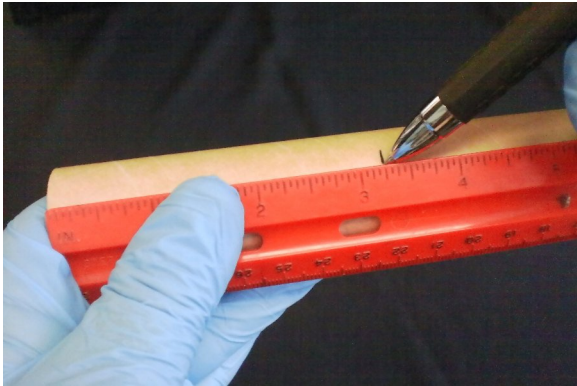


## **Expert Series 4.0 Crayon Rocket Assembly Instructions**

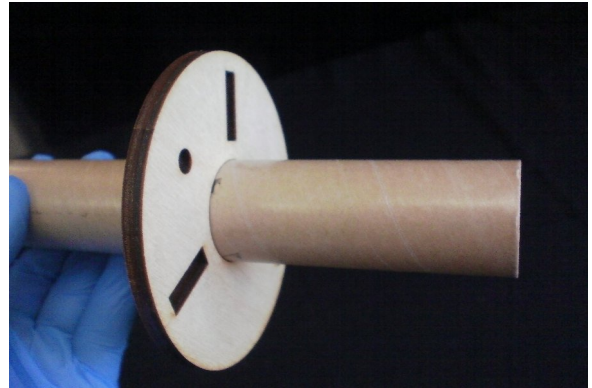


# Fin Can Assembly

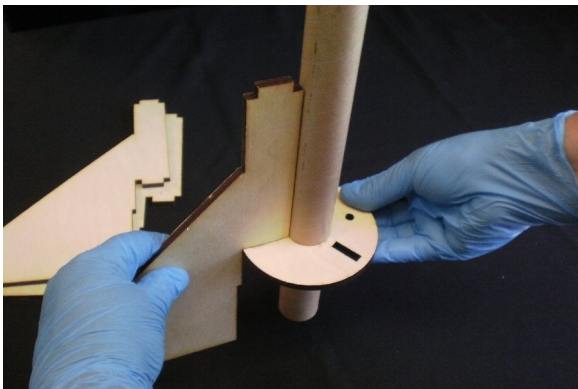
**Step 1 - Mark the motor tube 3 1/4" from one end.**



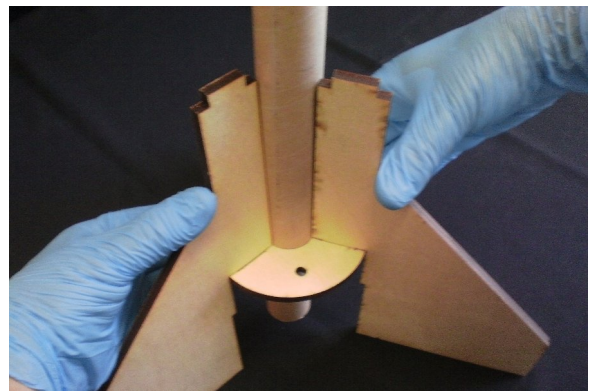
**Step 2 - Insert the motor tube into a centering ring until the mark is at the edge of the centering ring.**



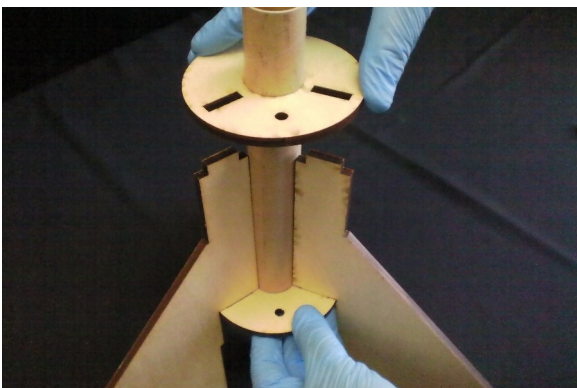
**Step 3 - Place marked end down and lock a fin into the slot at the top of the bottom centering ring.**



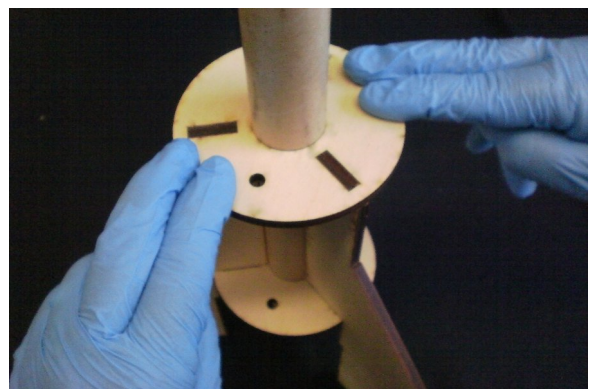
**Step 4 - lock all the other fins in the same way.**



