

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
 - (A picture of this setup should be placed here)
 - 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