



# Thing-a-ma-Jig Finishing

To "Finish" a model means to apply paint and other decorations to complete the look of your model. Meaning to "apply a finish". That is what we will discuss here (and in greater detail in the attached Hints-n-Tips sheet.

Applying a finish (painting) to your model can be a simple or a complex process depending on the look that you want, your skill level and how much time you wish to spend on this part of your model build activity. Once assembled, you can spend as little as 20 minutes to as much as 10 days applying the finish to a model the size of the Thing-a-ma-Jig.

This section will talk about the simpler approach to finishing your model. These lessons will provide you with the experience you will need as you advance and move on to the more complex finishing methods.

Read each step carefully. Don't be shy about asking an adult for help in understanding how to perform a step. This will go a long way to helping you learn the tricks of creating a beautiful model!

### Finishing:

Since the Thing-a-ma-Jig is made from paper, cardboard and wood, you will need paints and supplies designed for these materials. A good beginning list of finishing materials could look like this:

- Your imagination** (ALWAYS first on my list!)
- Sand paper** (400 and 600 grit) (The grit number on sand paper tells you how many grains of sand there are along every inch. So 600 grit paper has 600 tiny grains of sand for every inch. The higher the number the finer the sandpaper.)
- Wood Glue** (the yellow glue)
- Water based art paints** (Spray paints and acrylics will come later)
- Magic Markers** (These can be used WITH or INSTEAD of paint)
- Stickers** (These can really help dress up your model!)
- Paint brushes.**
- Old clothes** (do NOT ruin your good clothes!)
- A cup of water** (for cleaning your brushes)
- Thick layers of newspapers** (to protect your table)
- Soap, water, and paper towels** for clean up.

1. To begin, carefully and lightly sand your fins. The balsawood fins may have little fibers (hairs) that get pulled up from the wood. Sanding them lightly will reduce these. You may also wish to sand off the tips of the fin tabs that stick through the fins on the Fin Unit. Sand these until they are even with the surface of the fin.
2. Check the glue filets you applied in Step 27. When glue dries it can shrink, leaving holes in glue filets. If this has happened, apply another thin fillet to try to cover these holes.
3. Select the colors you want to use. Starting with the lightest color first, paint your rocket any way you would like. It is usually easier to paint your entire model one light color (yellow, for example) and then when it is dry, add other darker colors (like blue or red) on top of the yellow.
4. Be sure to clean your brush completely as you change colors.
5. Remember that wide brushes are good for large areas (body tubes and the flat parts of the fins). Narrow (thin) brushes are better for smaller areas (the edges of the fins, launch lug, etc) and details (small lettering, windows, etc)
6. Be sure to clean up all of your tools and your work space when done. Be sure that all paint containers are closed as well as the glue bottle.

Take your time and enjoy the painting part of your model. The most perfect looking model is one that expresses YOUR imagination and YOUR skills. Your first rocket may or may not look "pretty" to you. However you will appreciate how each new rocket looks a little bit better than the one before as you gain skill and experience. If you want to explore more complex finishing methods, check out the enclosed Hints-n-Tips sheet.

**We hope you enjoyed your Thing-a-ma-Jig!**  
**Keep watch for more exciting rocket kits from FlisKits on our web site <http://fliskits.com/>**

ENGINEERING DIRECTIVE	
<b>FROM:</b>	Office of Chief Engineer
<b>VEHICLE(S):</b>	SP015
<b>EFFECTIVE DATE:</b>	31-March-2006
Chief Ordnance Engineer <i>James M Flis</i>	Chief Deployment Engineer <i>Brian McCarthy</i>
Effective immediately, the attached procedures will be used in the assembly and deployment of Launch Vehicle SP015, known as "Thing-a-ma-Jig".	



**Flying Model Rocket**  
Recommended Motors:  
A8-3, B6-4, C6-5

## Assembly Instructions

### A note to kids and grown ups who want to be kids again!

OK, now we are going to have FUN! The **Thing-a-ma-Jig** has a "Thing" on top and a "Jig" on the bottom with a bunch of parts in between that you could call "a-ma"...but we won't.☺ Building and flying a model rocket is FUN but it takes careful work for it to fly properly. When you are building your **Thing-a-ma-Jig**, be sure to:

- READ** each step through carefully as you come to it.
- LOOK** at each diagram then follow the directions from top to bottom as you build.
- STOP** and ask for help when you aren't sure what to do. It is much better to ask a question than to make a mistake that could be avoided.

### ATTENTION!



When you see this little guy looking over the figure it means that the step needs extra attention from you and maybe even help from an adult. That might be because you are using a tool like a hobby knife which could be a safety hazard if not handled properly. It also could mean it's very important to do that step right the first time.

So, instead of reading the back of a cereal box while eating breakfast, read these instructions and get yourself ready to have gobs of fun building -and then flying- your **Thing-a-ma-Jig**.

