Synercon Technologies
An Oklahoma Limited Liability Company
125 West Third Street · Tulsa, OK 74103 · www.synercontechnologies.com

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Improving Current Carrying Capacity for the Smart Sensor Simulator 2

Problem:

Some Engine Control Units, like Caterillar ADEM3 modules, draw a large amount of current on startup. It has been discovered that this current is large enough to overheat one thin copper trace on the printed circuit board of the SSS2 revision 5 hardware. This overheating can lead to premature failure.

Solution:

Place an 18 or 20-gauge jumper wire to bridge the connection between one side of the thin copper to the other, which provides a high current path and alleviates the thermal stress of the trace. Photographs of the solution are shown in the following figures.

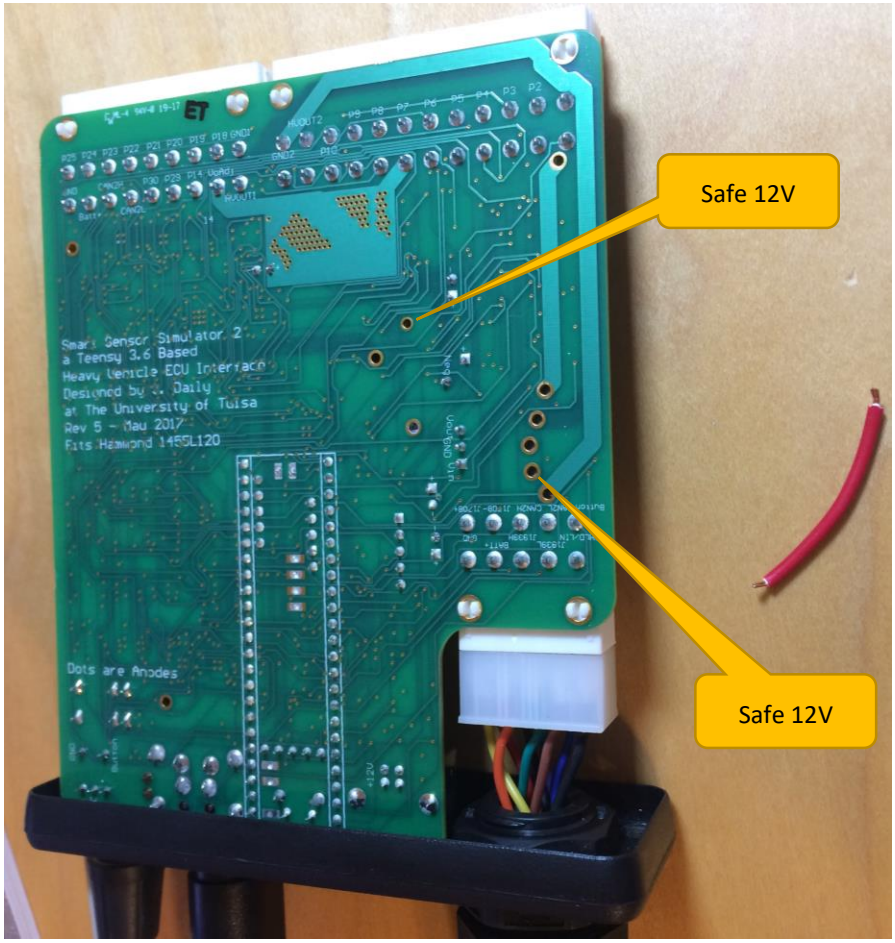

Figure 1: The bottom of the SSS2 Rev 5 Circuit Board with a cut and stripped wire.

