

MAGNUM

SPORT • LOADER™

FLYING MODEL ROCKET ASSEMBLY INSTRUCTIONS



Prod. No. A51003
Skill Level Three

QUEST AEROSPACE, INC
PO Box 2409
Pagosa Springs, CO 81147
800-858-7302



Things You'll Need To Assemble this Kit: Pencil and Hobby Knife:

White Glue:

Aliphatic Resin glue, such as TITEBOND or ELMER'S CARPENTER'S WOOD GLUE - ELMER'S WHITE SCHOOL GLUE also works but dries slower.



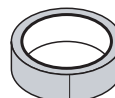
Medium CA Glue:

"CA" is the commonly used name for industrial grades of cyanoacrylate based fast-acting glues. Commonly sold under trade names like SUPERGLUE and CRAZY GLUE.



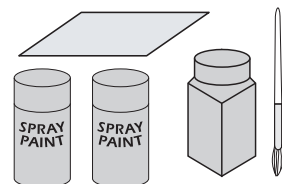
Tape:

Use Scotch Magic Tape or Paper Masking Tape.



Finishing Supplies:

To finish your rocket so that it looks like the one pictured on the front of the package, you will need the following supplies: Sandpaper (220 or 320 Grit), Sanding Sealer or Balsa Filler and a small Paint Brush to apply it. Gloss Black and Gloss Orange Spray Paint.

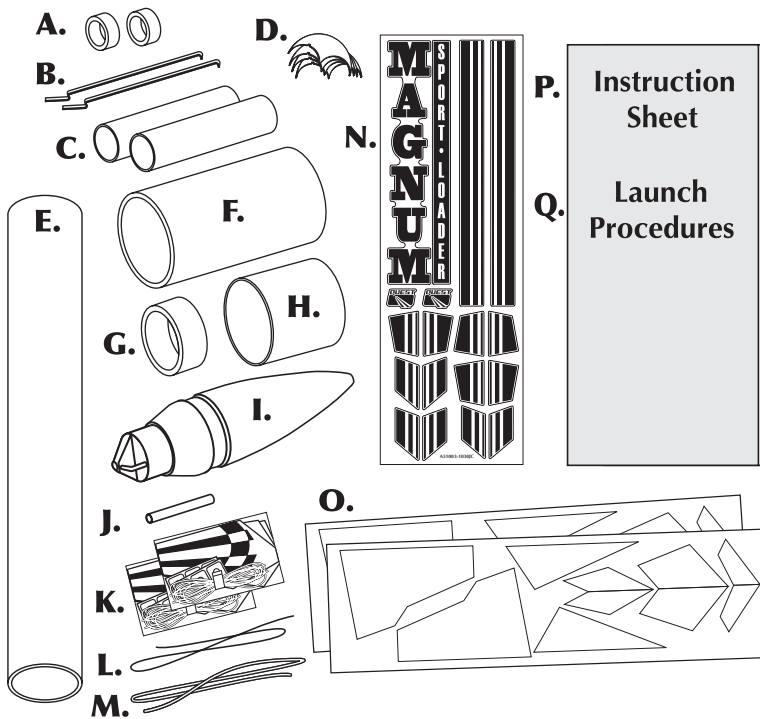


BEFORE STARTING ASSEMBLY READ THROUGH THESE INSTRUCTIONS. IT IS BEST TO TEST FIT ALL PARTS BEFORE APPLYING ANY GLUE. READ AND FOLLOW THE NAR MODEL ROCKET SAFETY CODE.

PARTS LIST

- A. 14000 Blue Thrust Ring (2)
- B. 49000 Motor Clip (2)
- C. 10303 Yellow Motor Mount Tube (2)
- D. 16010 Half Moon Cluster Ring (4)
- E. 11602 White Body Tube
- F. 11605 White Payload Tube
- G. 11605 Blue Shoulder Ring
- H. 11605 Black Tube Coupler
- I. PNC-35egg Plastic Nose Cone
- J. 10001 Launch Lug
- K. 82302 Complete Parachute (2)
- L. 50051 Kevlar* Shock Cord
- M. 50011 Elastic Shock Cord
- N. A51003-1030 Decal Sheet
- O. 33027 Balsa Fin Sheet (2)
- P. A51003-1010 Instruction Sheet
- Q. 90960 Launch Procedure Sheet

* Kevlar is a registered trademark of Dupont



STEP 1

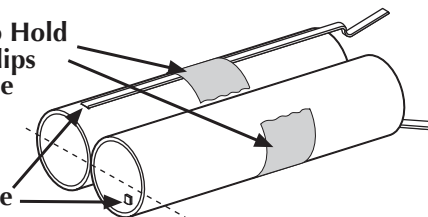
A. Lay the two *Motor Mount Tubes* on a flat surface with ends even and *Glue* them together with *White Glue*. Allow Glue to set before moving on.