**Step 5 - Slip another centering ring over the top end of the motor tube while holding the assembly together.**



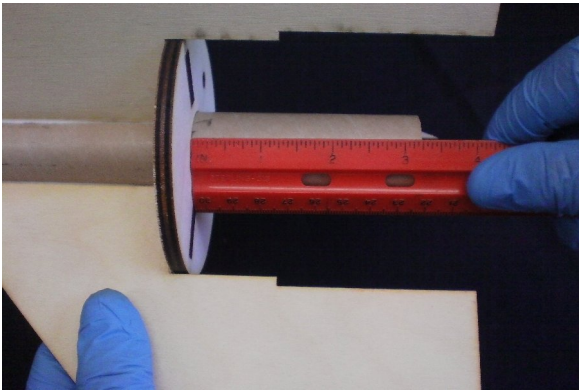
**Step 6 - With both shock cord holes of the centering rings aligned, push the top centering ring down and lock all the fins together.**



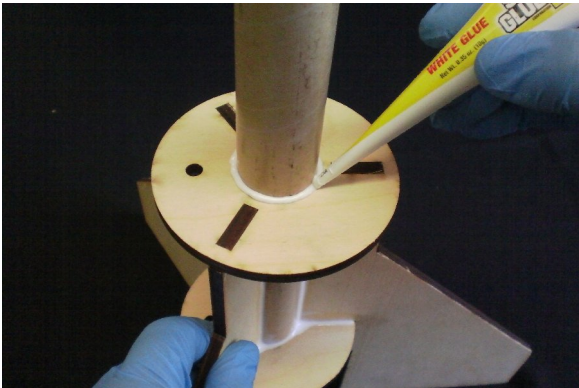


# Fin Can Assembly Continued...

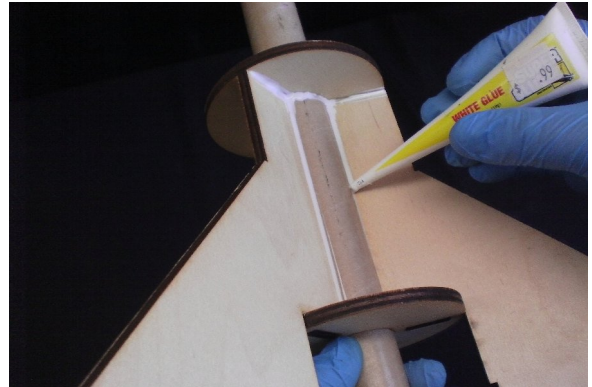
**Step 1 – Re-check and adjust the motor tube to 3¼" from end to the edge of the centering ring and tighten all the parts of the assembly together.**



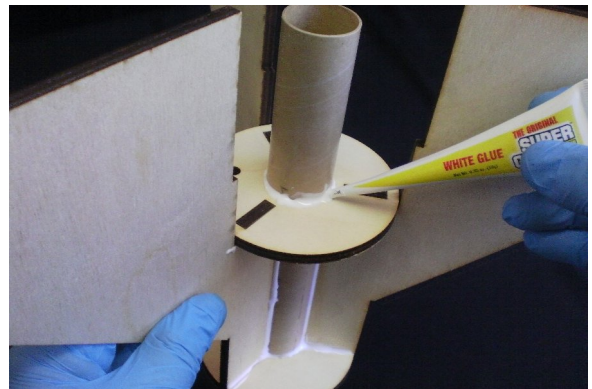
**Step 3 - Apply a glue fillet the top centering ring where it contacts the motor tube.**



**Step 2 – Apply a glue fillet to the inside of each fin where it contacts both the centering rings and the motor tube.**

