



# Operation, Installation and Calibration Instructions

## N.I.S.T. Calibration Unit for Wrist Strap and Footwear Testers

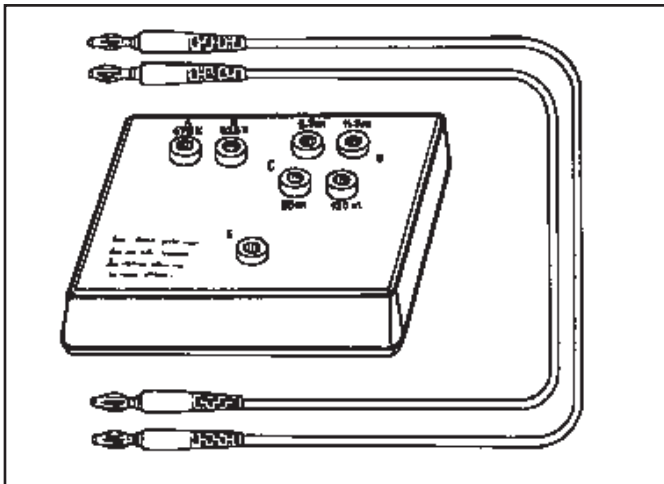


Figure 1. 07010 Calibration Unit

### Description

The Desco model 07010 calibration unit is designed to simplify the process of calibrating wrist strap and foot ground test equipment. The calibration unit allows the user to quickly and easily verify whether a tester is operating within specifications. This product can be used as one of the tools to fulfill the ANSI/ESD S20.20 paragraph 6.1.3.2 "Compliance Verification Plan". Verification should include routine checks of the Technical Requirements of the Plan. Per Table 1, the technical requirement test method for "Continuous Monitors" is to be "per the manufacturer specifications". The 07010 is a passive device, and requires no power source. The calibration unit is manufactured within industry accepted test ranges for both wrist straps and foot grounders. The wrist strap pass range is set at 750K - 10M, while the foot ground test range is set at 750K - 100M. The 07010 is supplied calibrated to NIST traceable standards.

The 07010 Calibration Unit is an important tool for optimization of an ESD control program. A leading corporation estimates a \$95 to 1 return on every dollar invested in ESD control. However, the ESD protective products utilized must be working, so it is essential that testers are in calibration that are used to verify the parameters of wrist straps and foot grounders. The 07010 Calibration Unit easily pays for itself. Instead of returning to Desco, a Calibration House, or even your Metrology Department, testers can be NIST calibrated where located in the factory being out-of-service only a couple minutes. No need to have an extra replacement Tester.

Remove the calibration unit from the carton and inspect for shipping damage. Each unit should include the following:

- 1 - Calibration unit, item #07010
- 2 - 12" test leads

### Calibration Test Procedures

The calibration unit was specifically designed for use in calibration of Desco brand test equipment. The following step by step procedures will cover calibration for specific test units. The procedures will not cover adjustment of the test equipment. For detailed information regarding adjustment of specific Desco brand testers contact our Customer Service Department at 909-627-8178 (Chino, CA) or 781-821-8370 (Canton, MA).

#### CALIBRATION OF THE MODEL 98280 WRIST STRAP TESTER

**Step 1:** Connect one of the test leads to common point banana jack labeled "E" on 07010. Connect the opposite end of test lead to 98280 tester's wrist strap jack located on the front of the unit and switch the selector switch to "WRIST STRAP".

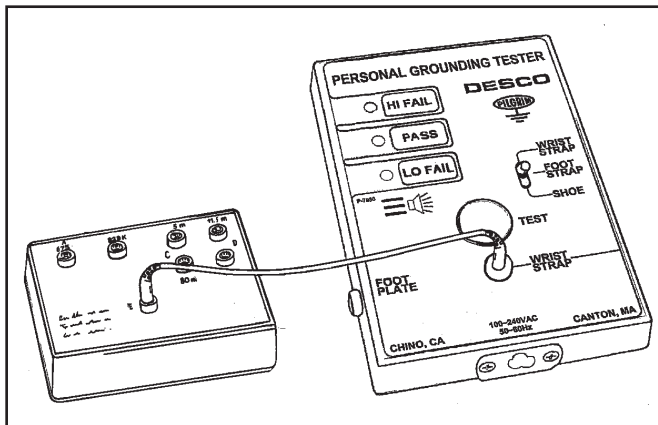


Figure 2. Connecting test lead common from 07010 to 98280.