B. Make *Motor Clip Slits* opposite each other 1/4 inch from end. Insert and tape *Motor Clips* in place.

Use Tape To Hold Motor Clips In Place

Make Slits Opposite Each Other 1/4" From Ends

Keep Ends Even

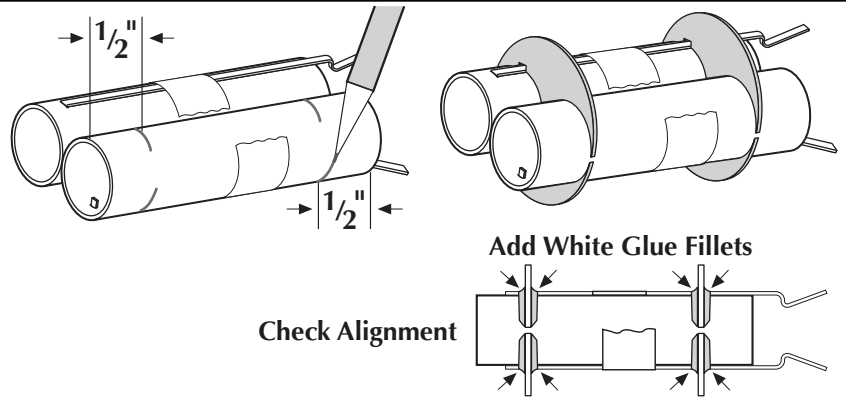


STEP 2

A. Make pencil marks 1/2 inch from each end of the *Motor Mount Tubes*.

B. Glue the 4 *Halfmoon Cluster Rings* on the pencil marks on the *Motor Mount Tubes* with *White Glue*. Check the alignment and allow to dry.

C. Apply a bead of *White Glue* where the *Moons* meet the *Motor Tubes*. Smooth out the *Glue* with your finger to create *Filletts*.



