



Static-Dissipative Portable Field Service Kit 8501

Designed for electrostatic protection of static-sensitive components during field service calls

Although static damage can occur anywhere micro-electronic components are used, these sensitive devices are most susceptible during servicing. The 3M™ Static Dissipative Portable Field Kit 8501 prevents static damage that frequently occurs when an unprotected service technician works on electronic equipment.

The 3M Field Service Kit 8501 is designed to quickly and reliably remove any static charge on the technician and to provide a static-free surface upon which to lay parts. The kit includes one 3M™ Adjustable Wrist Band 2204 and a static-dissipative work surface. Both connect to ground by the 3M™ Ground Cord Assembly 3051. (See “Components” section for details).

The static-dissipative work surface reduces the potential for sparking and shorting that exists with highly conductive mats, and minimizes charge drainage from battery packs. For added safety, cotton trim covers all edges of the mat. The construction of this work surface gives it excellent flexibility over a wide range of temperatures. Its red color keeps both the technician and the customer alert to the potential problem of static electricity.

The Field Service Kit 8501 works on the principle of grounding. When the technician attaches the ground cord to the wrist band and to the static-dissipative mat, then connects the cord to ground, any existing static charge on the technician or on any conductive parts laid on the mat drains away to ground. Also, new charge is unable to accumulate.

Note: Static charge on nonconductors (e.g. plastic boxes, vinyl work order holders, foam coffee cups, synthetic clothing, etc.) cannot be removed simply by grounding. The only effective way to get rid of static on these items is to neutralize the charge with ionized air. Since it is often impractical to carry an ionized air blower to a service call site, the technician must take extra care to keep such nonconductors as far away from the work area and sensitive electronics as possible.

The need for good static control procedures at a customer's site cannot be overemphasized. Practicing proper static precautions in the field can save time, money and aggravation for both your customers and your own company. Static damage caused by an unprotected technician usually results in one or more callbacks – costly not only in time and money, but also in reputation. A callback may suggest to both the customer and your service manager that the job was not done right the first time.



Components

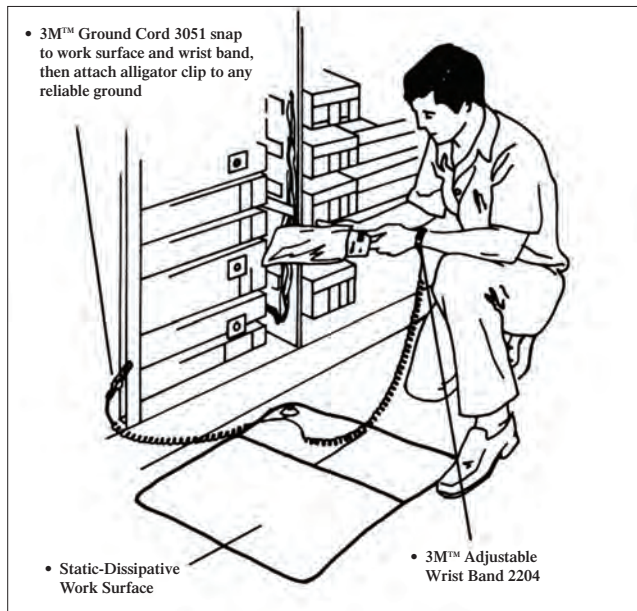
- Static-dissipative work surface, .021" x 22" x 24". Red with dark gray edging. Two pockets, each approximately 8" x 11", sewn into the work surface.
- 3M™ Common Point Ground Cord System 3051 Large center snap connects to the work surface. The 10' (extended length) coiled cord section snaps to technician's wrist band; the 5' (extended length) coiled cord section terminates in a standard banana plug which connects to ground either directly or by way of the 3M™ Alligator Clip 3038 (included). Each of the ground cord sections has its own independent one megohm resistor for user safety. (Note: 3M™ Insulated “Bulldog” Clip 3037 is optional.)
- One 3M™ Adjustable Wrist Band 2204



Static-safe field service procedure

(See schematic below)

1. Upon arrival at the service call site, unfold the static-dissipative kit on any convenient area adjacent to the trouble location.
2. Remove the accessories from the kit pockets, and attach the ground cord assembly to the red work surface by means of the large black snap in the middle of the cord. Connect the shorter of the two coiled sections to a reliable ground via the alligator clip, which fits over the banana plug. (Water pipes, unpainted equipment frames, electrical conduits, or building frame members usually provide accessible and reliable grounding locations.)
Once grounded, the work surface cannot hold static charges. The conductivity of the material ensures that the boards or components will be protected from the static charge existing on the carpet, tile, or table top beneath the mat.
3. Slip on the elastic 3M™ Adjustable Wrist Band 2204. Adjust the size to fit comfortably, yet still contact the entire circumference of the wrist. Contact need not be tight, but extremely loose fit is not desirable.



4. Snap the longer coiled section of the ground cord assembly to the stud on the wrist band. This connects the wrist band to the same common ground as the work surface.
5. It is now safe to remove and handle static-sensitive components.
NOTE: After removing a faulty part, put it immediately into a 3M static-shielding bag to prevent further static damage during its return trip to the repair depot.
The replacement board can be removed from its protective bag or container and inserted into the equipment frame.
6. If recalls persist and indicate the possibility of user-caused static damage, permanent placement of other 3M static control products may be required.

Cleaning

Clean the portable work surface with 3M™ Cleaner for Static Control Mats 8001. It may also be cleaned with mild detergent and water. Most strong solvents are not recommended. The wrist band can be cleaned by hand washing or in a standard washing machine.

Electrical performance

Note: Measuring the resistance of the work surface requires a high voltage megohmmeter like the one in the 3M™ Test Kit 701. Using a 5-pound, 2-1/2" diameter electrode*, the resistance to ground should be greater than 10^6 ohms and less than 10^9 ohms. If the resistance is less than 10^6 ohms, it indicates the existence of an alternate path to ground (bypassing the one megohm resistor in the ground cord) which should be traced and corrected. If the resistance is greater than 10^9 ohms, it means that the ground connection is interrupted and must be repaired.

*As specified in NFPA 99.

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