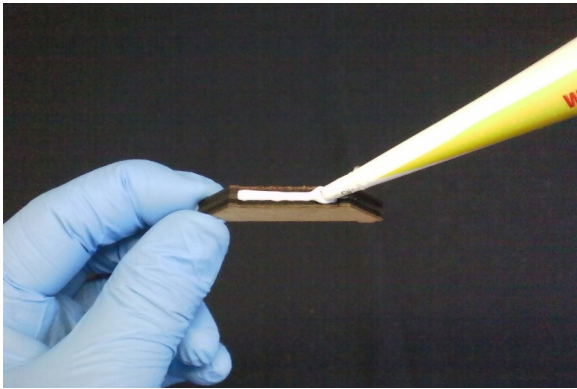


**Step 4 - Apply a glue fillet the bottom centering ring where it contacts the motor tube.  
Set aside to dry.**

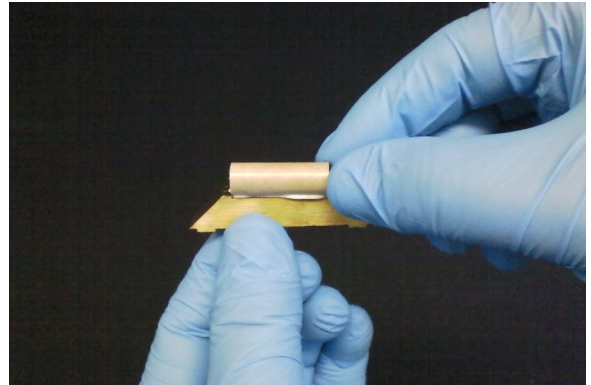


# Launch Lug Assembly

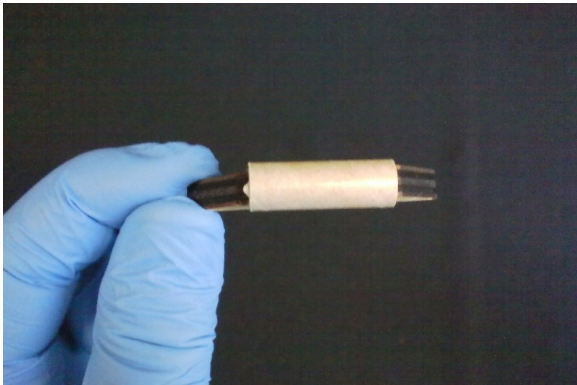
**Step 1 - Apply a bead of glue on one standoff along the top shorter surface.**



**Step 2 - Attach the launch lug to the standoff.**



**Step 3 - Align the launch lug straight to the standoff.**

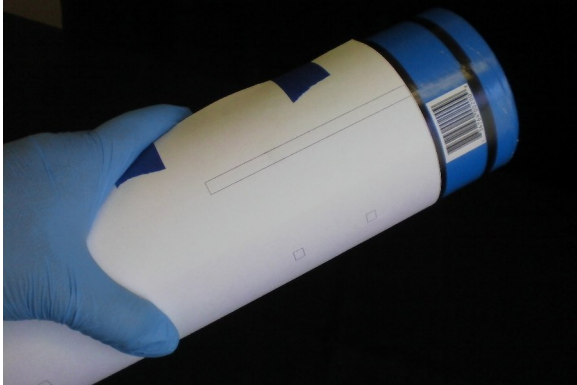


**Step 4 - Do this for both launch lug assemblies and set aside to dry.**



# Main Tube Preparation

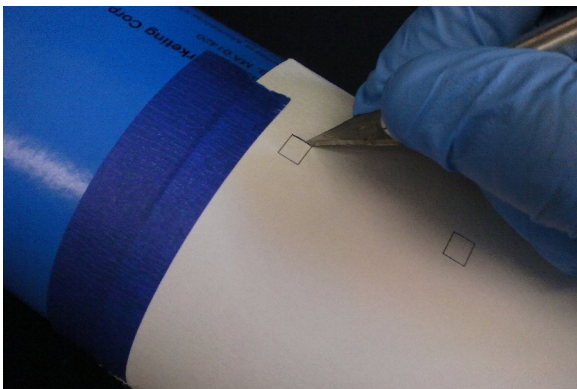
**Step 1 - Wrap the template tightly around the crayon tube. Line up the edges of the sheet and tape the template together.**



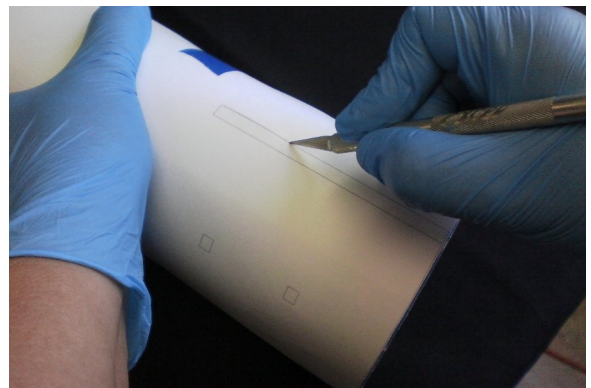
**Step 2 - Slide and align to the edge of the tube with the first fin on the seam next to the white UPC label. Tape the template to the tube with painters tape.**



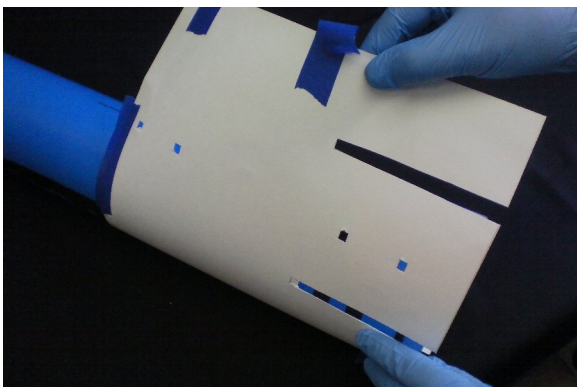
**Step 3 - Cut through the template while scoring the crayon tube for all launch lug alignment holes.**



**Step 4 - Cut through the template scoring the crayon tube for all fin slots.**



**Step 5 - Remove the template.**



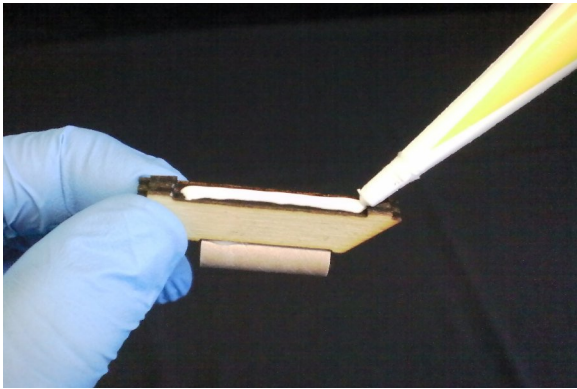
**Step 6 - Finish cutting through all launch lug alignment holes and fin slots with several light cuts until cut through.**