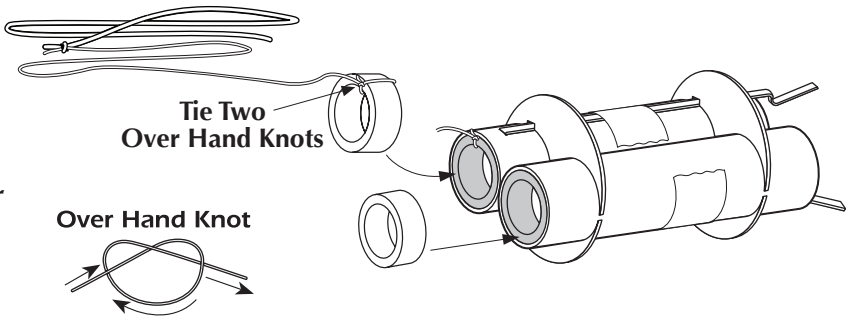
STEP 3

A. Tie the *Yellow Kevlar* and *White Elastic Shock Cords* together.

B. Tie the loose end of the *Kevlar* to one of the *Blue Thrust Rings*.

C. Glue the *Thrust Ring* into the end of one of the *Motor Mount Tubes* with *White Glue*.

D. Glue the other *Thrust Ring* into the other *Motor Mount Tube*.



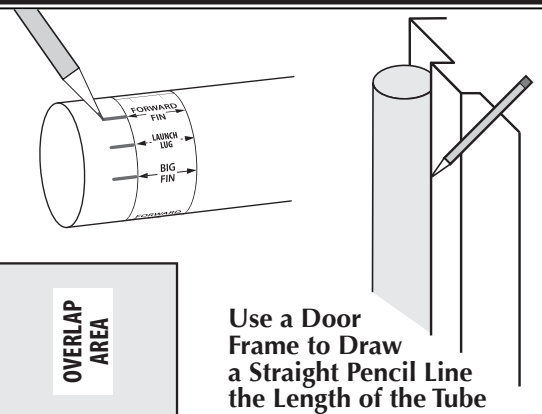
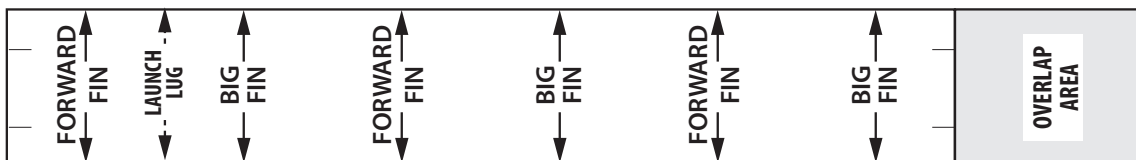
STEP 4

A. Cut out the *Tube Marking Guide* provided below. Use it to extend pencil lines on the *White Body Tube*.

B. Make a mark 1/4 inch from the end of *Tube* on the lines for the 3 *Big Fins*.

C. Make a mark 3 inches from the end of *Tube* on the lines for the 3 *Forward Fins*.

D. Make a mark 7 inches from the end of *Tube* on the line for the *Launch Lug*.

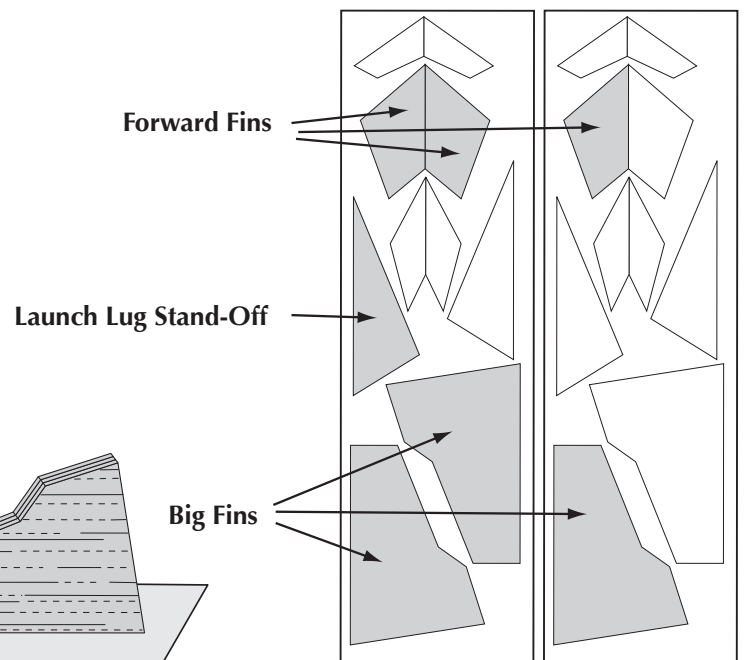
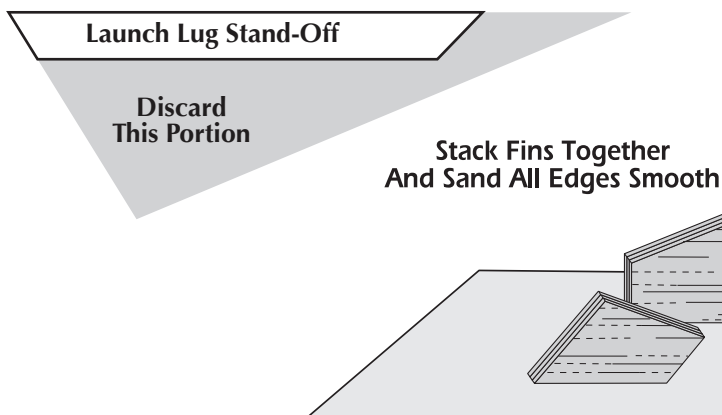


