weekly memorandum

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| to: | James Pettit |
| from: | Tommy Arrington |
| subject: | Launch Relay Box Circuit-Level Progress |
| date: | October 4, 2015 |
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**LAST WEEK**

Last week I focused on designing the circuitry that will take digital, logic-level commands from the microcontroller and use them to switch the 12V, high current power required to operate the rocket’s systems. After talking to Bradford Stricklin about various “off-brand” Arduino Megas, I took his recommendation to use the Ximico Mega 2560 R3 for Arduino, because it has a higher review rating (the Ximico has 70% 5 stars) and also costs $27 less on [Amazon](http://www.amazon.com/Ximico-Arduino-Cable-Atmega2560-16au-Compatible/dp/B00KG3SBE8). Most of the circuit components are standard diodes and resistors, and using N-Type MOSFET transistors to go between logic-level outputs and the ~200 mA current draw of the relay coils eliminates the cost of using premade NI Relay Units. Please refer to the Launch Relay System in the E&P folder to find the parts list (“Launch Box Parts List”) and the circuit diagram (“Relay Control Circuit Diagram”).

**THIS WEEK**

Next week I will develop the schematic for the integration of the analog sensor circuits, and work with Propulsion to ensure that the current needs of each part of the ignition system will not draw more then the limits of each relay. I also need to find a supplier for the SLA5047 MOSFET 4 pack, which will provide a cleaner wiring solution than 4 individual MOSFETs. Digikey is completely out of stock, so I will be checking other sources (or modifying the system to avoid the use of the IC).