

**IMPORTANT! READ BEFORE USE!  
DO NOT DISCARD!**



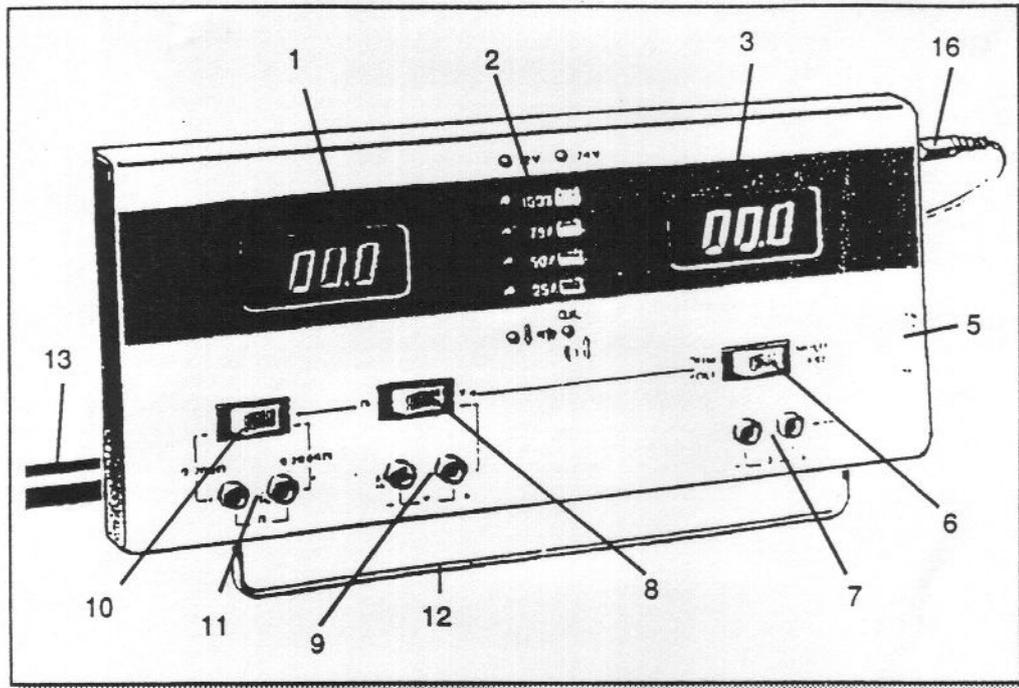
**INSTRUCTION  
MANUAL**

**BT91/8 DIGITAL  
MULTI-TESTER**

The BT91/8 is specially designed for repair workshops. It is an indispensable and precise appliance for diagnosis of any anomaly in vehicle electrical and electronic systems. Be sure to read this instruction manual before using your new multi-tester.

**Sealey Quality Machinery**  
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**HELPLINE:** For assistance with regard to the operation of this machine, call 01284 703533  
and ask for a technical sales engineer.

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### DISPLAY PANEL (see above)

- 1 Voltmeter/Ohmmeter Display
- 2 Charge Level Indicator
- 3 Multitest Display Window
- 4 12V DC Mains Adaptor (not shown)
- 5 General ON/OFF Switch
- 6 Volt/Ohm Multitest Selector
- 7 Multitest Sockets
- 8 Voltmeter/Ohmmeter Selector
- 9 Voltmeter Sockets
- 10 Ohmmeter Scales Selector
- 11 Ohmmeter Sockets
- 12 Cables Bracket
- 13 Swivel Bracket
- 14 Ampere Module (not shown)
- 15 Connection Cables (not shown)
- 16 Power Supply Socket

### CHARGE TEST

#### 6/12/24 Volt Batteries

1. Plug the 12V adaptor (4) into the mains socket and the outlet connector into the 12V power supply socket (16).
2. Turn the general switch (5) to the ON position.
3. Turn the ohm volt Multitest selector (6) to the OHM VOLT position.
4. The display window will light up.

5. Turn the voltmeter/ohmmeter selector (8) to position "V".
6. Connect the red and black test leads (15) to the red and black sockets (9) respectively.
7. Connect the black clip to the negative (-) terminal of the battery and the red clip to the positive (+) terminal.
8. When the clips are connected, the display window will show the battery's voltage value. The central analyser (2) will display the type of battery being tested (12 or 24V) and the % charge (25-100%).

NOTE: For reading the charge level of 6 volt batteries, only the voltage reading will be shown in the display window. The % charge readings will be as follows: 6.3V-100%, 6.2V-75%, 6.1V-50%, 6.0V-25%.

It is advisable to conduct a battery cell electrolyte density test to supplement the voltage test.

**IMPORTANT: Never exceed 36 volts DC at the sockets (9) as this will damage the central analyser.**

### CHECKING VOLTAGE OF VEHICLE CHARGING SYSTEM: BATTERY, ALTERNATOR & REGULATOR

1. If the vehicle has just been in service or the battery put on charge, switch the headlights on for two minutes then switch them off and wait two more minutes. This will give a more accurate reading.



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2. Check the condition of the battery using the battery charge level test described above.
3. If the battery is in optimum charge condition (75% or more), without disconnecting the clips from the battery terminals, start the engine and hold it at 2000 rpm for two minutes.
4. The voltage reading in the display window should be approximately 14.1 volts  $\pm$  0.8 volts and should not fluctuate from that reading..
5. Note the charge level indicator (2). A green LED indicates an alternator in good condition. The lower yellow LED indicates that the alternator is providing a low charge. An intermittently flashing green LED indicates a defective regulator.
6. Slowly increase the engine speed to approximately 3500 rpm and check that the display window reading does not vary.
7. A voltage reading that varies with the engine speed indicates a defective regulator.
4. Disable the coil cable of the distributor cover so that the engine cannot start.
5. Using the ignition key, work the starter motor and check the voltage in the display. This reading corresponds to the voltage drop. Readings higher than 0.5 volts indicate defects in the vehicle's grounding installation.