STEP 5

A. Remove the *Fins* from the 2 *Balsa Fin Sheets* indicated in this Illustration.

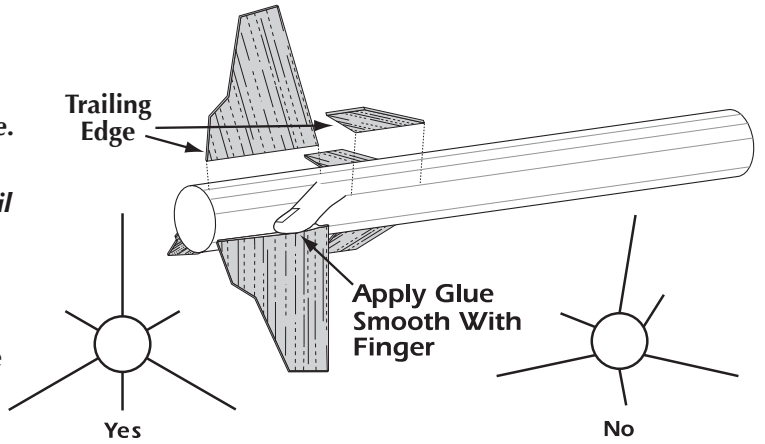
B. Cut out the *Launch Lug Stand-Off Guide* provided below. Use it to make a *Launch Lug Stand-Off* by placing it on the single *FIN* removed in **STEP 5 A**. Save the *Launch Lug Stand-Off* for **STEP 8**.

C. Stack and Sand all alike parts.



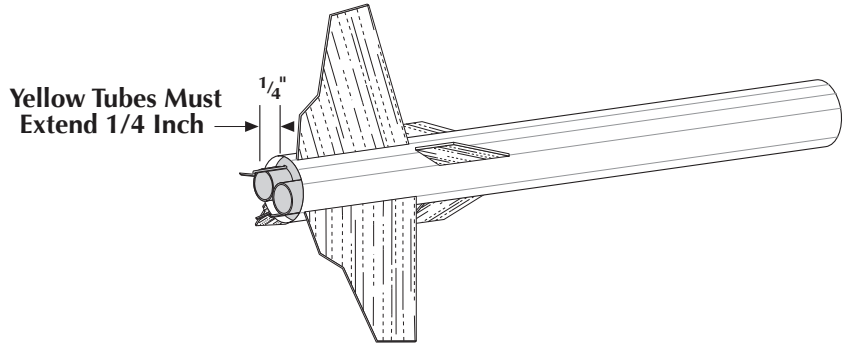
STEP 6

- A. Use *White Glue* to Glue the 3 *Big Fins* on the *Guide Lines* extended on the *White Body Tube* in **STEP 4**. Align the *Trailing Edge* to the *Pencil Mark* made 1/4 inch from the end of the *Tube*.
- B. Glue the 3 *Forward Fins* on the *Guide Lines* extended on the *White Body Tube* in **STEP 4**. Align the *Trailing Edge* to the *Pencil Mark* made 3 inches from the end of the *Tube*.
- C. Be sure all *Fins* are aligned perpendicular to the *Body Tube*.
- D. Apply a bead of *White Glue* where the *Fin* meets the *Body Tube* on all *Fins*. Smooth out the *Glue* with your finger to create a *Fillet*.



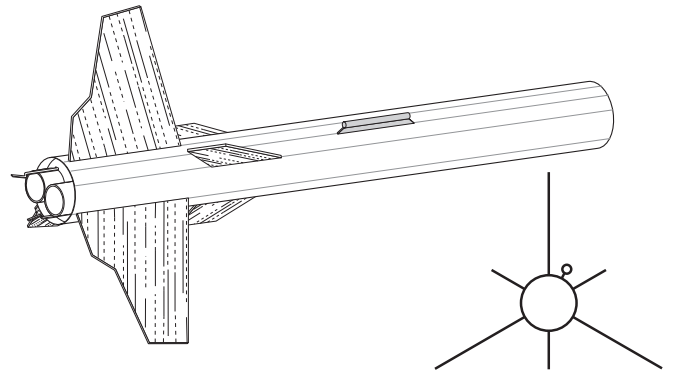
STEP 7

- A. Install complete *Motor Mount Assembly* - test fit first - Sand *Halfmoons* until it slides into *Body Tube* Easily - then remove, add *White Glue* and install. *Yellow Tubes* must extend 1/4 inch from Aft end of *Main Body Tube*.
- B. Add *Fillets* between *Halfmoons* and inside of *Main Body Tube*.



