

# Proper Way to Install/Remove Electronic Devices from Scion Gas Chromatographs

**Randall Bramston-Cook**  
Lotus Consulting

and **Ed Nygren**

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***Lotus Consulting***

310/569-0128

Email: [randy@lotusinstruments.com](mailto:randy@lotusinstruments.com)



5781 Campo Walk  
Long Beach, California 90803

Electronic circuit boards are easily damaged by static electricity, especially during their installation in or removal from analytical systems. Even low amounts of static electricity can scramble memory chips and electronic components, often immediately damaging the board or more often causing premature failures. Personal static discharge, could be from about 20 volts up to a few kilovolts, and can build up walking or standing still. All anti-static precautions are required to ensure that its effects are eliminated...Static electricity can scramble memory chips and make the board nonfunctional. All prevention measures are required to ensure that its damaging effects are eliminated.

Typically a grounding strap is used around a wrist<sup>1</sup> and then attach the wire clip to a grounded chassis. When ready to pull something out of an anti-static bag, place one hand on the instrument chassis while pulling it out of its bag, and note the instrument still needs to be plugged in. Then set the part on its antistatic bag until ready to get it installed. And at that point, try to put the strap on until it is grounded to some part of the chassis.

The anti-static bag packed with the component provides a virtual Faraday cage for the board or assembly, but the handler must be grounded before the piece is removed from its storage bag and must remain grounded the entire time in contact with it until it is grounded in the instrument.

**Note that the chassis (or bench) is not grounded if the instrument is unplugged. It can be plugged in with the power off and grounding strap kept attached to instrument chassis.**

If a suitable method of being grounded is not available, and an electronic component is to be handled to remove it, try to keep one hand on the instrument chassis while pulling it out of the bag, before reaching into the anti-static bag (remember the instrument still needs to be plugged in to maintain the ground). The installer must remain grounded the entire time while handling the board or assembly. Once removed from its bag, setting the part on its antistatic bag until ready to actually install it might help, but it does not provide a Faraday cage effect provided while surrounded by an anti-static bag, and it will still be vulnerable to static discharge from the person handling it.

Remember to be grounded from the time the component is reached into the anti-static bag to pull the board out until it is installed in the instrument and at least one of the screws that touches a ground plane attached to the chassis. Before removing a printed circuit board or assembly with an electronic circuit from its anti-static bag, typically place a grounding strap around your wrist and then attach the wire clip to an exposed metal piece of a grounded instrument chassis.

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<sup>1</sup> Possible source is McMaster Carr, [www.mcmaster.com/catalog/131/1187/72555K52](http://www.mcmaster.com/catalog/131/1187/72555K52), 4 foot, other lengths available.