kit

Part No.	Description	Part No.	Description
01	Glow plug adaptor M12x1.25	A	Gauge and hose assembly (700psi)
06	Glow plug adaptor M10x1.25	B	Thread seal tape
12	Glow plug adaptor M10x1.0	C	Gauge & regulator assembly
13	Glow plug adaptor M9x1.0	D	Injector adaptor with spacer sleeves
14	Glow plug adaptor M10x1.0	E	Injector adaptor nozzle (16.9mm dia)
15	Glow plug adaptor M10x1.0	F	Injector adaptor nozzle (16.9/6.7mm dia)
16	Glow plug adaptor M8x1.0	G	Injector adaptor nozzle (20.6/13.7mm dia)
17	Glow plug adaptor M10x1.0	H	Injector adaptor nozzle (23.8/13.7mm dia)
18	Glow plug adaptor M10x1.0	I	Injector adaptor nozzle (23.8/5.8mm dia)
19	Glow plug adaptor M10x1.0	J	90° degree elbow
20	Glow plug adaptor M10x1.0	K	Injector adaptor clamp (52mm)
21	Glow plug adaptor M8x1.0	L	Injector adaptor clamp (64mm)
22	Glow plug adaptor M10x1.0	M	Injector adaptor clamp (73mm)
23	Glow plug adaptor M8x1.0	N	Plum blossom wrench
24	Glow plug adaptor M8x1.0	O	M10 spark plug thread adaptor
25	Glow plug adaptor M10x1.0	P	M12 spark plug thread adaptor
26	Glow plug adaptor M10x1.25	Q	M18 spark plug thread adaptor
27	Glow plug adaptor M10x1.25	R	Valve screwdriver
28	Glow plug adaptor M8x1.0	S	Spark plug connector hose adaptor
29	Glow plug adaptor M10x1.0	T	M12 spark plug thread adaptor (long reach)
30	Glow plug adaptor M8x1.0	U	M14 spark plug thread adaptor (long reach)
31	Glow plug adaptor M9x1.0	V	Diesel adaptor connector hose
32	Glow plug adaptor M8x1.0		

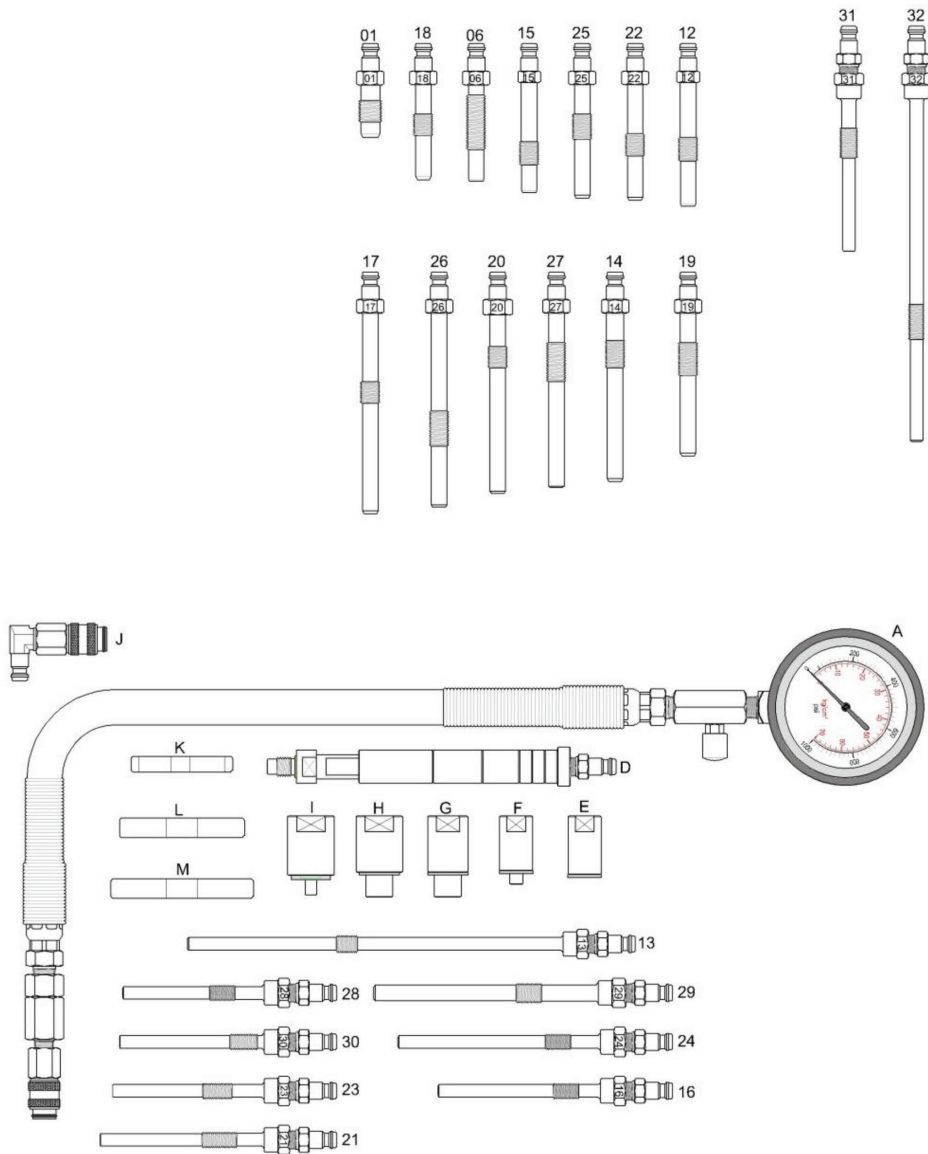
Petrol & Diesel Engine Compression Tool Kit