STEP 8

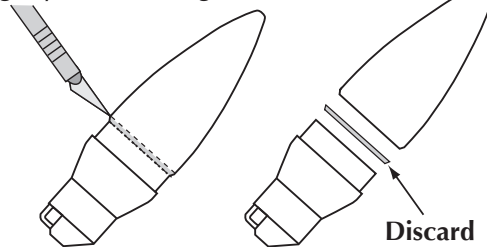
- A. Use *White Glue* to Glue the *Launch Lug Stand-Off* made in **STEP 5** on the *Guide Line* extended on the *White Body Tube* in **STEP 4**. Align the *Trailing Edge* to the *Pencil Mark* made 7 inches from the end of the *Tube*.
- B. Be sure the *Launch Lug Stand-Off* is aligned perpendicular to the *Body Tube*.
- C. Use *White Glue* to Glue the *Launch Lug* to the *Launch Lug Stand-Off*.
- D. Be sure the *Launch Lug* is aligned parallel to the *Body Tube*.



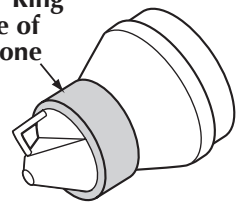
STEP 9

- A. Use a *Hobby Knife* to cut apart the *Egg Capsule Nose Cone*.
- B. Glue the *Blue Shoulder Ring* (Part # 11604) to the *Egg Capsule Base*. Use a *Medium CA Glue* for this step.

Lightly Scribe Along Grooves



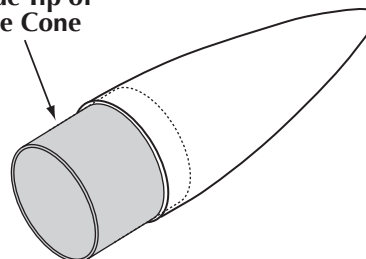
Glue Blue Shoulder Ring to Base of Nose Cone



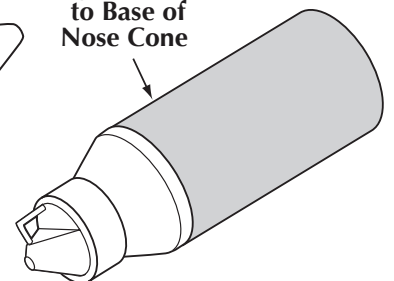
STEP 10

- A. Before completing this step refer to **STEP 11** and **STEP 12**. You may prefer to paint these parts before gluing them together.
- B. Glue the *Black Tube Coupler* (Part # 11606) to the *Nose Cone Tip* with *Medium CA Glue*.
- C. Glue the *White Payload Tube* (Part # 11605) to the *Nose Cone Base* with *Medium CA Glue*.

Glue Black Tube Coupler Inside Tip of Nose Cone



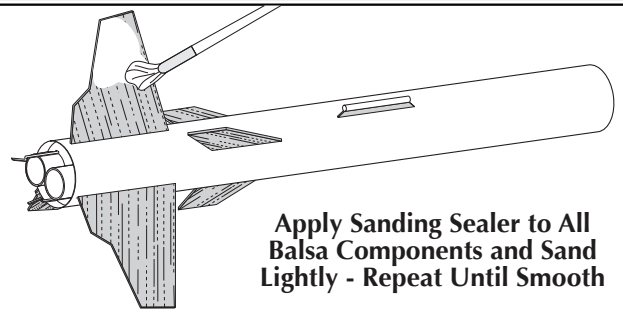
Glue White Payload Tube to Base of Nose Cone



STEP 11

A. Apply *Sanding Sealer* to all *Balsa Fins* and *Stand Off*. When *Sealer* is dry lightly *Sand*.

B. Repeat the *Sealing* and *Sanding* process until the surface of each *Fin* is smooth.



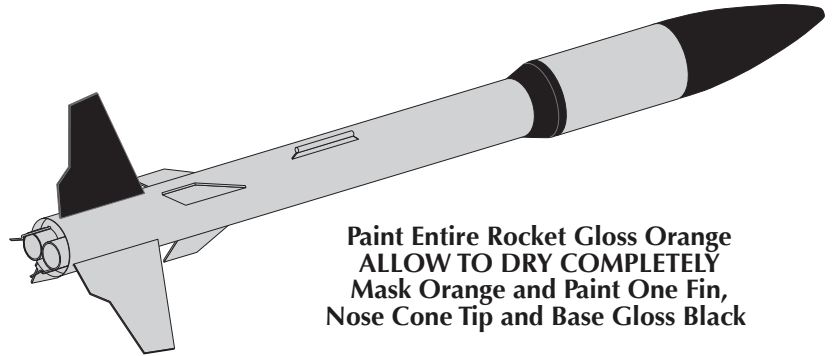
Apply Sanding Sealer to All Balsa Components and Sand Lightly - Repeat Until Smooth

STEP 12

A. Paint the entire rocket body and fins with *Gloss Orange Spray Paint*. Follow instructions on the *Spray Can* for best results. Allow to dry completely.