**Step 2:** Connect the second test lead to the 675K jack labeled "A" on the 07010. Touch the opposite end of test lead to touch tester plate and press down on tester with enough pressure to activate the test circuit. Observe the LED's for the proper response as indicated below. Be sure to hold the cord at an insulated point, so that the resistance value is not affected by the body.

**Resistance Value**

Red jack "A" - 675K:  
 Green jack "B" - 825K:  
 Green jack "C" - 8.5M:  
 Yellow jack "D" - 11.5M:

**Test Output - LED**

Red (Low-hazard)  
 Green (OK-in limits)  
 Green (OK-in limits)  
 Red (High resistance)

**Step 3:** Repeat the procedure testing across jacks B, C, and D. The different resistance ranges should give the display shown above. If the tester does not meet calibration specifications, contact factory for adjustment information, or ask for Technical Bulletin TB-3000.

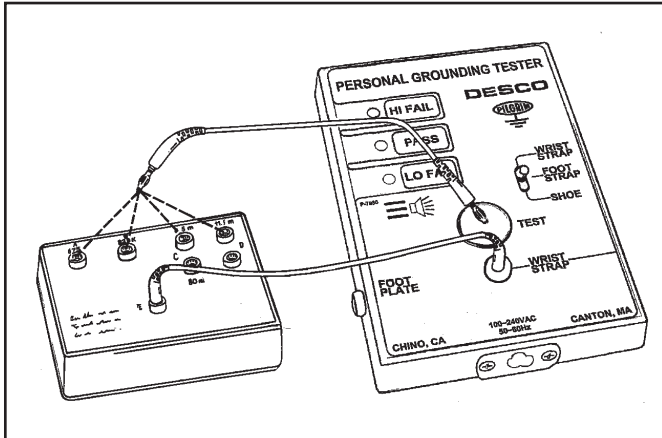


Figure 3. Testing 98280 for "PASS" and "FAIL" ranges as indicated on calibration unit.

**CALIBRATION OF THE MODEL 98280 FOOT STRAP TESTER**

**Step 1:** Connect one of the test leads to common point banana jack labeled "E" on 07010. Connect the opposite end of test lead to 98280 tester's foot strap jack located on the front of the unit and switch the selector switch to "FOOT STRAP".

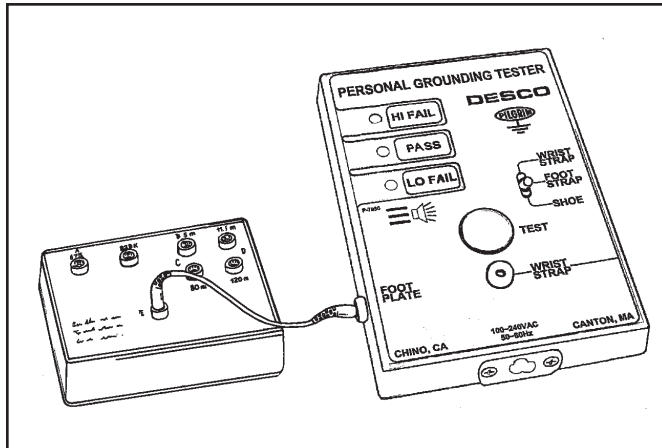


Figure 4. Connecting test lead common from 07010 to 98280.

**Step 2:** Connect the second test lead to the 675K jack labeled "A" on the 07010. Touch the opposite end of test lead to touch tester plate and press down on tester

with enough pressure to activate the test circuit. Observe the LED's for the proper response as indicated below. Be sure to hold the cord at an insulated point, so that the resistance value is not affected by the body.

