weekly memorandum

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| to: | James Pettit |
| from: | Tommy Arrington |
| subject: | Progress on Finalizing the Launch Box as DC. |
| date: | October 12, 2015 |
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**LAST WEEK**

Last week, I researched the components that would be needed to convert the Launch Relay System to all AC vs all DC, and quickly reached the conclusion that replacing the 2 AC solenoids with their DC equivalents would be much more economical than the opposite. Please see the cost breakdown (in the E&P/Launch Relay System folder) for more details on this. The helium solenoids (which must withstand highest pressure and are consequently the most expensive) that I selected to replace the AC ones are available from [here](http://www.mcmaster.com/#1190n23/=zf0mn8) on McMaster Carr, and they will integrate into the ¼” pipe already available. I chose these because they cost approximately the same as solenoids rated for automobile nitrous use, but have a slightly higher maximum pressure, available engineering information (specs), and can be procured directly from a vendor that SRT already has history with. The major drawback is that it requires 24 V to operate these units, so I created an updated wiring diagram where a second car battery is used to provide the step up to 24 V. It’s also important to note that having this power will make other planned launch box systems possible, since some of the servos and actuators planned require 24 V to function. Also, this week I finished the circuit diagram with the new electronic igniter system, which eliminates the need for a standalone ignition-only car battery. The product I’d suggest to act as an ignition coil (which can directly interface with the Arduino) is the [Duralast Ignition Coil](http://www.autozone.com/ignition-tune-up-and-routine-maintenance/ignition-coil/duralast-ignition-coil/112078_0_0/). It’s inexpensive, able to connect to many different outputs, and still reduces the number of required car batteries. (Compared to the classic super-high current igniter).

**THIS WEEK**

This week I'll be focusing on PDR, and learning more about how wire quick disconnects can be guaranteed to release. I will also look into high voltage quick disconnects, but keep my mind open to other options at well.