B. After *Orange Paint* has dried completely, use *Tape* and masking material such as a paper or plastic grocery bag to cover all of the *Orange* except for one *Big Fin* and the *Tip* and *Base* of the *Nose Cone*.

C. Paint the *Fin* and *Nose Cone* sections with *Gloss Black Spray Paint*. Allow to dry completely.



Paint Entire Rocket Gloss Orange
ALLOW TO DRY COMPLETELY
Mask Orange and Paint One Fin,
Nose Cone Tip and Base Gloss Black

STEP 13

A. Use scissors to cut out the *Decals*. IMPORTANT DECAL APPLICATION NOTE: If you try to apply the **MAGNUM** Decal as one piece, it will tear. Cut it into two pieces **MAG** and **NUM**.

B. Place *Decals* in lukewarm water. DO NOT PLACE MORE THAN ONE DECAL AT A TIME IN WATER! The *Decals* will curl as they get wet. When they start to uncurl (approx. 20-30 seconds) remove from water and slip from backing into position on rocket. Blot dry with tissue or paper towel.

C. Using this photo as a guide to apply each *Decal*.



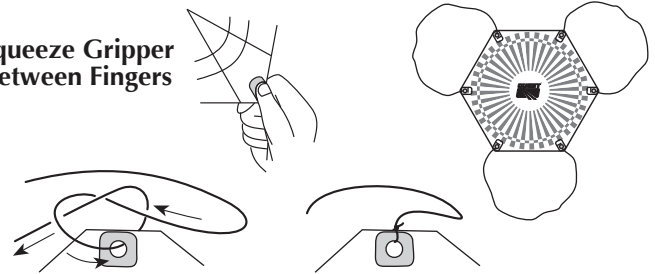
STEP 14

A. Apply *Gripper Tabs* to *Parachute* so holes in *Gripper Tabs* line up with holes in *Parachute*. Firmly squeeze each *Gripper* and *Parachute* between your fingers.

B. Assemble the *Parachute* by passing the end of a *Shroud Line* through a hole in a *Gripper Tab* and tying 2 *Over Hand Knots*. Tie each of the ends of the *Shroud Line* to the *Parachute* through the *Gripper Tab* holes.

C. Assembled *Parachute* should appear as shown. Repeat above steps for 2nd *Parachute*.

Squeeze Gripper
Between Fingers



Tie 2 Over Hand Knots Through Each Gripper

STEP 15

A. Tie a *Figure "8" Knot* in the loose end of the *Elastic Shock Cord* with a *One Inch Loop* as shown.

B. Pass the *Shroud Line Loops* of one of the *Parachutes* through the *One Inch Loop* of the *Figure "8"*. Pass *Parachute* through *Loop Ends* and pull *Lines* tightly against the *Loop*.

C. Pass the *Shroud Line Loops* of the 2nd *Parachute* through the *Eyelet* on the *Base* of the *Nose Cone*. Pass *Parachute* through *Loop Ends* and pull *Lines* tightly against the *Eyelet*.

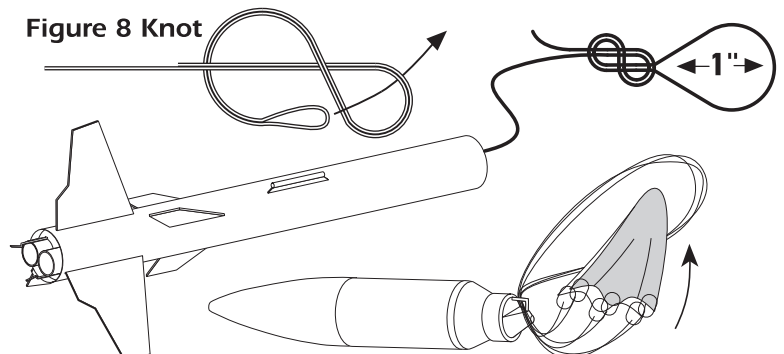


Figure 8 Knot

FLYING YOUR MAGNUM SPORT LOADER ROCKET

WHAT ELSE YOU WILL NEED

To successfully fly your rocket you will need the following items:

- QUEST Lift Off Launch Pad (No. 7610)
- QUEST Futuristic Launch Controller (No. 7510)
- QUEST Parachute Recovery Wadding (No. 7021)
- QUEST Rocket Motors, Type B6-4, C6-3 or C6-5
- Use two B6-4 Motors for your first flight.

