TSV 2017 Errata

ECE 492 Spring 2017

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This document includes tasks that need to be completed as well as the status of some equipment in room 400. Be sure to also cross reference the document of rules that the accumulator does not follow here: https://sites.lafayette.edu/ece492-sp17/files/2017/01/TSVStepstobeingCompetitionReady.pdf

1) Rewire Pack 1 (it works, but is not color coded. Needs to be remedied for competition. It's been this way since its creation in 2016).
2) Engrave Part numbers on all mechanical parts. (ATP requirement)
3) Make PCBs compliant with SP2017 ATP
    a) Refer to ATR 2017
4) Make PCBs compliant with EV rules
5) Replace Crystal on PacMAN with better part (the current one is not meant for surface mount soldering).
6) Limit lower boundary of cell voltage (method commented out in code does not work)
7) Fix "Active Light" on Control PCB. (It doesn't light up)
8) Remove 37 pin connector from PacMAN board for something more logical and reliable. <20 pins are actually used.
    a) Recommended: http://www.molex.com/molex/products/datasheet.jsp?part=active/0430451401_PCB_HEADERS.xml Molex Micro-Fit 3.0™ Right Angle Header, 3.00mm Pitch, Dual Row, 14 Circuits, with Snap-in Plastic Peg PCB Lock, Gold, Glow Wire Capable, Black
9) Determine if USB UART is functional.
10) Redesign Packs such that discontinued Anderson Parts are no longer used.
11) Create a 5th Pack.
12) Ensure Packs are water proof.
13) There is a box of "Questionable AMS boards" that includes bad boards and boards that need work to get up to snuff. Be careful testing these. Not all of these are completely dead.
14) There is also a box of New AMS boards. These boards have not been calibrated or verified. Run them through the AMSVU. There is a document on the site on how to do this.
15) Charge extra cells in room 401.

16) Figure out why clock occasionally freezes on packs 3 and 4 (my guess is the crystal OR watchdog not working correctly in software)
17) PacMAN with S/N 02 is **unusable**
18) PacMAN with S/N 05 functionality is unknown
19) Sometimes the AMSVU does not recognize AMS boards with the new watchdog frequency.
20) Fuse in packs is currently at 200A. This has been recommended to increase to 300A as competition rules have changed. While it needs to be confirmed that the rest of the HV system can handle this, the packs should be able to handle this.
21) **Highly Recommended**: Test packs 2-4 through the ATP procedure defined in 2016 for the charge/discharge cycle. We were unable do to so as our timeline was shifted up; we highly recommend this as it will further exercise the packs and get them all to more reliably at the same charge level as pack 1 is. While the packs are functional and were utilized in the car at the end of last semester, this test would greatly improve the reliability and confidence in the SOC and cells.
    a) https://sites.lafayette.edu/ece492-sp16/files/2016/03/AcceptanceTestPlanFinal.pdf See Item 5
22) **Highly Recommended**: Lock functionality through the firmware on the PacMAN that prevents the safety loop from closing when the packs are "locked."
23) **Highly Recommended**: Currently, one of the packs goes to "dead" at ~160A. See https://sites.lafayette.edu/ece492-sp17/files/2017/01/Zimbra.pdf and https://sites.lafayette.edu/ece492-sp17/files/2017/01/crashlog.xlsx.pdf from the PacMAN section on the TSV website.