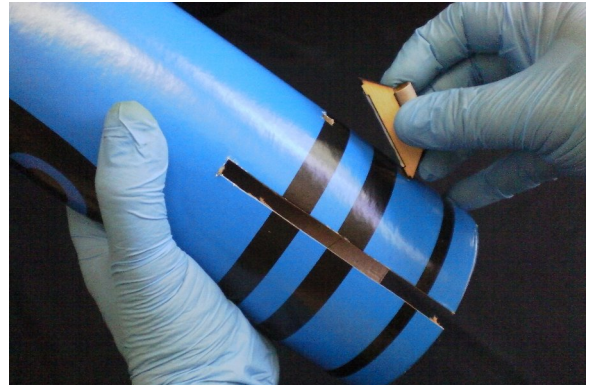


# Launch Lug Attachment

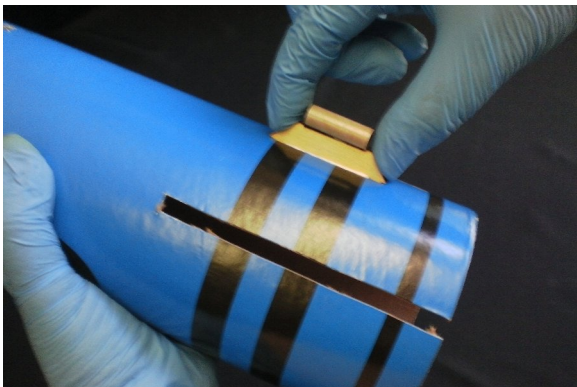
**Step 1 - Apply glue to the bottom of the first launch lug assembly.**



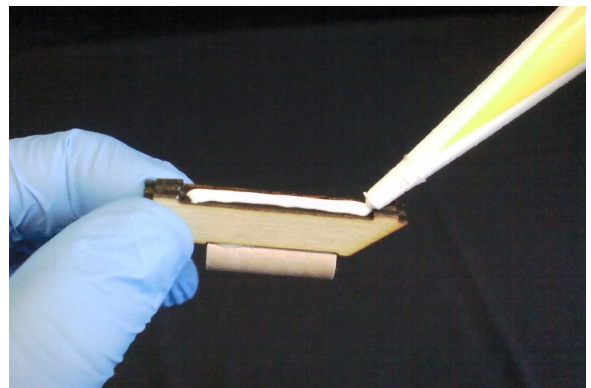
**Step 2 - Insert the tabs on the bottom of the launch lug assembly into the bottom alignment holes of the crayon tube.**



**Step 7 - Press the launch lug assembly firmly onto the crayon tube.**



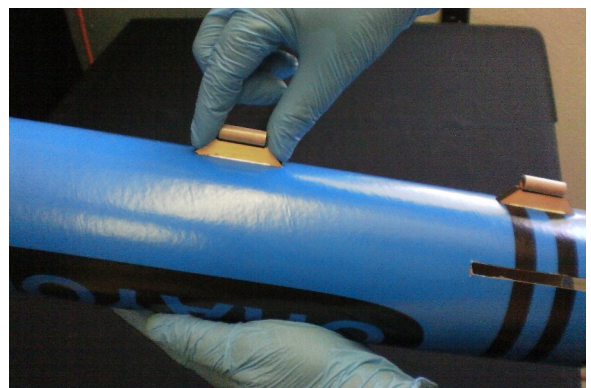
**Step 8 - Apply glue to the bottom of the second launch lug assembly.**