Be sure to read the front packaging card, which has lots of interesting stuff about your rocket on it. And don't miss the **Model Rocket Safety Code** and information about the **National Association of Rocketry (NAR)** on the back of the warranty card.



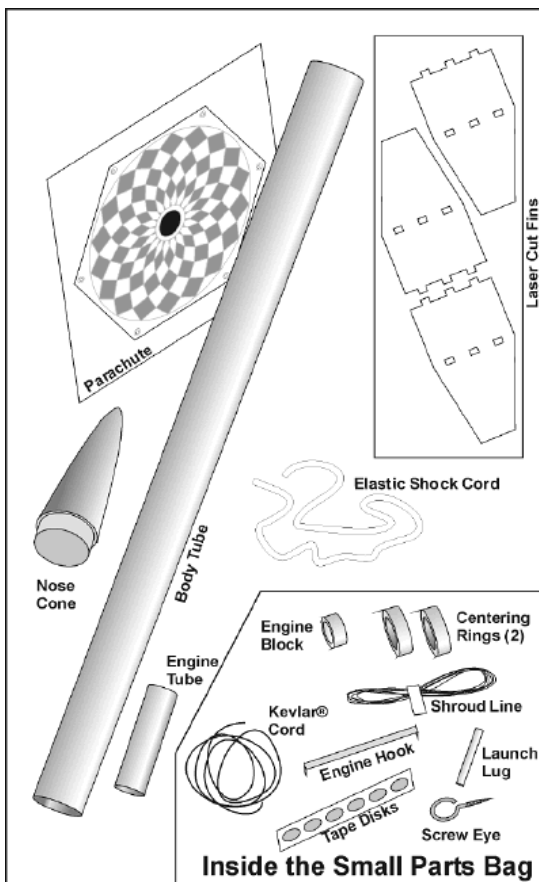
## Note to Parents, Teachers, and Leaders

The **Thing-a-ma-Jig** is a model rocket kit that is designed with youngsters in mind.

- As far as model rockets go, **Thing-a-ma-Jig** assembly is *easy!*
- Instructions for this kit may look long, but that is because steps are broken down and carefully explained in kid-friendly terms.
- There are some steps (using cutting tools, knot tying, critical assembly steps) that may require adult assistance, depending on the age and experience of the child. These are highlighted in the instructions with an adult looking over the step.

## Thing-a-ma-Jig Kit Contents:

The figure below shows a picture of each of the parts in your **Thing-a-ma-Jig** kit. Take a minute to find these parts and become familiar with their names.



## Steps 1-7 Engine Mount Construction

1. Make a mark on the **Engine Tube**  $\frac{1}{4}$ " from one end, as shown in **Figure 1**. Using a razor knife, cut a short slit in the tube, at this mark. **ADULTS** may wish to help with this step. (**Thing-a-ma-FACT:** The **Engine Tube** is used to hold the model rocket motor in place during flight)

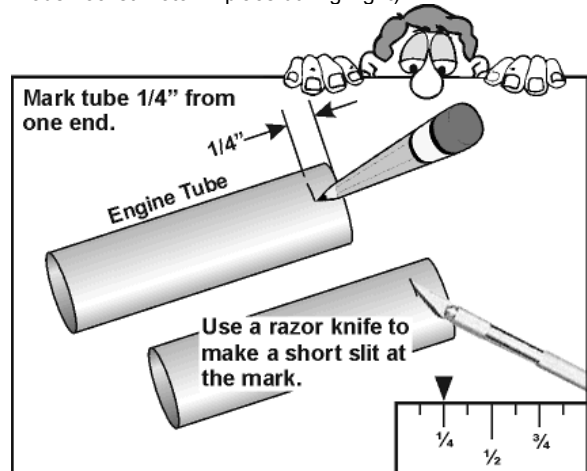


Figure 1

2. Locate the **Engine Hook** and insert one end of it into the slit you made as shown in **Figure 2**. (**Thing-a-ma-FACT:** The **Engine Hook** is used to help hold the rocket motor inside the engine tube)

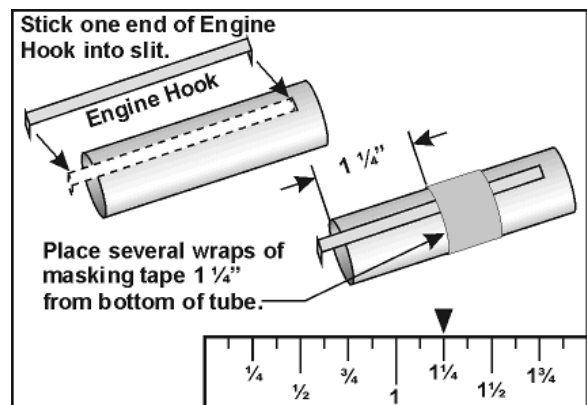


Figure 2

3. **Figure 3** shows you how to glue in the **Engine Block**. (**Thing-a-ma-FACT:** The **Engine Block** blocks the motor to keep it from shooting up into the rocket during flight. A **Bead of Glue** is a wide line of glue, kind of like the drawing below.)

