

Level 3 Pre-Launch Checklist

- Motor preparation - Follow instruction sheet.
 - Motor preparation materials, e.g. lubricants, wet rag for cleaning inside of casing.
 - Tools for airframe assembly and inspection
 - Loose hardware (e.g. for motor retention, shear pins)
- Internal Ebay Prep:
 - Insert batteries into holders and secure with zip ties/tape
 - Turn on computers and check primary and backup charge settings
 - Turn off computers
 - Check all wire connections
- External Ebay Prep:
 - Connect switch wire mini-clamp connections
 - Insert Ebay sled into ebay coupler, put bulkheads in place and secure with 5/16-18 wing nuts and washers
 - Cut igniters to length
 - Insert igniters in terminal blocks and secure with set screws
 - Check continuity on all igniters
 - Pour black powder into charge well
 - Insert igniter head into black powder and insert dog barf until charge well is full and tightly packed
 - Securely tape off top of charge well
 - Place tape over bulkhead components (wiring and terminal blocks) to protect them from black powder charge
- Secure Ebay to Payload bay
 - Attach end of main shock cord to nose end ebay u-bolt with 3/8" quick link
 - Feed main shock cord through payload bay and insert nose end of ebay into payload bay. Line up witness marks
 - Secure ebay to payload bay with #6-32 screws
- Prep Nosecone tracker bay
 - Install Marco Polo / GPS Transmitter to nosecone bay sled
 - Install tracker batteries
 - Ensure Marco Polo/GPS transmitter is charged and turned on
 - Test connection to base station
 - Insert sled into Nosecone AV Bay and secure bulkheads with 1/4"-20 wing nuts and washers
 - Insert AV bay into Nosecone and line up witness marks
 - Secure AV bay to nosecone with #6-32 screws
- Prep main parachute
 - Lay out parachute – inspect for damage
 - Fold parachute per manufacturer instructions for placement in deployment bag
 - Ensure parachute apex is connected to loop inside deployment bag with quick link
 - Insert parachute into d-bag carefully, ensuring shroud lines remain untangled and stretched out
 - Z-fold shroud lines into loops on outside of d-bag, leaving about 6" of shroud line loose in order to connect to shock cord
 - Connect parachute shock cord to nosecone u-bolt with 3/8" quick link
 - Connect pilot chute to deployment bag with snap link
 - Wrap pilot chute in nomex blanket
 - Connect main shock cord to nosecone u-bolt with 3/8" quick link
 - Z-fold main shock cord, securing every 10-15 feet with dental rubber bands.
 - Insert shock cord into payload bay, then carefully insert d-bag and pilot chute
 - Insert nosecone coupler into payload bay, line up witness marks and secure with 4-40 shear pins
- Prep Drogue
 - Attach end of drogue shock cord to fin can bridle swivel with 3/8" quick link
 - Attach drogue swivel to middle shock cord loop with 3/8" quick link
 - Attach nose end of shock cord to u-bolt on ebay

- Fold drogue chute neatly and then fold nomex blanket around drogue
- Z-fold shock cord, using a dental elastic band every 10-15 feet
- Insert shock cord and drogue chute in fin can
- Insert ebay coupler into fin can and secure with 4-40 shear pins
- Prep Onboard Cameras
 - Test each camera to ensure the batteries are charged and they can connect to app via wifi
 - Check all camera settings in app
 - Turn off cameras
 - Insert cameras into shrouds and secure shroud covers with 4-40 screws
- Prep rail buttons
 - Determine if Unistrut or 1515 buttons will be used and install proper buttons with ¼-20 screws
- Insert motor into MMT and secure with Aerotech 98mm threaded cap
- Prep motor igniter
 - Tape igniter wire to small wood dowel so igniter head extends beyond one end
 - Lay a piece of tape on the table, sticky side up
 - Lay pyrodex pellet on tape with igniter sandwiched between them
 - Roll tape up until igniter head is securely taped between pyrodex pellets
 - Shunt igniters wires
 - Test to ensure assembly will still fit in motor nozzle, but do not insert assembly all the way into motor
 - Prep two of these igniter assemblies in case something goes wrong at the pad
- Prep to go to pad
 - Ensure all electronics are off and igniters are not in motor
 - Ensure switch cover is removed
 - Fill out flight card
 - Items to bring to pad
 - Screwdrivers for switches
 - Switch cover and 4-40 screws
 - Igniter assemblies
 - Tape
 - Flashlight/headlamp
 - Go Pro-cameras
 - iPhone to turn on Runcam 2 Cameras and Eggtimer computers
 - Get rocket RSO'ed for pre-flight check and sign-off
- At launch pad
 - With help, mount rocket on rail
 - Take photos!
 - Verify/adjust launch angle/trajectory
 - Turn on Switches 1 and 2 (battery connections)
 - Ensure battery connections are good, then turn on Switch 3 (primary computer)
 - Allow primary computer to go through pre-flight and ensure proper tones for continuity
 - Turn on Switch 4 (backup computer)
 - Allow backup computer to go through pre-flight and ensure proper tones for continuity
 - Connect to cameras with iPhone app and turn them both on. Ensure both are recording before leaving pad
 - Insert an igniter assembly in motor and secure with tape
 - Connect launch control leads to igniter wires and secure each with tape
 - Check continuity
 - Place Go-Pro Cameras and ensure they are on and recording
- Give rocket final check to ensure nothing was forgotten
- Return to LCO and place flight card on table
- Wait for launch, video it and enjoy it!

Mis-Fire Procedure

- Remove igniter
- Turn off all the electronics. Verify none are active.
- Recycle to "At Launch Pad" sequence

If the rocket has to be disassembled...

- verify that all altimeters are in the off mode.
- take back to the table and put in horizontal position.
- remove nose cone first.
- remove fin can shear pins.
- Remove metal screws holding forward section on coupler section.
- disconnect igniters from the terminal blocks on both ends of the eBay section
- ebay can now be disassembled and inspected.