**Resistance Value**

Red jack "A" - 675K:  
 Green jack "B" - 825K:  
 Green jack "C" - 8.5M:  
 Yellow jack "D" - 11.5M:

**Test Output - LED**

Red (Low-hazard)  
 Green (OK-in limits)  
 Green (OK-in limits)  
 Red (High resistance)

**Step 3:** Repeat the procedure testing across jacks B, C, and D. The different resistance ranges should give the display shown above. If the tester does not meet calibration specifications, contact factory for adjustment information, or ask for Technical Bulletin TB-3000.

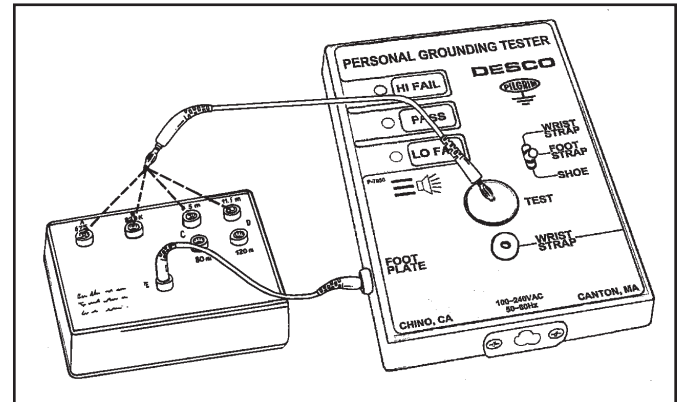


Figure 5. Testing 98280 for "PASS" and "FAIL" ranges as indicated on calibration unit.

**CALIBRATION OF THE MODEL 19350 WRIST STRAP TESTER**

**Step 1:** Connect one of the test leads to common point banana jack labeled "E" on 07010. Connect the opposite end of test lead to one of the 19350's ground jacks located on the front edge of the unit.

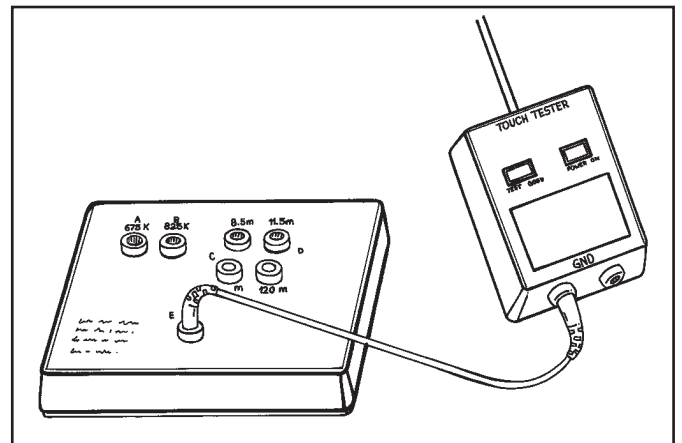


Figure 6. Connecting test lead common from 07010 to 19350.

**Step 2:** Connect the second test lead to the 675K jack labeled "A" on the 07010. Touch the opposite end of test lead to the test plate. Observe the LED's for the proper response as indicated below. Be sure to hold the cord at an insulated point, so that the resistance value is not affected by the body.

**Resistance Value**

Red jack "A" - 675K:  
 Green jack "B" - 825K:  
 Green jack "C" - 8.5M:  
 Yellow jack "D" - 11.5M:

**Test Output - LED**

Red (Low - hazard)  
 Green (OK - in limits)  
 Green (OK - in limits)  
 Red (High resistance)

**Step 3:** Repeat the procedure testing across jacks B, C, and D. The different resistance ranges should give the display shown for the 19350. If the tester does not meet calibration specifications, contact factory for calibration, or ask for Technical Bulletin TB-2004.