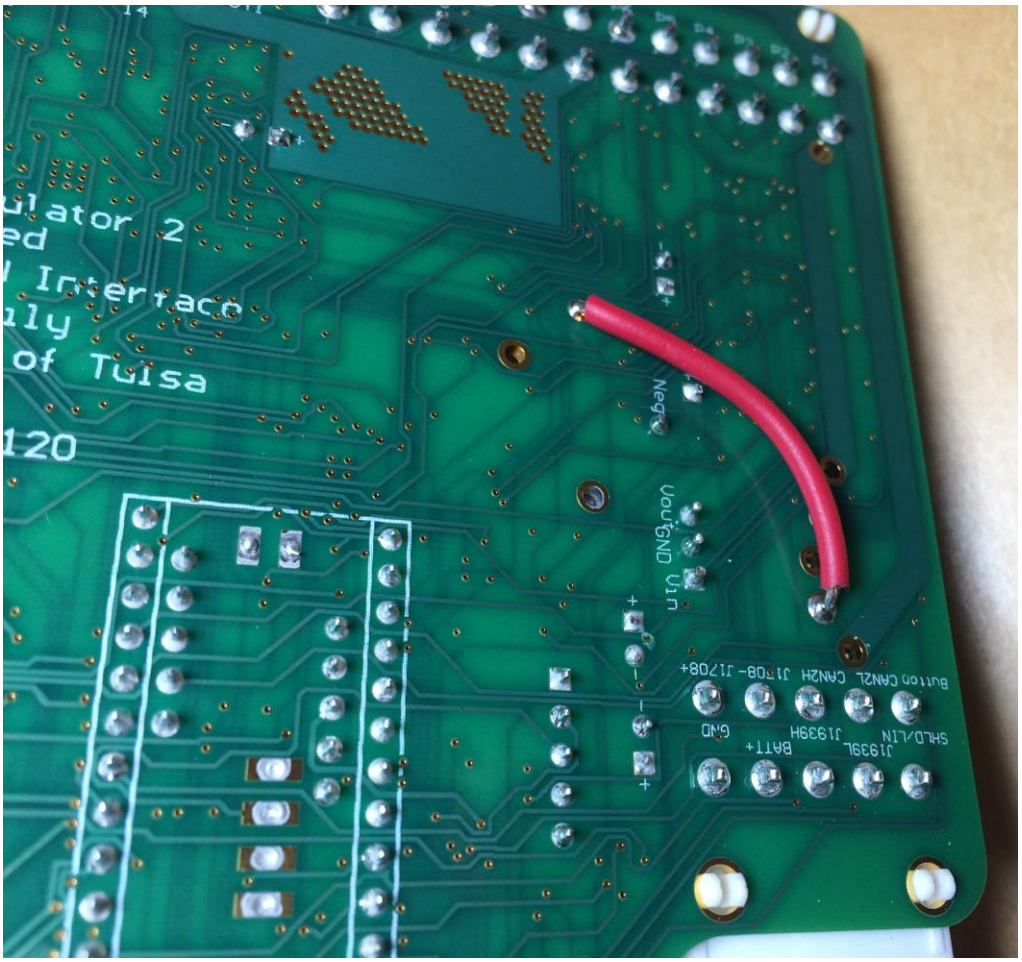

Figure 2: Completed connection for the Safe 12V net.

Issue Identification

The issue was located in the Altium CAD files as shown in the following screenshots:

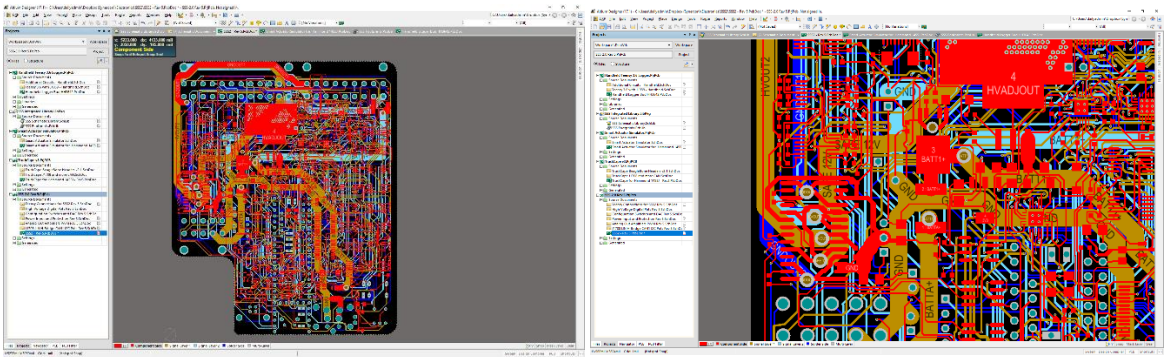

Figure 3: Zooming into the region of concern.

