Mechanical Team Launch Procedure Checklist
Last updated 2/4/2009

- 1 week before launch
  - Prelaunch simulation – test rigging using dynamic simulator and strengthen connections accordingly

- 2 Days before launch
  - Begin flight prediction and weather checking
  - Notify potential launch location of pending launch
  - Begin packing equipment
  - Run helium filling calculations and print the output

- 1 Day before launch
  - Finish packing equipment
  - Run final flight predictions
  - Fax flight prediction information to Dayton approach
  - Notify Dayton approach of fax

- Day of launch – At home base
  - Load equipment in vehicles – check off items as they go into the vehicle

- Day of launch – Setting up the enclosure
  - Check launch area for sharp objects/rocks and large items
  - Spread tarp on ground
  - Spread balloon enclosure centered on top of tarp
  - Place bean bag weights into enclosure pockets
  - Check enclosure for debris
  - Use gloves to spread balloon on top of balloon enclosure
  - Check balloon for defects

- Day of Launch – Filling the balloon
  - Unload two helium tanks from the truck (used tanks first)
  - Attach the regulator/filling line to helium tank
  - Close all valves on filling line
  - Open the tank valve
  - Set regulator pressure to 25 psi
  - Bleed a little helium to make sure the pressure is correct
  - Connect battery to flow meter and zero the totalizer
  - Connect filling line to filler nozzle
  - Connect filler nozzle to balloon neck by folding outward the balloon neck material and stretching over the nozzle end
  - Clamp balloon neck to nozzle using PVC fixture and clamp
  - Zero the totalizer again and begin filling by opening the regulator valve and ball valve next to the flow meter
  - Monitor the totalizer and keep the team notified on balloon filling status
  - After the balloon has been filled with around 500L close the bag over the balloon
Check the nozzle position frequently to make sure the clamp does not puncture the balloon and keep the nozzle from working its way upward.

When the balloon reaches the desired volume shut off the regulator valve and the ball valve located near the flow meter.

- **Tying off the balloon**
  - Create the balloon neck connection system
    - This consists of two quicklink connectors one Sampo ball bearing swivel and one welded steel ring and a 1’ section of yellow cord
    - The split rings on the swivels MUST be replaced with the SPRO split rings
  - Pinch off the upper portion of the balloon neck and remove from nozzle. Hold firmly as letting go now will waste a lot of helium
  - Fold neck in half lengthwise (fold is parallel to neck length) and wrap the middle in black duct tape
  - Tie the yellow cord from the connection mentioned above to on top of the duct tape
  - Fold the neck over the tied portion of cord and tape over the same section
  - Tie the remaining portion of the cord over the neck again

- **Connecting the system**
  - Cut the orange cord to length and tie one end using perfection loop
    - (show picture of perfection loop)
  - Connect the looped end to release mechanism arm
  - Run the other end through the welded steel ring attached to the balloon neck and then tie to the top of the parachute
  - Connect the parachute to the top spreader ring using a carabiner
  - Wrap the elastic bands around each section of connection lines on the spreader rings
  - Clip the snaps to the D-rings on the top package harness
  - Connect the lower spreader ring to the top and bottom package by connecting the clips to the D-rings. The section with springs should be at the very bottom
  - Check for tangling or misconnected links
  - The system should now be ready for take-off

- **Releasing the balloon**
  - Run the ascent cord through the welded steel ring and fasten to two sturdy people
  - One person should be place to remove the rip strip from the bag while two more pull the enclosure panels away from the balloon
  - A fourth person should be placed at the neck of the balloon to prevent a rapid jerk to the system (this person needs to be carefully covered preventing contact with the balloon)
  - Raise the balloon slowly with the ascent cord and do one final inspection/check
  - Release the balloon by letting go of the free end of the ascent cord