

1464TDIGITAL PRESSURE AND COMPRESSION TESTER



Description

Item 1464T is an instrument which can measure several different types of sensors; hence it can be used to measure numerous parameters in the automotive industry. It is fitted with an 80 bar pressure sensor, which can be used to perform compression tests in petrol and diesel engines as well oil pressure, low pressure common rail circuit and other tests.

A major advantage of item 1464T is that you can purchase several different additional kits to perform other tests as well, including the high pressure circuit test in common rail engines. The internal software can be updated by the user via USB connection (a PC connected to the Internet is required).

The result of the measurements is displayed on the 5 inch touch screen. The display will be either numeric or graphic, depending on the test being performed.

Item 1464T is fitted with an internal memory, to store the collected data, so that they can later be sent to a computer.

Specifications

80 bar sensor	: precision ratiometric 1% FS (0°÷50°)
Power supply	: rechargeable battery LiPo 3,7V / 1000mAh
Battery charge	: via USB connector
Display	: colour TFT, 5", 480x272 pixels, tactile
Connectivity	: USB (Windows)
Updatable software	: v

Observations

- - The display is a tactile, resistive device; some precision is required so that it can respond. You can press it with either your fingers or a non-sharp object – that is, any digital pen specially designed for resistive displays.
- This instrument is fitted with a smart battery charge system. To charge the battery, just connect the instrument to a USB port of the computer via the USB cable, or, alternatively, to a USB charger. The upper part accommodates a battery charge indicator which goes on when the battery is charging, and automatically goes out when the charge cycle is completed. The instrument can be left permanently connected to the charger; if the battery runs down, the charging cycle will start again automatically.
- The software should be updated regularly, so that it can have the latest and best possible characteristics.

INSTRUCTIONS FOR USE

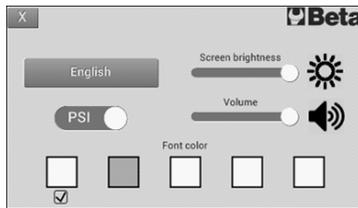
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In the next picture you can see that the upper part of the tester accommodates a keypad with the start key and the start and battery charge LED indicators.



The upper part of the tester accommodates a start button. Press it briefly to start or turn off the instrument. Once the tester has started, a splash screen with a logo will be displayed. Touching the display will bring up the menu. Use the arrows to change the selected option. When the required option is displayed, press the relevant button to select it.

When using the tester for the first time, select first the "Configuration" option and then the required options. When the configuration screen is exited, it will be saved automatically. As you can see in the picture below, you can configure the language, the brightness of the screen, the volume of the loudspeaker, the unit of measurement (bar/ PSI) and the colour of the text can be selected.



If any option is selected, the instrument will show what sensor should be used and where it should be connected (see next picture). Connect the sensor as shown and press "OK". The measurement screen will be displayed.



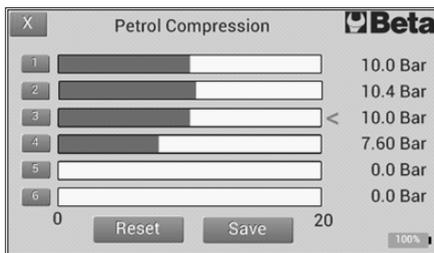
Compression test

A six-bar chart will be displayed in the screens of the compressometer for petrol engines and of the compressometer for diesel engines. The six bars can be used to measure up to six cylinders. Pressing the blue button indicating the cylinder number will allow the cylinder that needs to be measured to be selected at any time. The selected cylinder can be recognized by the arrow at the right of the bars.

The reading values thus obtained can be erased at any time by pressing the "Reset" button.

Once the measurements have been completed, you can press the "Save" button, so that they can be stored and then sent to a computer via USB connection.

Press on the cross on the top left to go back to the main menu.



High pressure common rail test

Additional kit 1464AP is required to measure high pressure in the common rail circuits. To use the kit, follow the relevant instructions.

What is the common rail system?

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The common rail system is one of the most advanced diesel fuel injection systems, based on the fuel injected directly into the cylinder (direct injection) at high pressure (300 ÷ 2000 bar).

One of the great advantages of this new system lies in the fact that the nozzles are controlled electronically; so an electronic unit decides what the exact amount of fuel needed by the engine is and sends an electrical system to the injectors to open the nozzle. The fuel pressure in the common rail then passes into the cylinders through the nozzles. The name common rail comes from the fact that the injectors are all connected to a common rail.

The injection system is divided into two distinct parts: the low pressure circuit and the high pressure circuit.

The low pressure circuit is responsible for getting fuel to the high pressure pump in optimal conditions of pressure, filtering etc.

This tester allows the whole pressure circuit to be checked; the largest number of failures are produced in this low pressure circuit.

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The low pressure circuit basically comprises the following: fuel tank, fuel pump, filter, pressure regulator and pipes.

How can the low pressure circuit be tested?

Checking the low pressure circuit is relatively easy; the fuel pressure should be checked at certain points of the system.

