

# 3M

# Wrist Strap Tester 746

## Instructions



*European Version*  
*March 2005*  
*78-8136-2118-8*



## 1.0 General

Wrist straps are the primary method to minimize charge generation on the human body. They must be able to drain this charge as rapidly as it is generated.

For this reason, it is important to test wrist straps on a regular basis to ensure they are functioning properly, and the test results should be recorded.

## 2.0 Declaration of Conformity

The 3M™ Wrist Strap Tester 746 is in conformity with the regulations of the EMC-directive 89/336/EWG.

The following standards have been taken into account while designing and manufacturing the instrument:

EN 60204-1/85  
EN 60204-1/91  
EN 61010 (Safety)  
EN 50082-1/92  
EN 50082-2/92

## 3.0 Description

The 3M™ Wrist Strap Tester 746 operates as a battery powered tester, or additionally with an AC power supply as backup for the battery. It is designed to be used either as a stationary or portable piece of equipment. The 746 is supplied with a 9V alkaline battery - a power supply is optional.

The tester has a permanent, internally set resistance range which extends from 750 k $\Omega$  to 10 M $\Omega$ . When tested, if the wrist strap is within this resistance range, the green LED will illuminate. The red LED indicates that the resistance to ground of the tested device or system is out of range.

### Accessories

- Instruction Manual
- Wall mounting kit, 3M™ Dual Lock™ system and template
- Battery
- Cover for wrist strap plug-in jack