**Step 9 - Insert the tabs on the bottom of the launch lug assembly into the top alignment holes of the crayon tube.**

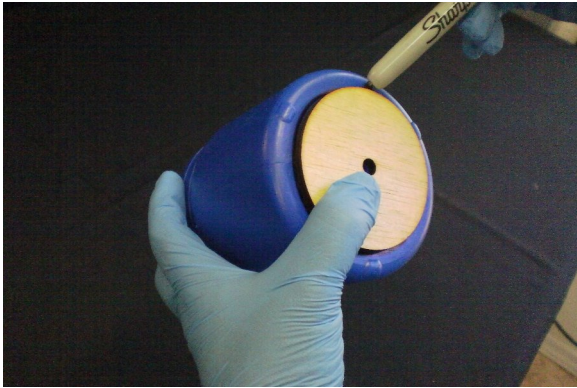


**Step 10 - Press the launch lug assembly firmly onto the Crayon tube. Set aside to dry.**



# Nose and Tail Cone Assembly

**Step 1 - Place the smallest bulkhead plate centered on the rear of the tail cone and mark around the perimeter.**



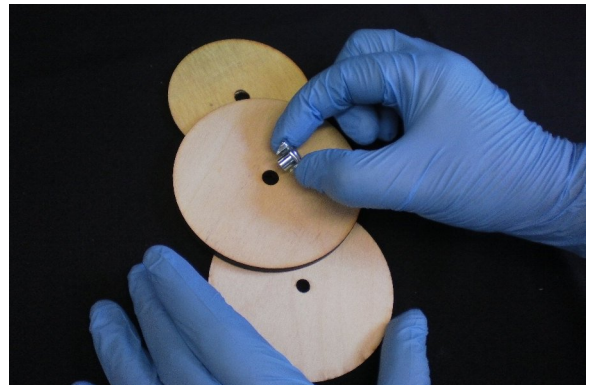
**Step 2 - Make several passes using a hobby knife with light pressure until cut through.**



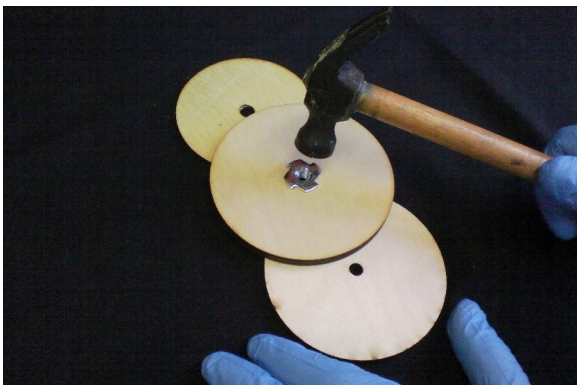
**Step 3 - The tail cone bottom surface is now opened to clear the motor installation.**



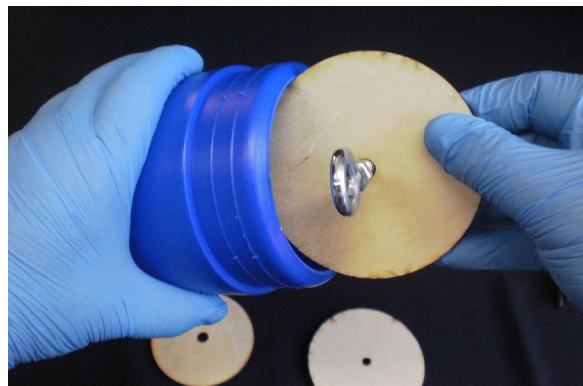
**Step 4 - Place the largest bulkhead on top of the smaller bulkheads and insert the t-nut into the center.**



**Step 5 - Hammer the t-nut into the forward bulkhead until flush.**



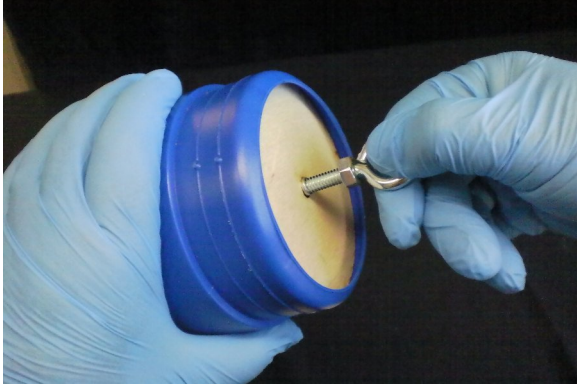
**Step 6 - Screw the screw eye into the opposite end and insert the bulkhead into the nose cone.**





# **Nose and Tail Cone Assembly Continued...**

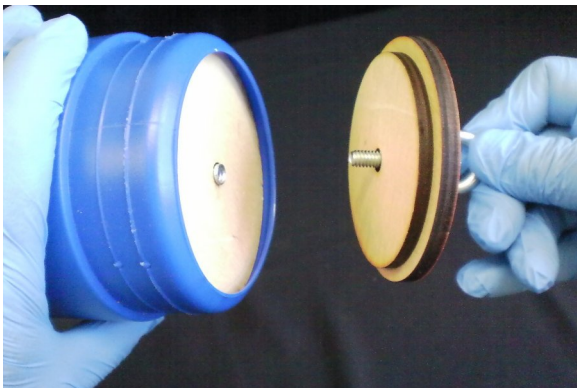
**Step 7 - Pull the bulkhead to the rear inside lip of the nose cone and remove the screw eye.**