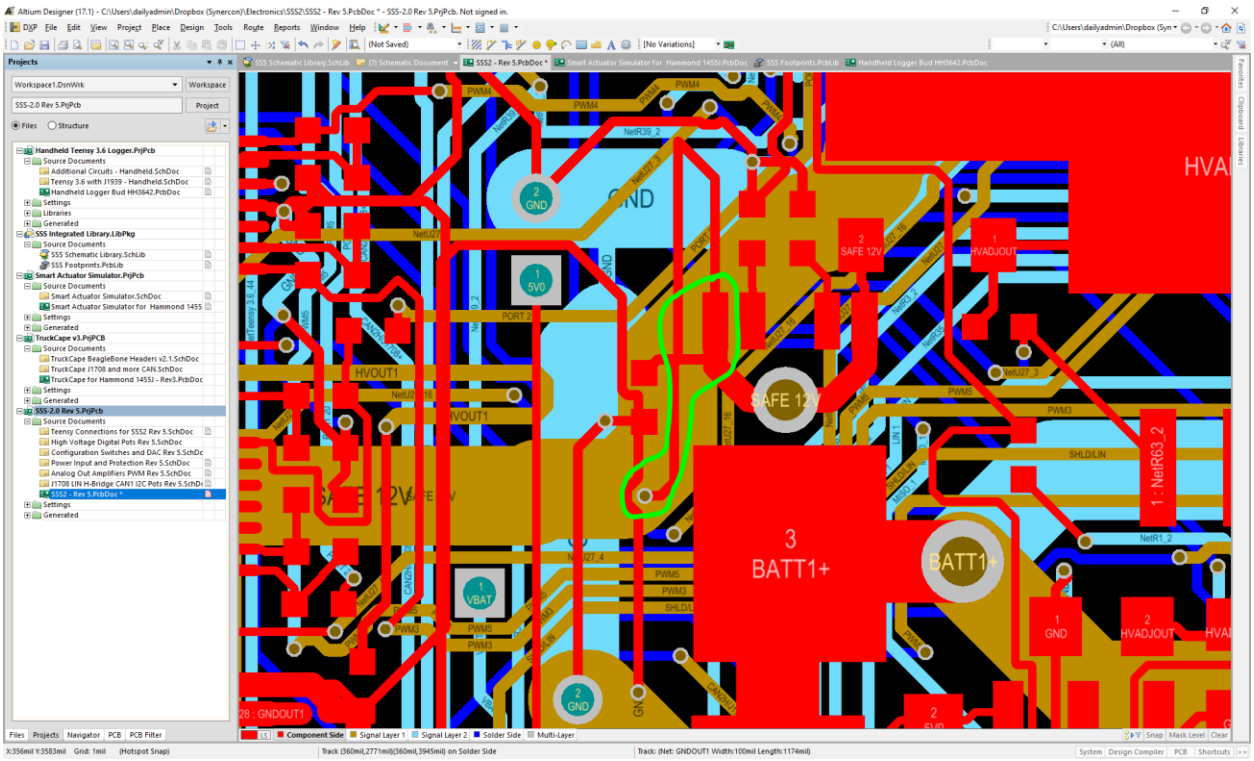

Figure 4: The lime green highlight show the thin trace that can prematurely fail.

Synercon Technologies recommends that all owners of the SSS2 Rev 5 hardware have this upgrade performed. Please contact sales@synercontechnologies.com to arrange for the modification.