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Interesting event this week. In a thunderstorm, lightning hit a boat equipped with extensive electronics as well as Lectrotab trim tabs. All of the electronic items were destroyed with high current through the circuitry to ground. Also, the tabs were inoperative and, along with everything else, scheduled for replacement. When the order came in and we learned it was for “replacement” actuators, we asked some questions, since, whenever there is an indication of a problem we want to learn from it. The caller told us about the lightning strike and the fate of the electronics and his assumption that the actuators were fried as well. But as we thought about it, while there is no question that lightning could destroy the control switches, it would not likely get into the actuators.

Control switch contacts are across battery plus and boat ground so a strike on the battery plus circuitry would tend to jump the narrow switch contact gap to ground thus destroying the switches. However, the wires from the Lectrotab switches to the actuators are BOTH disconnected from both battery plus and ground when the switch is in the released position. Now, even if a strike came through the switch contacts, carrying current to ground, there is no reason for this current to flow to the actuators because the wires to the actuators are not grounded, or anywhere near a grounded element. The wires come to a dead end inside the all plastic actuator structure and are well insulated from ground.

So we asked the repair people to check the actuators by connecting them directly to 12 VDC, which they did and found both to be OK. All they needed was new switches.

So how would Bennett and Lenco fare? The Bennett motor and solenoid valves are vulnerable because, like electronics, bilge pumps and other grounded electrical devices, one side of the motor as well as one side of the valve solenoids, goes straight to ground. The Lenco is in trouble also because both wires to the actuator are in close proximity to the metal structure inside the actuator and this structure is connected to the stainless steel ram which is submerged in the water. A strike looking for a ground would find the Lenco actuator equally as enticing as a rocker switch. This is only theory; we haven't done the Benjamin Franklin thing to check it out.

In summary, in a lightning strike, our switches are likely to fry but the actuators should make it through. Anybody have any experience with such an event?

More next week but let us hear from you in the meantime. Use [mailcall@lectrotab.com](mailto:mailcall@lectrotab.com) for your reply. Our responses will continue to be very quick!

Best Regards,

L. Jeremy Crews  
President