

# Wrist Straps Grounding, Testing and Maintenance



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## Location of Proper Ground Point

Wrist straps, work surfaces, and floor mats which are to be grounded for protection against electrostatic discharge (ESD) should be grounded to a common point. The common point should be connected to the "green wire" equipment ground.

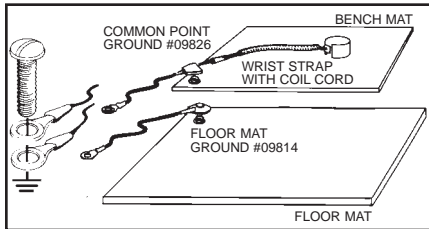


Figure 1. Common point ground for each workstation

This may be accomplished in a variety of ways utilizing common point ground blocks, ground buses, or connecting directly to the nearest utility "green wire" ground point. In a properly wired building, the nearest reliable ground point will be the center screw of the standard 110VAC outlet.

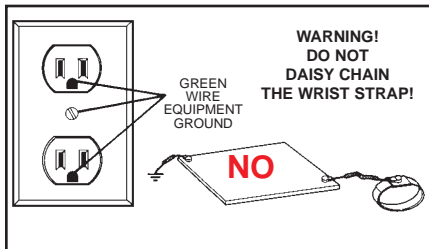


Figure 2. "Green wire" equipment ground

Each individual workstation must be individually grounded to the ground bus or "green wire" equipment ground. **Do not wire work surfaces or other ESD devices in series or "daisy chain" them.** This can create unknown resistance and unacceptable grounds.

For a more detailed discussion of ESD grounding see Desco technical bulletin TB-2007. For instructions on grounding Desco workstation mats see technical bulletin TB-2000.

## Test The Ground Before You Use It And Periodically Thereafter

Do not assume that any AC electrical outlet is properly wired. Even if it was originally wired correctly it can become

ungrounded due to corrosion and wear. **Test the ground you intend to use before you hook up.** We suggest using Desco's item 98130 AC Outlet Analyzer and Wrist Strap Tester.

## A Banana Jack Is Recommended

Almost all wrist strap manufacturers terminate wrist ground cords with banana plugs. This is because the banana plug and jack have proven to be a fast and reliable way to attach to ground. If you must use another method such as snaps or alligator clips, due to your particular environment, be sure to test the connections often.

Note: Many wrist strap users clip the wrist cord to the edge of an ESD protective mat. This process is not recommended as it can increase the total system resistance to ground to over the 35 megohm limit recommended in ESD S 20.20. (ESD Handbook TR20.20 section 5.3.2.2.2 Wrist Strap Ground Cord)

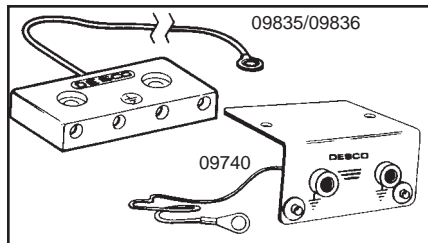


Figure 3. Desco's 09740/09741 dual bench mount and 09835/09836 quad common point ground cord are two easy ways to provide multiple banana jacks at any workstation.

## Compliance Verification of the Ground System

Set up a schedule to be sure that all ESD grounds are inspected and tested periodically, every six months for example.

## Testing the Wrist Strap

The best test of the wrist strap system is while it is worn. This includes all three components: the wrist band, the ground cord (including resistor), and the interface with the wearer's skin.

Desco has several testers available for this purpose. For more information ask for specification drawings or operating instructions by item number.

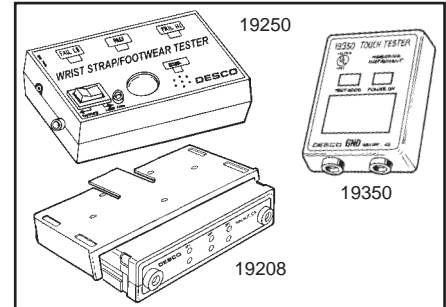


Figure 4. Wrist strap testers

If you obtain an open or bad reading from the tester you should stop work and test the wrist band and cord individually to find out which item has failed. Replace the bad component and test the system again. Obtain a "Pass" reading before beginning work.

## Cleaning

For proper operation, the wrist strap, especially the wrist band strip, must be kept clean. All wrist bands should be cleaned with a mild detergent on a periodic basis. Be sure that metallic expansion wrist bands are thoroughly dried to prevent corrosion.

Woolite™ works well. Liquid detergents are better than dry in that there is less caking and frictional wear. Launder elastic wrist band strips in cool or warm water, tumble dry with low heat or hang dry. This works well if using a standard house machine on gentle cycle. Industrial machines are fine if "Pony" (typically under 200 pound loads) machines are used. It is not recommended to launder .. in heavy industrial laundry machines as it will lead to premature wear. Should be tumbled dry using low heat. **DO NOT BLEACH.**

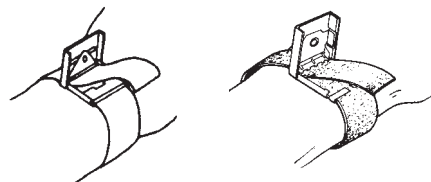
Wrist Strap silver fibers are sensitive to heat and should not be exposed to laundering heat in excess of 120°F. Use only non-ionic softeners and detergents when laundering."

