

Test plan name:	E-Stop Test
Test plan number:	E03
Revision number:	2
Date of last revision:	21 Feb 2017

Introduction:

This plan is a test plan in for the electrical subsystem. The purpose of this test is to evaluate the feasibility of adding an e-stop to the subsystem. An e-stop was originally part of the design. But, after the final design review of MSD I, it was determined that an e-stop was likely not required (per Professor Slack). This test is to make sure we have the capability to add an estop if it were to be necessary.

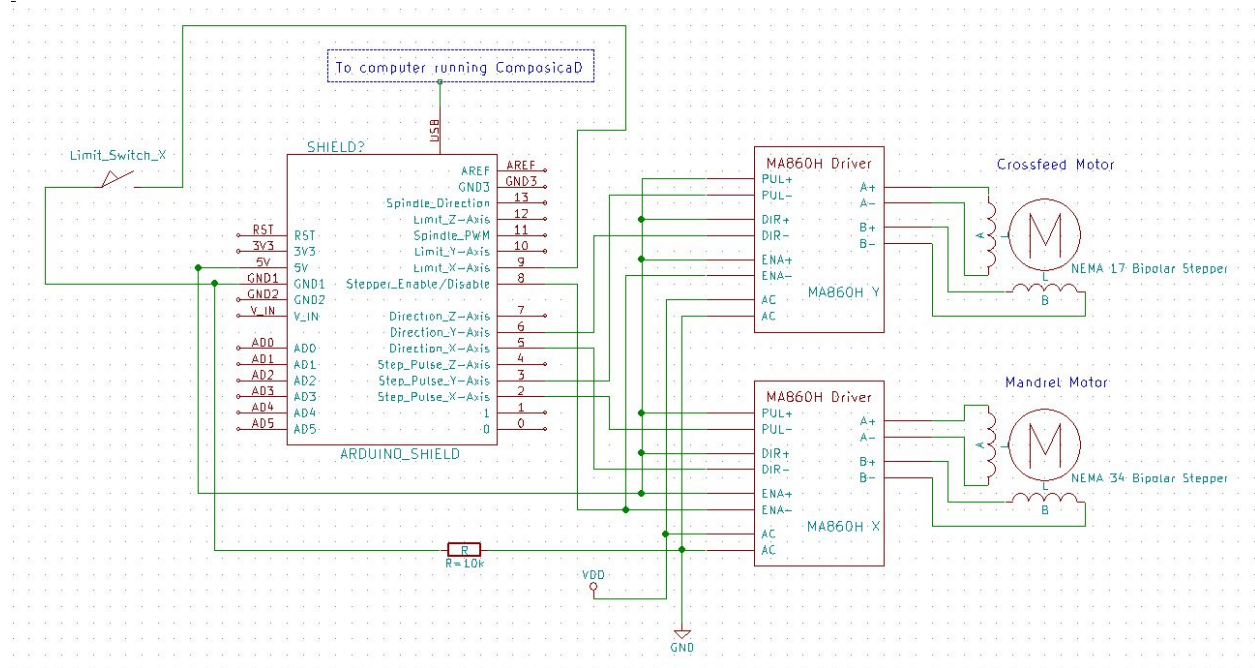
No testing equipment is required outside of basic lab equipment. There is no impact of this test on the project budget. This test is a basic test for the electrical subsystem.

Features to be Tested

- Ability to add an e-stop

Approach

The electrical subsystems will be wired up as per the wiring diagram below.



Pins 9 and 10 are used to evaluate the e-stop. Run a tube winding program such that the motors are running continuously. Send a 5V pulse to the limit pin and observe the behavior of the motors.

Repeat this process for both motors.

Data:

Signal	Behavior
5V pulse to Nema 34	
5V continuous signal to Nema 34	
5V pulse to Nema 14	
5V continuous signal to Nema 14	

Pass/Fail Criteria:

Criteria	Pass/Fail
5V pulse causes the Nema 34 to stop	
5V continuous causes the Nema 34 to stop	
5V pulse causes the Nema 14 to stop	
5V continuous causes the Nema 14 to stop	

Conclusions:

Additional Considerations:

- If an e-stop were to be implemented, it would require additional hardware. Lead time should be required.
- Absolute limits can be set in GRBL and/or CompositcaD.