

Re: Oscilloscope grounding question...

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- *From:* legg <legg@xxxxxxxxxxxxxxxxxx>
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How many scopes did go get with internal ground traces fused open?

** That should not happen with any scope that meets even basic electrical safety requirements – one of which is that external metal parts (like the BNC sockets) must be connected to the AC supply ground terminal by conductors of at least 1 sq. mm cross section.

Precludes the use of PCB traces alone to do the job.

Tek broke this rule with their very popular TDS210 / 220 series and had to recall the whole lot.

My experience with this kind of fault pre-dates the TDS series by some many years. It is part of my regular precaution, when visiting or assuming position in an unfamiliar test site to do basic continuity tests of this kind of internal equipment connection, digital ameter fuses, wall power polarity, battery conditioning and source interconnection, etc, etc, etc.

As the equipment dumped on a 'faringee' is usually dusty for some good reason, this is just plain good sense. In practice, I've pointed out open and dead circuits in these kinds of situations regularly, even in equipment with fresh calibration stickers. How this calibration was managed, I have no idea. Perhaps Yanik can illuminate inquiring minds. Scope models exhibiting internal open circuits included, from memory, Philips, Tek, Jiwatsu (sp?) and Nicollet.

In fact I actually own a TDS210 (since Y2K), and am listed to receive all product and recall notices from Tektronix covering this and a number of other models. I have no record of any recall being issued for the unit and have not had the problem – probably because of normal precautions previously mentioned in configuring a power electronics test bench. I find it to be a usefull tool, once isolated in conjunction with battery-powered laptops communicating through an rs232 interface. I also communicate to non-isolated bench PCs through various different isolated rs232 interfaces.

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I have, however, seen similar models whose BNC sockets were wobbly from simple brute force physical trauma. One of the problems with light and portable equipment that should be dealt with at the design stage.

In surviving a live wire short to ground, I wonder whether a 1mm cross-section wire is stronger than BNC or scope shielding braid, 18AWG line cord, wall wiring or a wall breaker of random ampacity and characteristics (not to mention all those iffy and worn socket, probe tip and DUT screw terminals)? Why place a \$2K+ piece of hardware in the equation unnecessarily?

A mandatory ground connection is just another ignorant hand thrust into a test circuit, when my own extraneous appendages are tucked away, where they should be.

RL

Excuse the odd posting format – original is copied from non-usenet source, as your posting ID seems to get regularly '30-day plonked'on my news handler. Possibly a lunar influence.

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