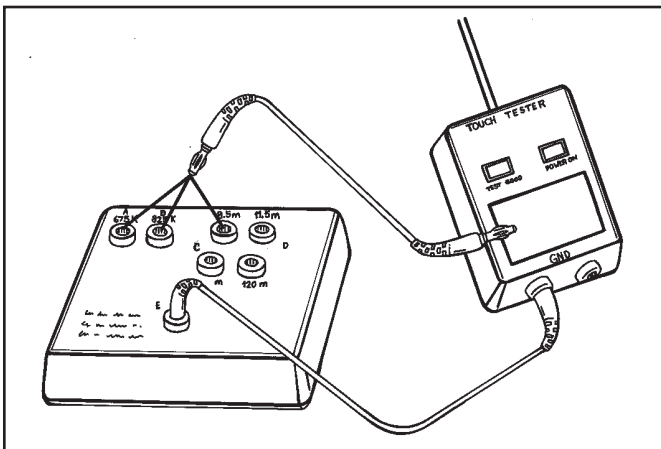


Figure 7. Testing 19350 for "PASS" and "FAIL" ranges as indicated on calibration unit.

**CALIBRATION OF THE MODELS 19250, 19251 AND 19252**

The models 19250, 19251 and 19252 testers utilize the identical test unit. The difference between the three models is the hardware that is included with each unit. The model 19250 includes only the tester, model 19251 includes the tester and a metal foot plate, while the 19252 is the tester and metal test stand assembly.

This test unit is designed with two separate test circuits with distinct pass fail ranges. The wrist strap test circuit incorporates a 750K - 10M pass range while the footwear test circuit is set to pass at 750K - 100M. Each test circuit needs to be tested individually. For detailed information on these testers please ask for Technical Bulletin TB-2040.

**Wrist Strap Test Circuit**

**Step 1:** Connect one of the test leads to common point banana jack labeled "E" on 07010. Connect the opposite end of test lead to the 19250's wrist cord jack located on the face of the unit.

**Step 2:** Connect the second test lead to the 675K jack labeled "A" on 07010. Touch the opposite end of test lead to tester's test plate and press down with enough pressure to activate the test circuit. Observe the LED's for the proper response as indicated below. Be sure to hold the cord at an insulated point, so that the resistance value is not affected by the body.

**Resistance Value**

Red jack "A" - 675K:  
 Green jack "B" - 825K:  
 Green jack "C" - 8.5M:  
 Yellow jack "D" - 11.5M:

**Test Output - LED**

Red (Low - hazard)  
 Green (OK - in limits)  
 Green (OK - in limits)  
 Red (High resistance)

**Step 3:** Repeat the procedure testing across jacks B, C, and D. The different resistance ranges should give the display shown above. If the tester does not meet calibration specifications, contact factory for calibration, or ask for Technical Bulletin TB-2040.

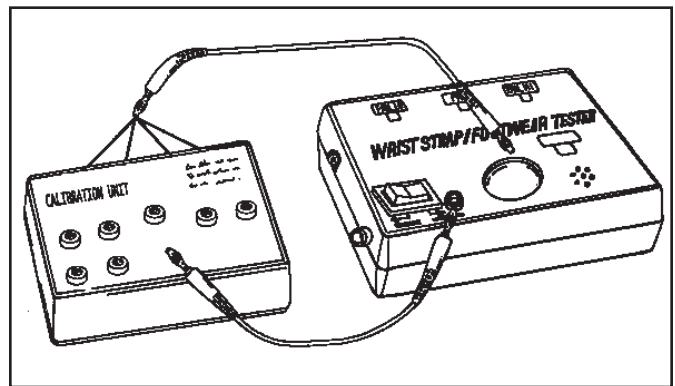


Figure 8. Testing 19250 for "PASS" and "FAIL", wrist strap test circuit.

**Footwear Test Circuit**

**Step 1:** Connect one of the test leads to common point banana jack labeled "E" on 07010. Connect the opposite end of test lead to the 19250's foot plate ground jack located on the side of the unit.