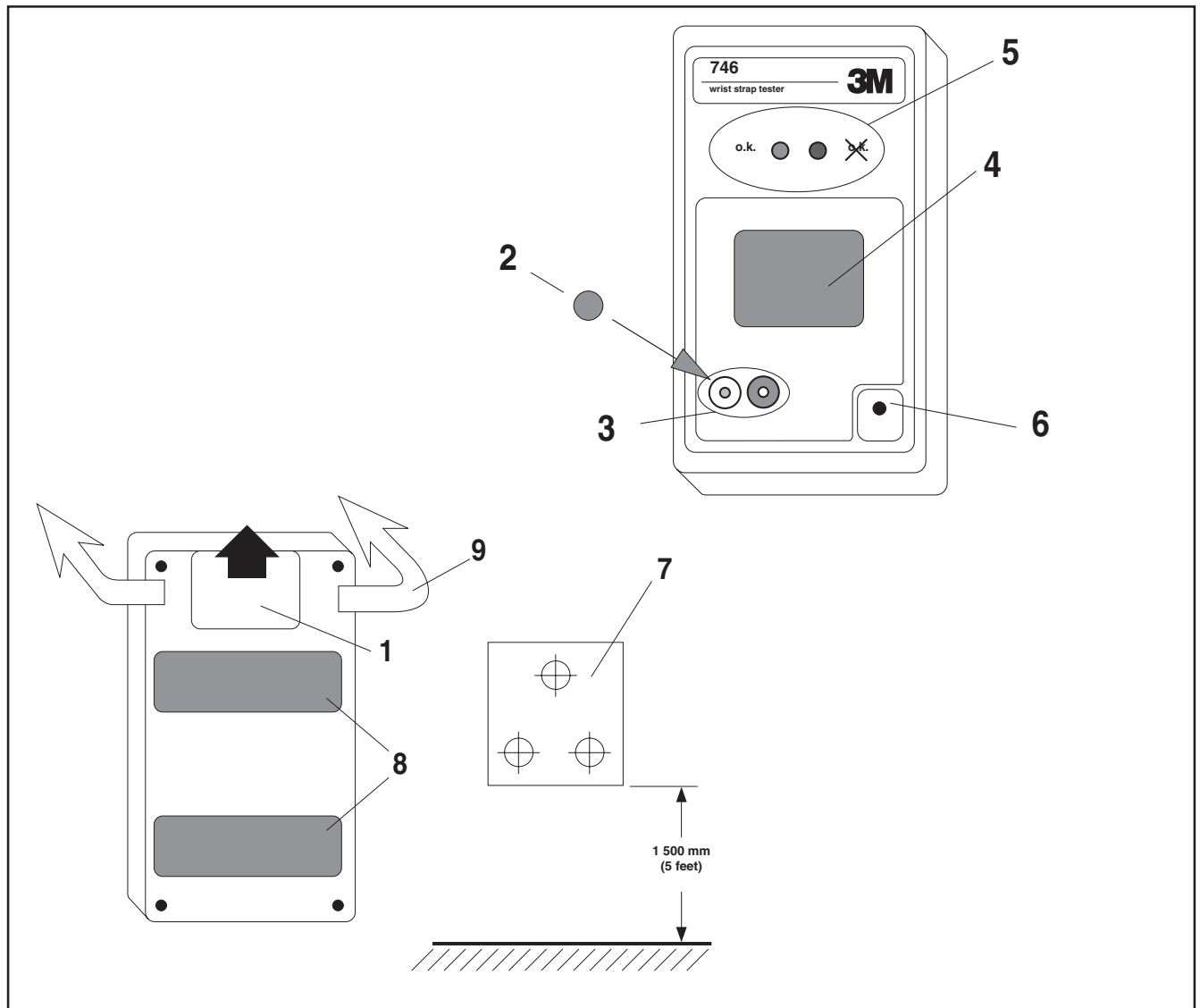


figure 1

## 4.0 Specifications

### Base unit:

158 x 95 x 33 mm (6.25 x 3.75 x 1.25 inches)

### Weight:

200 g (7 ounces) without battery

### Battery:

9V alkaline type, e.g. IEC 6F22

### Tolerance:

750 k $\Omega$  + 20%/-0%, 10 M $\Omega$   $\pm$  10%

### Measurement Voltage:

DC (19 $\pm$ 1) V (open circuit)

### Power Supply (not included):

DC 9V, regulated, 75mA (50Hz)

## 5.0 How to Use

- 5.1 Insert 9V battery and make sure the ON/OFF switch at the upper left side on the unit is in the ON position. The OFF position avoids discharge of the battery if the metal contact plate is accidentally depressed while the unit is not in use. The unit is then ready for operation. The backup of the battery can be achieved by using an AC Power Supply. In that case, connect the AC power supply to the jack at the base of the unit. Plug the power supply into an AC 230V outlet.
- 5.2 Fit the plastic cover onto the wrist strap plug-in jack that is not being used. If the "battery" LED illuminates, replace it immediately.

### Wrist Strap Test

- 5.3 Put the wrist band on with ground cord attached, and insert the ground cord plug into the wrist strap plug-in jack.
- 5.4 Depress the metal contact plate and hold it.
- 5.5 One of the indicator LEDs will illuminate. An illuminated green LED indicates that the wrist strap performs within the resistance range of 750 k $\Omega$  to 10 M $\Omega$ . If a "red" condition is indicated, it is advisable to check the ground cord individually for its resistance.

For checking the resistance range of the ground cord, leave the plug end of the ground cord attached to the tester and unsnap the cord from the wrist band. Place the metal side of the ground cord snap against the metal plate of the tester and depress until one of the LEDs is illuminated. If the red LED is illuminated, the ground cord is outside the resistance range and should be replaced. If the green LED illuminates, the ground cord can be used, but the wrist band may have to be replaced.

**Note:** *In some cases, high contact resistance between the person's skin and wrist band will cause the tester to show a fail/red LED condition. This resistance may be caused by dry skin or hair in the wrist area. If these possibilities do not match to the operator, the wrist band should be replaced.*

- 5.6 If the "battery" LED illuminates at any time, replace the battery.

### Wall Mounting

- 5.7 The enclosed 3M™ Dual Lock™ adhesion discs shall be screwed on the wall using the attached template approximately 1500 mm (5 feet) parallel off the floor. Drill three holes of 5 mm (0.2 in) diameter at marked location.
  - 5.8 The enclosed 3M Dual Lock adhesion strips must be adhered to the rear of the 3M™ Wrist Strap Tester 746 parallel to the bottom edge and below the battery compartment.
- Note:** *Make sure the area on the unit in which the Dual Lock adhesion strips are placed is free of dust and dirt. Press the tester firmly against the discs for fixing on the wall.*
- 5.9 For removal, lift the tester 746 at the two top corners with both hands.

## 6.0 Calibration Procedures

The 3M™ Wrist Strap Tester 746 cannot be adjusted, but the following steps can be used to determine that the tester is operating within its specification.

### Equipment needed:

1. Resistance Substitution Box  
(750 kΩ - 11 MΩ, tolerance < 2%)
2. 2 leads (to connect the resistance box)

### Wrist strap test circuit check:

Connect the resistance substitution box to the 746 as shown in figure 2.

Set the resistance substitution box to each value of resistance indicated in the test table and press contact plate A.

The LEDs will indicate as shown below if the unit is functioning within specifications.

| Resistance substitution box settings | Resistance range of the 746 | LED indication |
|--------------------------------------|-----------------------------|----------------|
| *750 kΩ<br>900 kΩ                    | 750 kΩ                      | red<br>green   |
| 9.0 MΩ<br>11.0 MΩ                    | 10 MΩ                       | green<br>red   |

\*This example is used in figure 2.

