



## TECHNICAL BULLETIN

# TECHNICAL BULLETIN #137

**SUBJECT:** Warrior Electronic Repairs

**DATE:** November 21, 2011

**PRODUCTS AFFECTED:** All Sperian Warrior™ SCBAs

This Technical Bulletin addresses the issue of repairs and replacements of electronic components in Sperian Warrior SCBAs.

When Sperian first started issuing repair certifications to end user technicians for the Warrior SCBA, it was not apparent that performing many of the repair procedures involving electronic components could introduce electrostatic discharge (ESD) into the SCBA. Technicians were certified to do such repairs without receiving training on preventive measures to avoid ESD contamination. Such contamination can and often does cause electronic components to malfunction.

ESD is the sudden transfer of electrical charge between two bodies at different potentials. The human body or other conductive objects can become electrostatically charged if not properly grounded. If this charge comes in contact with or passes near an ESD-sensitive device, ESD damage can occur. People walking through a carpeted room or sitting in a car can generate sufficient static electricity to experience a shocking electrostatic discharge when touching a door knob. The ESD potential is thousands of volts. Semiconductor devices can sustain damage from ESD as low as 50 volts.

**Note:**

Non-conductive objects (such as synthetic clothing, Styrofoam, coffee cups, cigarette packs, vinyl work order envelopes, or common plastics) can also carry large amounts of static charge, and the charges on non-conductors such as these cannot be removed by grounding. Therefore, the technician must take care to keep all such non-conductors as far away from the work area and the sensitive equipment as possible.

When any of the following Warrior SCBA electronic subassemblies are replaced or when any of the connectors between them are connected or disconnected, ESD Class 3 control measures must be followed. This would include, regardless of pressure or options, the Front PASS, the Back PASS, the HUD transducer module, the battery compartment, the Pathfinder transducers on both the Front PASS and Back PASS, and the intermediate pressure cable and hose assembly that connects to the HUD transducer module. These can be found in the current Parts Book in the Warrior section.

If any part of the electronic system (PASS or HUD transducer) is disconnected for service or replacement, the quick-disconnect at the end of the second stage regulator assembly should be connected or disconnected using ESD Class 3 control measures. If the electronic system is completely assembled (normal field operating configuration), then it is not necessary to use ESD control measures when connecting or disconnecting the quick-disconnect.

It is not mandatory to use ESD control measures when replacing the intermediate pressure cable and hose assembly that connects to the HUD display module on the second stage regulator, nor when replacing the HUD display module itself. ESD control measures are also not required for connecting the PosiChek adapter (part number 752528).

General precautions common to working with any electronic components should *a/ways* be taken, including, but not limited to, the following:

1. Always work on a non-carpeted floor surface.
2. Avoid having non-conductive objects in the work area, such as plastic desk accessories, wastebaskets, telephones, rolling desk chairs (always stand when working on electronic components, and move rolling desk chairs out of the area), and objects as described in the Note above.
3. The lower the humidity, the more likely it is that damaging static charges will build up quickly. If your ventilation system allows you to control it, a humidity level between 35% and 50% is ideal. If you can't control your humidity, don't work with electronics on a cold winter day when the humidity tends to be very low, or on a warm day with the air conditioning turned up high. If you live in an area where the humidity is generally high, it's not a bad idea to open the windows while you do your electronics work.

Replacement of any other subassembly that requires the disconnection and reconnection of any electronic component mentioned above, such as the right shoulder strap or the IntelliPASS cover, must also be done using ESD Class 3 control measures.

This Technical Bulletin is being issued to amend all Warrior technician certifications. ***Until further notice, end user Warrior-certified technicians shall not remove or replace the Warrior electronic components described above. Only authorized Honeywell Warranty Service Centers may perform work on Warriors that requires ESD Class 3 control measures.***