**Step 2:** Connect the second test lead to the 675K jack labeled "A" on the 07010. Touch the opposite end of test lead to tester's test plate and press down with enough pressure to activate the test circuit. Observe the LED's for the proper response as indicated below. Be sure to hold the cord at an insulated point, so that the resistance value is not affected by the body.

### Resistance Value

Red jack "A" - 675K:  
 Green jack "B" - 825K:  
 Green jack "C" - 80M:  
 Yellow jack "D" - 120M:

### Test Output - LED

Red (Low-hazard)  
 Green (OK-in limits)  
 Green (OK-in limits)  
 Red (High resistance)

**Step 3:** Repeat the procedure testing across jacks B, C (80M), and D (120M). The different resistance ranges should give the display shown above. If the tester does not meet calibration specifications, contact factory for calibration, or ask for Technical Bulletin TB-2040.

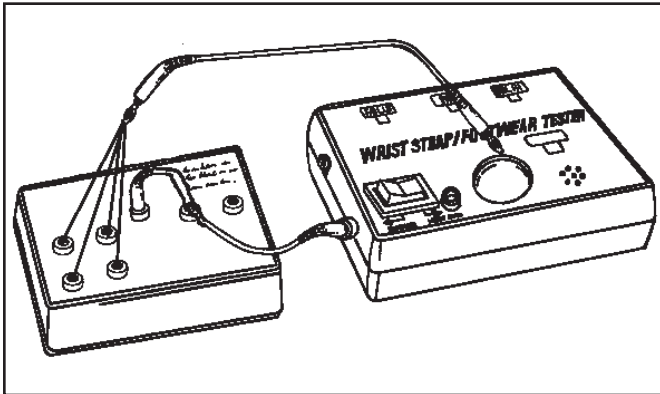


Figure 9. Testing 19250 for "PASS" and "FAIL" ranges for footwear circuit as indicated on calibration unit.

### Specifications

Power Source: Passive device, no power source required

#### Resistance Ranges -

Wrist straps:	Low -	675 Kilohm
	Pass -	825 Kilohm
	Pass -	8.5 Megohm
	High -	11.5 Megohm
Footwear:	Low -	675 Kilohm
	Pass -	825 Kilohm
	Pass -	80 Megohm
	High -	120 Megohm

Calibration: NIST traceable

Calibration Interval: Recommended annually

Accuracy: ±2%

Weight: 10 ounces

Dimensions: 4.50" x 3.25" x 1.00"

Consider adding the 07010 to your list of "test equipment that shall be selected to make measurements of appropriate properties of the technical requirements that are incorporated into the ESD program plan" as required by paragraph 6.1.3.1 of ANSI/ESD S20.20.

### Limited Warranty

Desco expressly warrants that for a period of one (1) year from the date of purchase, Desco Calibration Units will be free of defects in material (parts) and workmanship (labor). Within the warranty period, the product will be tested, repaired, or replaced at Desco's option, free of charge. Call our Customer Service Department at 909-627-8178 (Chino, CA) or 781-821-8370 (Canton, MA) for a Return Material Authorization (RMA) and proper shipping instructions and address. Include a copy of your original packing slip, invoice, or other proof of purchase date. Any unit under warranty should be shipped prepaid to the Desco factory. Warranty repairs will take approximately two weeks.

If your unit is out of warranty, call Customer Service at 909-627-8178 (Chino, CA) or 781-821-8370 (Canton, MA) for a Return Material Authorization (RMA) and proper shipping instructions and address. Desco will quote repair charges necessary to bring your unit up to factory standards.

### Warranty Exclusions

THE FOREGOING EXPRESS WARRANTY IS MADE IN LIEU OF ALL OTHER PRODUCT WARRANTIES, EXPRESSED AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE SPECIFICALLY DISCLAIMED. The express warranty will not apply to defects or damage due to accidents, neglect, misuse, alterations, operator error, or failure to properly maintain, clean or repair products.

### Limit of Liability

In no event will Desco or any seller be responsible or liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, users shall determine the suitability of the product for their intended use, and users assume all risk and liability whatsoever in connection therewith.