**TVC Gimbal & Launch Mount Assembly:** (Launch Mount is used as a reference point, which is why it should be assembled first)

* Put superglue on the inside of the launch pad mount
* Place the launch pad mount over the cardboard tube so that the bottom of it is flush with the bottom of the tube and let it dry
* Where there is already holes in the mount, drill holes in the cardboard tube
* Fasten the gimbal mount to the launch pad mount and cardboard tube
  + Make sure the IMU and servo cables are running up the rocket tube
  + Can also attach the TVC gimbal mount later

**Middle Section Assembly:**

* Use a ruler again to measure from top of body tube down to 8.35in (start of access panel)
  + Mark that distance on the side where the launch pad mount has a bolt in it (reference point)
  + Draw a circle using the flexible ruler around the tube at that mark.
* Draw another circle 8.85in down from the first circle
* Draw 4 lines from one circle to the other using a straight edge from the four launch pad mounts as reference points
* From the reference mount draw a straight line between both circles
* On the line attached to the reference mount and the line opposite of that, drill 5 holes (1/8in drill bit):

1. 0.125in up from top circle
2. 0.25 in down from top circle
3. 3.79in down from first hole
4. 0.75in down from second hole
5. 3.72in down from third hole

* On the two lines 90 degrees from the line with the holes, cut along the lines using utility knife to create the access panel
  + The access panel should open opposite of the reference point
  + It’s best to cut slightly below the lines than above the lines (i.e. make the access panel larger than 180 degrees around the tube)
* Place the piston canister bulkhead’s retaining ring flush with the top of the opening for the access panel and attach fasteners to the top and bottom holes
  + Cut the next two holes 90 degrees from the first two, either using the drawn line as a reference point or poking a hole using an ice pick where there’s a hole in the retaining ring
  + Put fasteners in those two holes
  + After checking all fasteners are in the right spot, take them all out once again, apply super glue to the retaining ring and place it in the correct spot
  + Put the fasteners in immediately after to secure it when drying
* Fasten the retaining rings to their respective bottom holes
  + Use the ice pick to poke a small hole in the offset angle holes
  + Drill holes in those spots
  + Attach fasteners to those bolts
* With the 3 fasteners attached to each, put the access panel on top and try attaching fasteners to ensure holes are in the correct spots
  + If they are in the right spots, take off the access panel, leave 3 fasteners in each bolt and put superglue on all of the retaining rings
* Once all of those are dry, the test stand mount can be attached
  + First, determine the actual CG of the rocket with everything attached (as if it were flight ready)
  + Mark that location on the bottom line (should be somewhere around the flight computer)
  + Drill a hole at that mark
  + Attach the retaining ring
  + Use the ice pick to mark and drill new holes in those spots
  + Take the fasteners out, super glue the outsides of the ring then reattach to its position and let dry
* When actually using the launch pad mount on the outside of the tube:
  + all fasteners will need to be removed from the rocket, so that it can slide down the tube
  + then put the access panel into place and fasten everything down.
* Once all retaining rings are put into place, the other two sections can be put into place.
  + Launch pad mount

**Nosecone & Recovery Section Assembly:**

* Create a knot in one end of the shock cord
* Attach the knot to the loop bracket on the piston canister bulkhead and fasten the bracket down
* Slide the shock cord through the tube
* Tie another knot and attach to the nosecone bulkhead’s loop bracket
* Superglue the nosecone bulkhead to the nosecone
* Attach a clip from the loop attached to the nosecone to the parachute swivel
* Put the piston cap on top of the piston canister bulkhead before inserting into the rocket, so that it’s in the right position
* Fasten the piston canister bulkhead to its retaining ring
* Pack the shock cord and parachute into the storage area
* Put tape around the bottom of the nose cone for a tight fit and connect the nose cone to the tube