# Size Adjustment of Wristbands

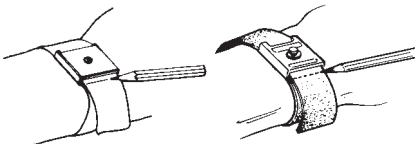
## Elastic Adjustable Wristbands

The elastic adjustable band is designed to be adjusted to the proper size to fit each individual wearer. After adjustment it can be used as a fixed size band. It is only necessary to adjust the size once.

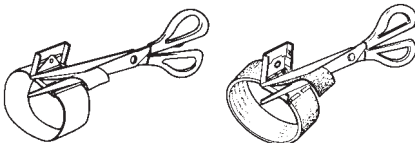
1. Place the wristband on the wrist.
2. Open the clasp by pulling upward on the "tail" of material that extends out from the clasp.



3. Tighten or loosen the elastic material through the clasp until the wristband fits snugly but comfortably.
4. We recommend that you close the clasp and wear the band with the excess tail extended for a day to be sure the adjustment is snug, comfortable, and has the proper electrical contact with the skin before cutting.
5. Test the wrist strap system to be sure of proper electrical resistance and skin contact. Use the procedure described under "testing".



6. When you are ready to cut off excess material, mark with a pencil where excess material is to be trimmed.

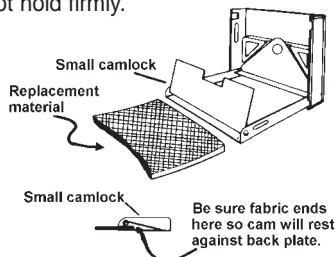


7. Remove band from wrist. Open clasp. Cut off excess material about 1/4" short of pencil mark so that the end of material is concealed by the cap. This will eliminate the possibility of exposed frayed ends.
8. Close clasp and use as a fixed elastic wristband.

## Replacement of Elastic Material

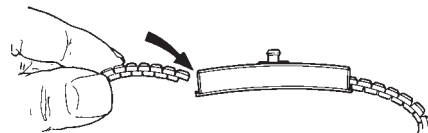
For use with 09028, 09069, 09070, and 91020 only. When the elastic material becomes worn, it can be easily replaced. Order item number 09029 from Desco for a replacement strip. To replace the fabric,

simply open the clasp as described under "Adjustment". Remove the fabric from the clasp. Note that the second end of the material is secured to the clasp by a smaller camlock. Open the small camlock (A small screwdriver is helpful.) Remove the fabric and replace it with the 09029. Be sure no material extends to the end of the lever arm of the small camlock. This will cause the clasp to close improperly and not hold firmly.

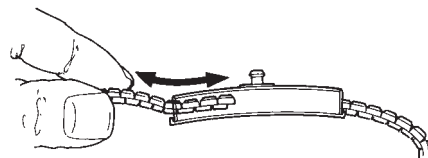


## Metal Expansion Wristbands

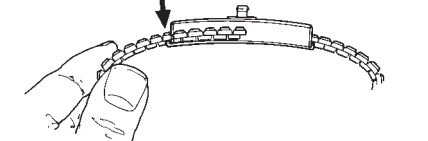
1. Insert the link end of the wristband into the slotted opening on the cap. Insert it at a downward angle to allow the links to slide inside the channel in the backplate.



2. Change the size of the band by sliding the links in or out of the stainless steel backplate. For extra small users you can cut off excess links with cutters.



3. Lock the links into place by pulling down on the band, seating the band securely over the lip on the edge of the backplate.



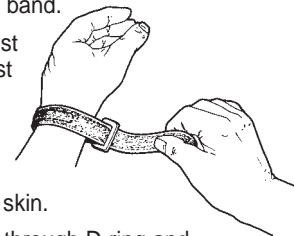
4. Test the wrist strap system to be sure of proper electrical resistance and skin contact. Use the procedure described under "Testing" section on reverse side.

## Hook and Loop Wrist Strap

This wristband consists of a hook and loop band with a D-ring buckle, a conductive strip for static charge dissipation, and a 4mm snap stud. The D-ring enables the

wearer to cinch the band for a secure fit. The band will adjust to fit any size wrist. Contact with the wearer is established through a conductive teflon tab sewn to the inside of the band.

1. Attach wrist strap on wrist so that the black conductive band makes contact with skin.



2. Pull strap through D-ring and cinch the band for a snug fit.

3. Test the wrist strap system to be sure of proper electrical resistance and skin contact. Use the procedure described under "Testing The Wrist Strap" on page 1.

**Note:** Desco wrist straps and coil cords are UL Listed for safety. However, this product is not recommended for use on equipment with operating voltage exceeding 250 VAC.

**CAUTION:** The ESD Series is for electrostatic control. It will not reduce or increase your risk of receiving electric shock when using or working on electrical equipment. Follow the same precautions you would use without wrist straps, including:

- Make certain that equipment having a grounding type plug is properly grounded.
- Make certain that you are not in contact with grounded objects other than through the ESD Series.

### Limited Warranty

Desco expressly warrants that for a period of one (1) year from the date of purchase, Desco wrist strap components 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. Ship your unit freight prepaid. 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.