**Step 8 - Screw the nut all the way onto the screw eye and insert the screw eye through the flat washer.**



**Step 9 - Insert the screw eye assembly into the next largest and then the smaller bulk head last.**



**Step 10 - Screw in the screw eye and bulkhead assembly into the t-nut tightly.**



**Step 11 – The bulkhead assembly will secure itself onto the rear lip of the nose cone.**



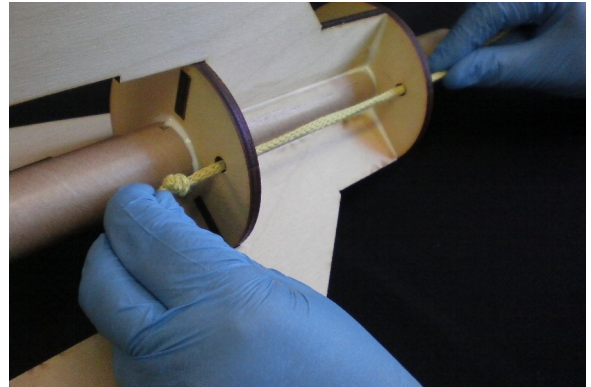


# Main Tube Assembly

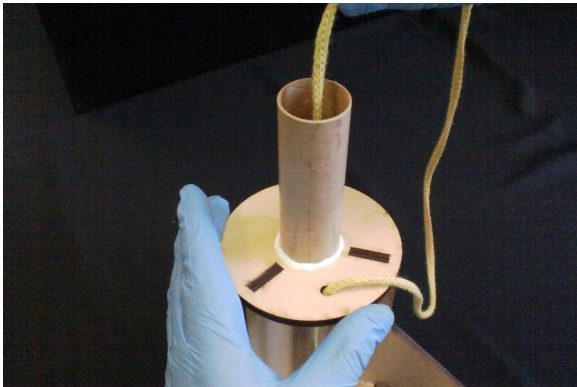
**Step 1 - Tie a knot in one end of the kevlar shock cord.**



**Step 2 - Insert the shock cord through the bottom centering ring and then through the top centering ring.**



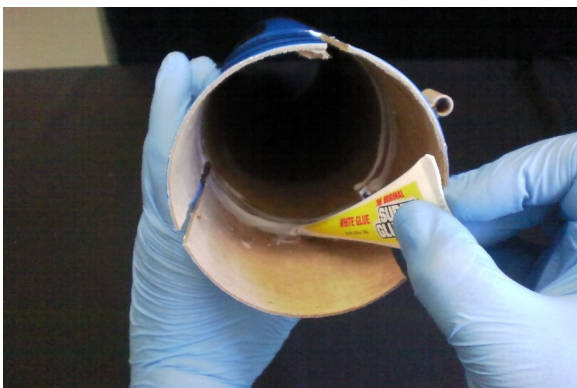
**Step 3 - Insert the other end of the shock cord through the top end of the motor tube.**



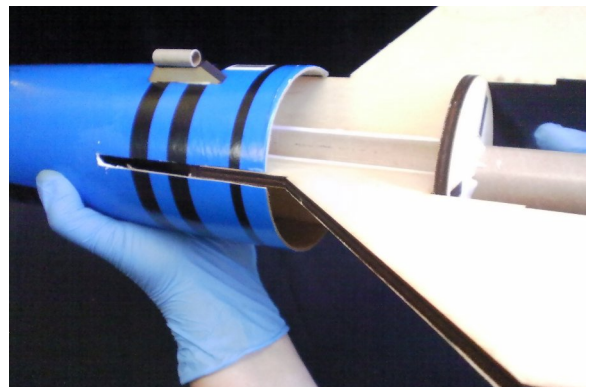
**Step 4 - Pull the shock cord through the bottom of the motor tube.**



**Step 5 - Apply a tick bead of glue to the inside of the crayon tube just below the end of the fin slots.**



**Step 6 - Push the fin can assembly all the way into the crayon tube until the fins stop at the fin slots.**



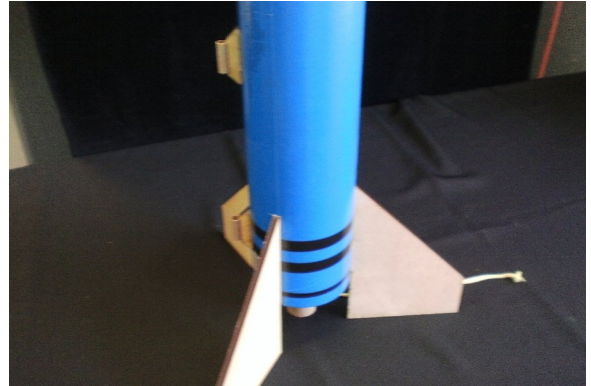
## Main Tube Assembly Continued...