What can you check with this tester exactly?

You can check the whole low pressure circuit, which includes the fuel pump, fuel filter, pressure regulator and piping system.

How can the low pressure circuit be tested?

The low pressure circuit test is a three step test.

Test n°. 1

Description: pressure test at high pressure pump inlet. Correct value: 2.5 bar.



Results of test n°. 1:

- Correct pressure: 2.5 bar. Go to test n°. 2
- Significantly higher pressure: faulty regulator
- Significantly lower pressure: go to test n°. 2

Test n°. 2

Description: pressure between low pressure pump and filter.

Correct value: 2.5 bar.



Results of test n°. 2:

Correct pressure: 2.5 bar. Go to test n°. 3

- Significantly higher pressure (test n°. 1 was correct): dirty filter. Replace filter cartridge.
- Significantly lower pressure (in test n°. 1 it was also significantly lower):
 - Turn off tap:
 - 1) Pressure is 2.5 bar or higher: faulty regulator
 - 2) Pressure is too low: faulty low pressure pump.

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Test n° 3

Description: return circuit pressure test.

Correct value: $0.7 \div 0.8$ bar



Results of test n° 3:

- Correct pressure: $0.7 \div 0.8$ bar. Test completed successfully.
- Significantly higher pressure: return tube obstructed. Once replaced, if pressure remains high, return valve of high pressure pump is faulty.
- Significantly lower pressure: return valve of high pressure pump is faulty.

Oil pressure test

To measure oil pressure, connect the sensor to the engine through the adapter. Pressure and the maximum reading value will be shown on the display. The latter can be reset at any time, by pressing the “Max. Reset” button. Pressing the “Graphic” button will switch the tester to the graphic mode. The measurement can be interrupted at any time, by pressing the “Pause” button. The image of the chart will remain fixed, and the term “STOP” will be shown in the upper part of the display. Press “Pause” to measure oil pressure again.

The measurement that is underway can be saved when needed, by pressing the “Save” key. The term “REC” will be shown in the upper part of the display. Press “Save” again to store the value. The data thus saved can later be sent to a computer via USB connection.

80 bar manometer

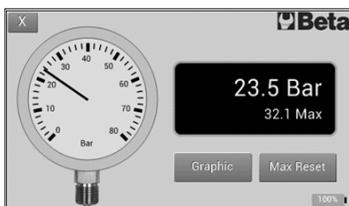
This instrument can measure pressures up to 80 bar, like a normal manometer.

The pressure and maximum reading values will be shown on the display. The latter can be reset at any time, by pressing the “Max. Reset” button.

Pressing the “Graphic” button will switch the tester to the graphic mode. The measurement can be interrupted at any time, by pressing the “Pause” button. The image of the chart will remain fixed, and the term “STOP” will be shown in the upper part of the display”. Press “Pause” to measure pressure again.

The measurement that is underway can be saved at any time, by pressing the “Save” button. The term “REC” will be shown in the upper part of the display. Press “Save” again to store the value. The data thus saved can later be sent to a computer via USB connection.

The pictures below show the numeric and graphic displays of the “Low pressure common rail”, “Oil pressure” and “80 bar manometer” options.



Numeric display



Graphic display

MAINTENANCE

Maintenance and repair jobs must be carried out by trained personnel. For such jobs, you can contact Beta Utensili S.P.A.'s repair centre.



DISPOSAL

Under article 13 of Italian Legislative Decree n°. 15 of July 25, 2005, "Implementation of Directives 2002/95/EC, 2002/96/EC and 2003/108/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment, and the disposal of waste material", the crossed-out wheeled bin symbol on the equipment means that the product should be collected separately from other types of waste at the end of its useful life.

Therefore, the user is responsible for assigning the equipment, at the end of its life, to appropriate collection facilities for electronic and electrotechnical equipment, or returning it to the dealer upon purchase of a new, equivalent item of equipment. Correct separate collection and the subsequent recycling, treatment and environmentally compatible disposal of discarded equipment is of aid in avoiding possible negative effects for the environment and people's health, and facilitates the recycling of the materials the equipment is made of.

Illegal disposal of this product on part of the user will give way to the application of such administrative fines as referred to in Italian Legislative Decree n°. 22/1997 (article 50 and following articles of Italian Legislative Decree n°. 22/1997).

WARRANTY

This equipment is manufactured and tested in accordance with current EU regulations. It is covered by a 12-month warranty for professional use or a 24-month warranty for nonprofessional use.

We will repair any breakdowns caused by material or manufacturing defects, by fixing the defective pieces or replacing them at our discretion.

Should assistance be required once or several times during the warranty period, the expiry date of this warranty will remain unchanged.

This warranty will not cover defects due to wear, misuse or breakdowns caused by blows and/or falls.

In addition, this warranty will no longer be valid if any changes are made, or if the tool is forced or sent to the customer service in pieces.

This warranty explicitly excludes any damage caused to people and/or things, whether direct or consequential.