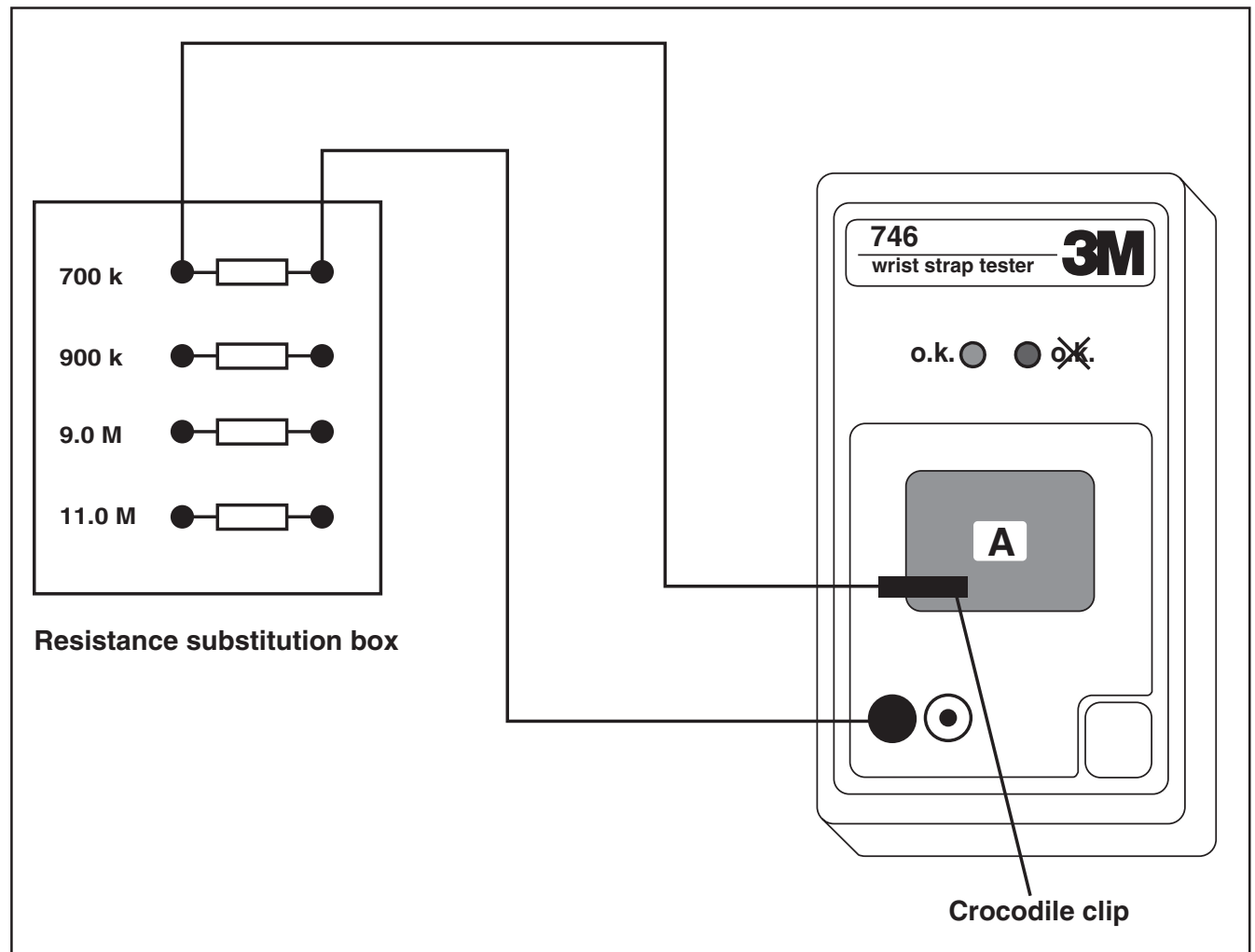


figure 2

# 3M™ Wrist Strap Tester 746 Logbook

| Name   | Month / Year |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
|--------|--------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|
|        | 1            | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |  |
|        | W            | W | W | W | W | W | W | W | W | W  | W  | W  | W  | W  | W  | W  | W  | W  | W  | W  | W  | W  | W  | W  | W  | W  | W  | W  | W  | W  | W  |  |
| Test 1 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 2 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 1 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 2 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 1 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 2 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 1 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 2 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 1 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 2 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 1 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 2 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 1 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 2 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 1 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 2 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 1 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 2 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 1 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 2 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 1 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 2 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 1 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Test 2 |              |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |

**Example :**  
 Not ok :   
 ok :

| Name   | Month / Year |   |   |   |   |   |   |
|--------|--------------|---|---|---|---|---|---|
|        | 1            | 2 | 3 | 4 | 5 | 6 | 7 |
|        | W            | W | W | W | W | W | W |
| Test 1 | x            | x | x |   |   |   |   |
| Test 2 | x            | x |   |   |   |   |   |

Unit calibrated on:

By:

Next calibration on:

Serial number:



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