**Step 7 - Apply a glue fillet between the inside of the crayon tube and the bottom centering ring.**

**Take care to not apply glue to the shock cord hole and knot.**



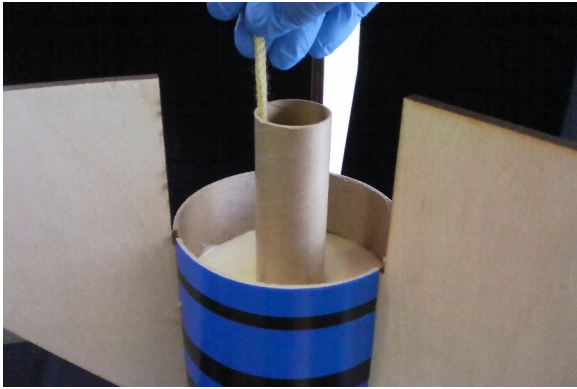
**Step 8 – Set aside to dry.**



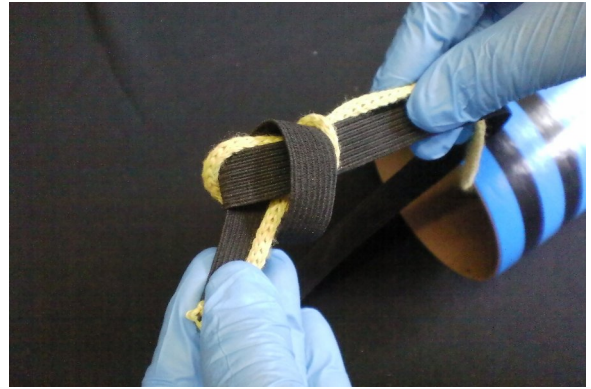


# Recovery and Final Assembly

**Step 1 - Pass the shock cord back through the bottom of the motor tube and out of the top of the crayon tube.**



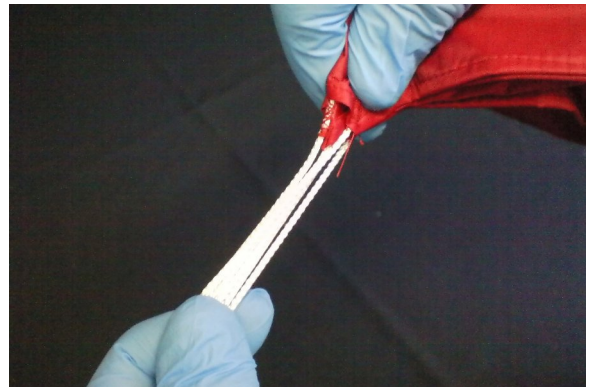
**Step 2 - Align the ends of the Kevlar and elastic shock cords and tie a single overhand knot.**



**Step 3 - Pull and check that the knot is tight.**



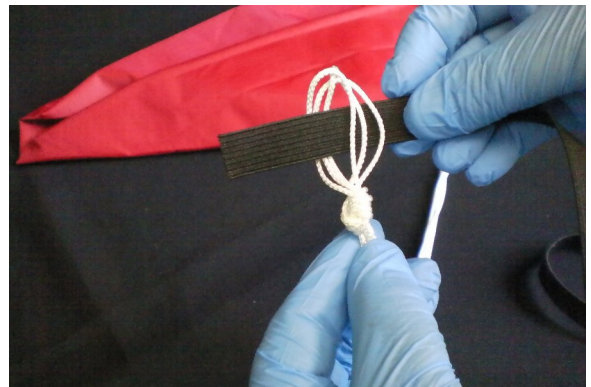
**Step 4 - Align the ends of the parachute at the shroud lines.**



**Step 5 - Pull the parachute lines straight to the end and tie a single knot in the end of the parachute lines.**

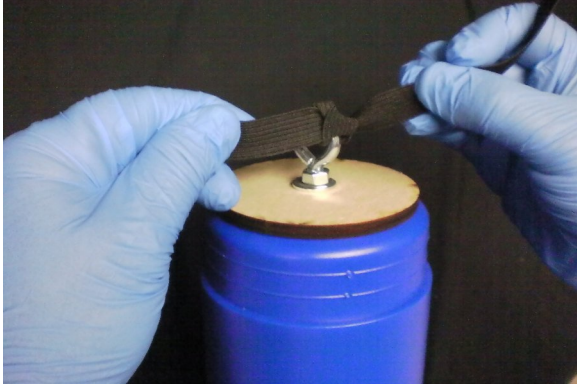


**Step 6 - Pass the end of the elastic shock cord through the loop at the end of the parachute lines.**

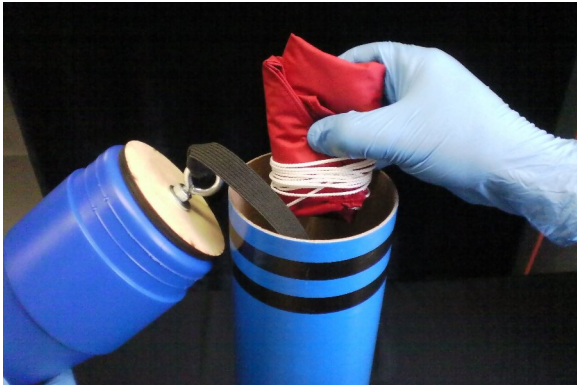


## **Recovery and Final Assembly Continued...**

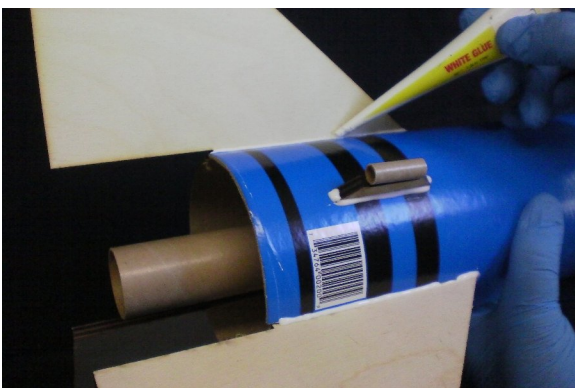
**Step 7 - Tie the elastic shock cord to the screw eye on the nose cone with a double knot.**



