



Wrist Strap Functional Testing

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Wrist straps and grounding cords are a very important part of the static safeguarded work area. A properly designed wrist strap-ground cord assembly can prevent voltage spikes due to capacitive changes caused by body movements relative to ground, as well as drain accumulated charge.

The wrist strap and ground cord are subject to stress and fatigue more directly than any other part of the workstation since they are physically attached to the worker and must move as the wearer moves.

Periodic tests of this personnel grounding system will insure that the level of static protection is appropriate.

The overall performance of a wrist strap-ground cord is largely dependent on the skin resistance of the wearer. Because of this factor, the best test of wrist strap performance includes the wearer. The test is simple and requires a minimum of equipment. The following paragraphs and figures describe this test procedure.

Equipment List Suggested Devices

1. Ohmmeter Simpson Model 269 (20 volts @ 0.2 microamps) Triplett-Model 630PL (30 volts @ 0.3 microamps)
2. Electrode #304 Stainless Steel Round stock 1 inch dia. x 3 inches in length. Banana plug receptible or screw connector attached to one end of the cylinder.

The specified ohmmeters are suggested since they are capable of measuring high resistances (0-200 and 0-100 megohms respectively) with suitable voltage to overcome skin contact resistance.

A resistance measurement from the worker to ground is

accomplished while the worker is wearing the wrist strap assembly (Figure 1). The worker holds onto a one inch diameter, three inch long #304 stainless steel electrode which is attached to the positive lead of a suitable ohmmeter. The ground lead of the ohmmeter is attached to the banana plug end of the wrist strap grounding cord. The worker should rotate his/her wrist while the resistance measurement is being recorded in order to insure that electrical continuity is not interrupted by normal working motion. The value of the measured resistance should be less than 10 megohms but greater than 0.5 megohms.

At the 10 megohm level, the wearer will not generate in excess of 10 volts from capacitive changes or triboelectric means. Should the resistance values be out of spec. high or low, the wrist strap and grounding cord may be checked separately to locate the cause of deviation. The low resistance spec. is given for current limiting protection of the wearer.

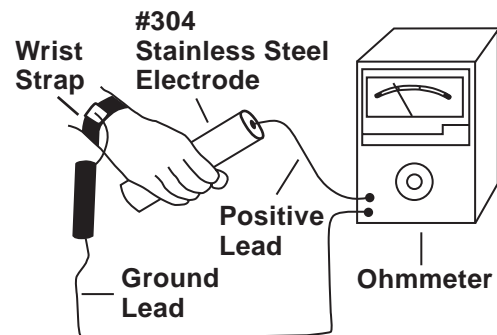


Figure 1. Wrist strap resistance test apparatus.

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