### MEASUREMENT OF DC AMPERAGE 0-199.9A

1. Connect the 12V mains adaptor (4) to the mains socket and the output connector to the 12V DC socket (16) on the BT91/8.
2. Turn the switch (5) on.
3. Turn the Ohm Volt Multitest selector (6) to the OHM VOLT position.
4. The display window will light up.
5. Turn the voltmeter/ohmmeter switch (8) to position "V".
6. Connect the red and black test leads (15) to the red and black sockets respectively.
- IMPORTANT! Never exceed 36 volts DC at the sockets (9). This will damage the central analyser.**
7. Connect the black clip to the negative DC circuit under test and the red clip to the positive.
8. The display window will show the value in volts of the item being tested.
1. Connect the 12V mains adaptor (4) to the mains socket and the output connector to the 12V DC socket (16) on the BT91/8.
2. Turn the switch (5) on.
3. Turn the Ohm Volt Multitest switch (6) to the MULTITEST position.
4. The display window (3) will light up.
5. Connect the red and black test leads of the ampere module (14) to the red and black sockets (7) respectively.
6. Disconnect one power feed line (positive or negative) of the circuit being tested.
- IMPORTANT! Connect the clips of the ampere module (14) only in series with the test circuit. A connection in parallel will produce a short circuit.**
7. Connect the black clip of the ampere module to one side of the open connection.
8. Connect the red clip of the ampere module to the other end, thus closing the circuit.
9. Supply power to the circuit being tested by switching on the consuming devices (lights, radio, etc.).
10. The display window will show the ampere reading of the direct current passing through the appliance being tested.
- IMPORTANT! A voltage higher than 600 millivolts at the sockets (7) will blow the BT91/8's internal fuse.**

### CHECKING VOLTAGE DROP AT VEHICLE GROUND.

The object of this test is to find possible voltage losses in the vehicle's grounding installation.

1. Proceed in the same manner as for conducting a voltage test as described above.
2. Connect the black clip of the test lead to the negative terminal of the battery.
3. Connect the red clip of the test lead to a clean metal part of the engine.

### CHECKING ALTERNATOR CONSUMPTION AND CURRENT

**IMPORTANT! If the vehicle is equipped with devices which could lose a memory code, it is not advisable to carry out this test without first connecting a DC power supply suitable for the memory type of the vehicle in parallel with the memory line and ground installation.**

1. Connect the 12V mains adaptor (4) to the mains socket and the output connector to the 12V DC socket (16).



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2. Turn the switch (5) on.
3. Turn the Ohm Volt Multitest switch (6) to the MULTITEST position.
4. The display window will light up.
5. Connect the red and black test leads of the ampere module (14) to the red and black sockets (7) respectively.
6. Disconnect the negative cable from the terminal of the vehicle battery.
7. Connect the black clip of the ampere module (14) to a good grounding point on the vehicle.
8. Connect the red clip of the ampere module (14) to the negative terminal of the battery.
9. Turn on the consuming elements one by one: side lights, dipped beam, main beam, door lights, ignition, brakes, car radio, heated window, heating, etc. As they are turned on, check the consumption reading of each one of them in the display window. This will be the difference from the previous consuming part.
10. Leave all possible consuming devices on for three minutes.
11. Without switching them off, start the vehicle and check in the display window to see if the alternator is compensating for the amperes consumed by the devices until the reading is positive by a few amperes. This shows that during the charging phase the alternator is compensating for any consumption of the vehicle's devices.
12. When the test is finished, stop the engine, switch off the consuming devices and refit the ground cable to the negative terminal of the battery.

### CHECKING ELECTRICAL OR PHYSICAL MAGNITUDES

Various measuring modules for any electrical or physical magnitude - such as temperature, engine revolutions per minute, volt, amperes, etc. - can be connected to the red and black sockets (7) of the BT91/8 as long as the voltage supplied by such modules does not exceed 200mV DC and their resolution is equal to 1mV per magnitude read. For example, a thermometer module which supplies 1mV for each °C in the display window will, for an input of, say, 15.5 mV at the sockets, give a reading of 15.5°C. **A voltage higher than 600 millivolts at the sockets (7) will blow the BT91/8's internal 100mA fuse.**

### RESISTANCE TESTING

0-200Ω 0-200kΩ

Parts which can be tested include stators, speakers, rotors, resistors, etc. The BT91/8 is fitted with a digital ohmmeter for measuring resistances on scale of 00.0 to 199.9Ω and another scale of 00.0 to 199.9 kΩ. To check a resistance value, proceed as follows:

1. Connect the 12V mains adaptor (4) to the mains socket and the output connector to the 12V DC socket (16).
2. Turn the switch (5) on.
3. Turn the Ohm Volt Multitest switch (6) to the OHM VOLT position.
4. The display window will light up.
5. Turn the voltmeter/ohmmeter selector (8) to the Ω position.
6. The display window will show the digits "1.-".
7. Fit the test leads (15) into the sockets (11).
8. Choose the position of the scales selector (10) according to the measurement needed.
9. **IMPORTANT! When measuring resistances, ensure that the power supply of the circuit to be tested is disconnected and that all condensers have been discharged.**
10. Fit the test lead clips to the circuit to be tested.
11. The display window will show the resistance to be measured.
12. The digits "1.-" indicate that the limit of a scale has been surpassed (higher than 200kΩ).
13. NOTE: While measuring resistance, do not touch the clips with the fingers. This will give an incorrect reading.



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