**Step 9 - Insert the parachute and shock cords in the top end of the crayon body tube.**



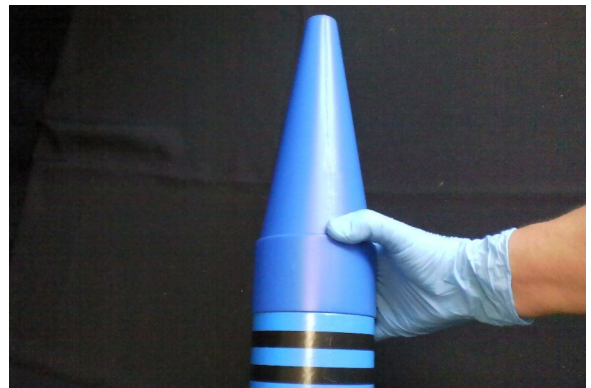
**Step 11 - Apply a bead of glue to the fins and launch lug assemblies where they intersect the crayon body tube.**



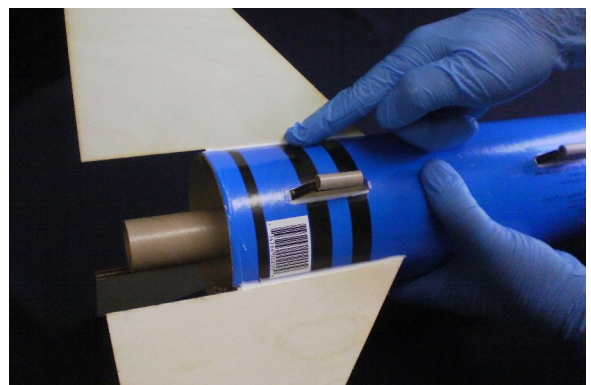
**Step 8 - Fold the parachute and roll parachute around the parachute lines. Do not twist the lines while rolling.**



**Step 10 - Insert the nose cone in the body tube. Sand the bead on the nose cone shoulder if it is too tight to eject during recovery.**



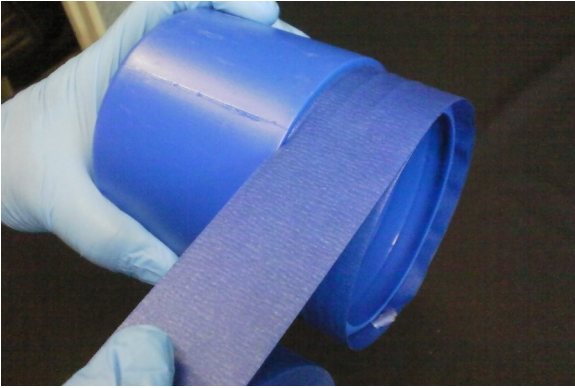
**Step 12 - Smooth the glue into a fillet using a clean finger.**



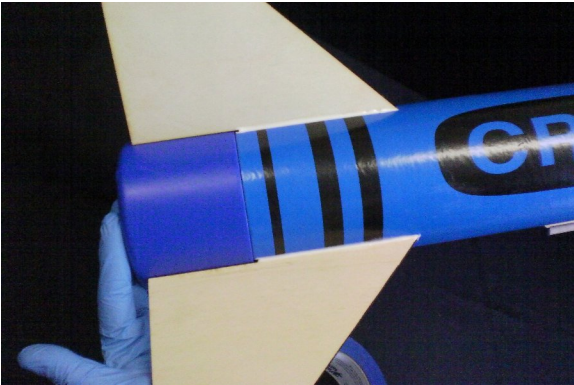


## **Recovery and Final Assembly Continued...**

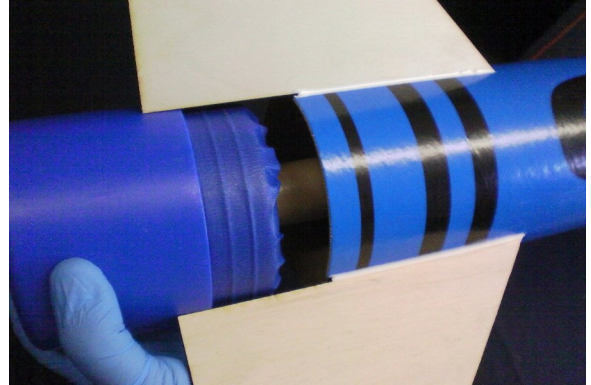
**Step 13 - Wrap some layers of masking tape around the tail cone shoulder.**



**Step 15 - Test that the fit is tight so that the tail cone does not separate during flight.**



**Step 14 - Press the tail cone into the bottom of the crayon tube.**



**Your crayon rocket is complete!**

**CAUTION: INSERT RECOVERY WADDING INSIDE THE ROCKET BETWEEN THE PARACHUTE AND MOTOR TO PREVENT THE HEAT OF THE EJECTION CHARGE FROM DAMAGING YOUR PARACHUTE WHILE FLYING!!!**