ESTIMATED ALTITUDES

The following is a guide to assist you in determining which motors to use based on the wind conditions and size of flying field available. This rocket requires 2 of the same motors for each flight.

MOTORS	ESTIMATED ALTITUDE
Two B6-4	450 FEET
Two C6-3	775 FEET
Two C6-5	900 FEET

IMPORTANT CLUSTER IGNITER INSTRUCTIONS

Always use only QUEST Q2G2 Igniters (No. 7024).

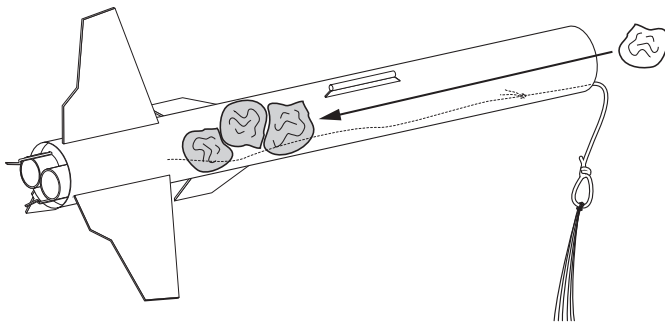
- Pull two igniter leads apart into Y shapes.
- Position the bare wire of the leads as indicated below.
- Twist the bare wire of the leads as indicated.
- Follow igniter instructions for inserting into motors.



PREPPING YOUR ROCKET FOR FLIGHT

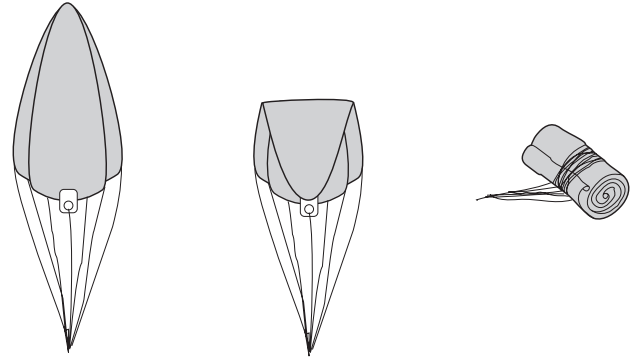
STEP 1

Pull the shock cord all the way out of the body tube. Crumple four sheets of recovery wadding and insert one by one into the body tube making sure that the knot between the Kevlar and white elastic shock cord is on the nose cone side of the wadding. Wadding should fit loosely in the tube but tight enough to form a good seal against the wall of the body tube.



STEP 2

- Grab the parachute at its center and allow the rocket to hang from it. The weight of the rocket will pull the parachute into several triangular shapes.
- Gather the triangles together into one flat triangle.
- Fold the top of the parachute down over itself once.
- Now continue to roll the parachute over itself and roll the shroud lines around it.
- Repeat the steps above for the parachute attached to the nose cone.



STEP 3

- Pack the parachutes into the body tube. **THE PARACHUTES MUST FIT LOOSELY INTO THE TUBE.** If it is a tight fit, remove and re-fold the parachute.
TIP: Lightly dust your parachute with talcum powder or baby powder to keep it from developing a set shape. This technique is especially effective if the weather is hot and humid or very cold.
- Push the shock cord into the tube and re-fit the nose cone onto the rocket. **BE CAREFUL NOT TO CATCH ANY OF THE SHOCK CORD BETWEEN THE SHOULDER OF THE NOSE CONE AND THE BODY TUBE**

READ AND FOLLOW THE ENCLOSED LAUNCH PROCEDURE SHEET

READ AND FOLLOW THE N. A. R. SAFETY CODE DURING ALL YOUR MODEL ROCKETRY ACTIVITIES.

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