Petrol & Diesel Engine Compression Tool Kit

Part No.	Description	Part No.	Description
01	Glow plug adaptor M12x1.25	A	Gauge and hose assembly (700psi)
06	Glow plug adaptor M10x1.25	B	Thread seal tape
12	Glow plug adaptor M10x1.0	D	Injector adaptor with spacer sleeves
13	Glow plug adaptor M9x1.0	E	Injector adaptor nozzle (16.9mm dia)
14	Glow plug adaptor M10x1.0	F	Injector adaptor nozzle (16.9/6.7mm dia)
15	Glow plug adaptor M10x1.0	G	Injector adaptor nozzle (20.6/13.7mm dia)
16	Glow plug adaptor M8x1.0	H	Injector adaptor nozzle (23.8/13.7mm dia)
17	Glow plug adaptor M10x1.0	I	Injector adaptor nozzle (23.8/5.8mm dia)
18	Glow plug adaptor M10x1.0	J	90° degree elbow
19	Glow plug adaptor M10x1.0	K	Injector adaptor clamp (52mm)
20	Glow plug adaptor M10x1.0	L	Injector adaptor clamp (64mm)
21	Glow plug adaptor M8x1.0	M	Injector adaptor clamp (73mm)
22	Glow plug adaptor M10x1.0	N	Plum blossom wrench
23	Glow plug adaptor M8x1.0	O	M10 adaptor
24	Glow plug adaptor M8x1.0	P	M12 adaptor
25	Glow plug adaptor M10x1.0	Q	M18 adaptor
26	Glow plug adaptor M10x1.25	R	Valve screwdriver
27	Glow plug adaptor M10x1.25	S	Spark plug connector hose adaptor
28	Glow plug adaptor M8x1.0	T	M12 spark plug thread adaptor (long reach)
29	Glow plug adaptor M10x1.0	U	M14 spark plug thread adaptor (long reach)
30	Glow plug adaptor M8x1.0		
31	Glow plug adaptor M9x1.0		
32	Glow plug adaptor M8x1.0		

Diesel Engine Compression Tool Kit



Diesel Engine Compression Tool Kit

Part No.	Description	Part No.	Description
01	Glow plug adaptor M12x1.25	A	Gauge and hose assembly (1000psi)
06	Glow plug adaptor M10x1.25	D	Injector adaptor with spacer sleeves
12	Glow plug adaptor M10x1.0	E	Injector adaptor nozzle (16.9mm dia)
13	Glow plug adaptor M9x1.0	F	Injector adaptor nozzle (16.9/6.7mm dia)
14	Glow plug adaptor M10x1.0	G	Injector adaptor nozzle (20.6/13.7mm dia)
15	Glow plug adaptor M10x1.0	H	Injector adaptor nozzle (23.8/13.7mm dia)
16	Glow plug adaptor M8x1.0	I	Injector adaptor nozzle (23.8/5.8mm dia)
17	Glow plug adaptor M10x1.0	J	90° degree elbow
18	Glow plug adaptor M10x1.0	K	Injector adaptor clamp (52mm)
19	Glow plug adaptor M10x1.0	L	Injector adaptor clamp (64mm)
20	Glow plug adaptor M10x1.0	M	Injector adaptor clamp (73mm)
21	Glow plug adaptor M8x1.0		
22	Glow plug adaptor M10x1.0		
23	Glow plug adaptor M8x1.0		
24	Glow plug adaptor M8x1.0		
25	Glow plug adaptor M10x1.0		
26	Glow plug adaptor M10x1.25		
27	Glow plug adaptor M10x1.25		
28	Glow plug adaptor M8x1.0		
29	Glow plug adaptor M10x1.0		
30	Glow plug adaptor M8x1.0		
31	Glow plug adaptor M9x1.0		
32	Glow plug adaptor M8x1.0		

Produced in Taiwan for **Bileko Car Parts AB**
P.O. Box 542 S-645 25 Strängnäs, Sweden
Tel: +46 771 72 00 00 | www.promeister.com