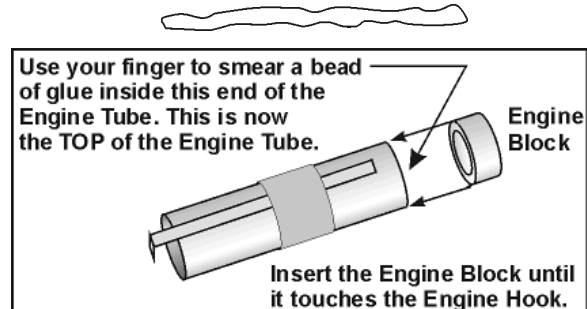


Figure 3

## Required for assembly and finishing

To properly assemble the **Thing-a-ma-Jig** you will need the following tools and supplies: White glue (Elmer's School Glue is not recommended as it is too thin), pencil, ruler, scissors, masking tape, hobby knife, and a hole punch.

For finishing you should have sand paper (200-400 grit), wood filler, primer paint and other paints of your choice.

4. Review **Figure 4** to glue on one of the two Centering Rings. (**Thing-a-ma-FACT:** The **Centering Rings** are used to hold the engine tube in the center of the body tube.)

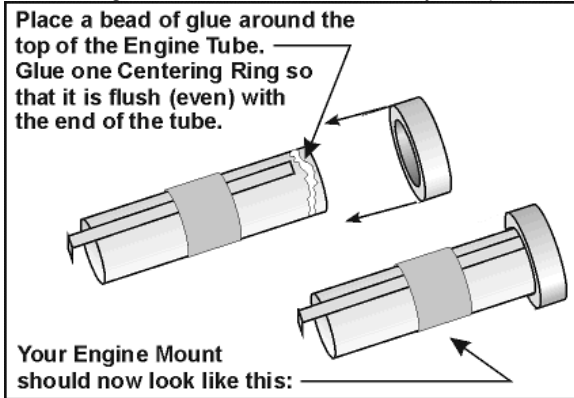


Figure 4

5. Referring to **Figure 5**, carefully cut out a 1/8" section from the other Centering Ring. Scissors can be used. **ADULTS** may wish to help with this step.

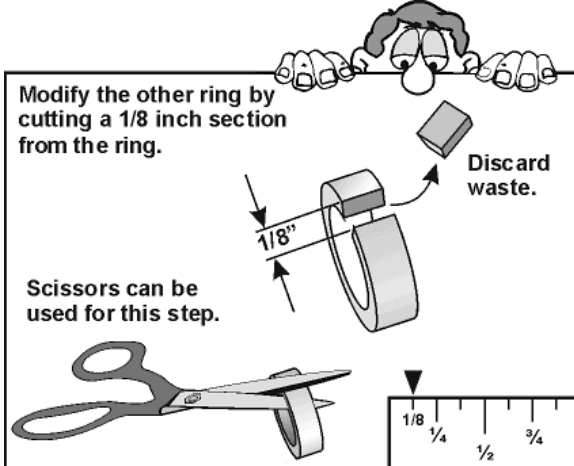


Figure 5

6. **Figure 6** shows how this modified ring is glued to the engine tube.

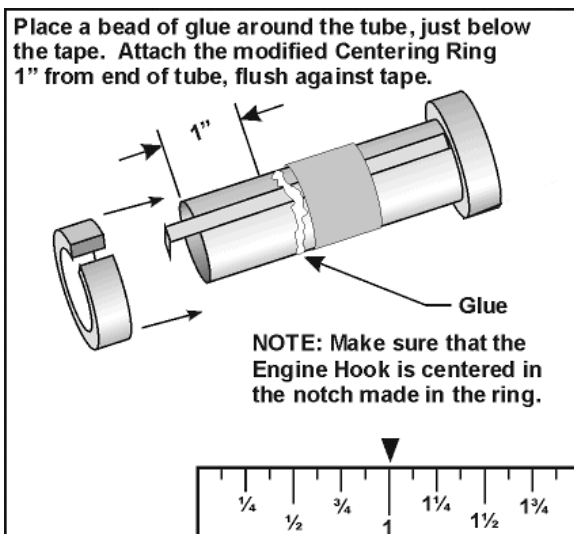


Figure 6

7. Find the piece of yellow Kevlar® Cord (string). Securely tie this to the top of the Engine Mount as shown in **Figure 7**. (**Thing-a-ma-FACT:** Kevlar® Cord is a very strong thread that is used here to provide a strong connection between the bottom of the rocket and the nose cone. Kevlar® thread is **SO** strong that it is also used to make bullet proof vests!)

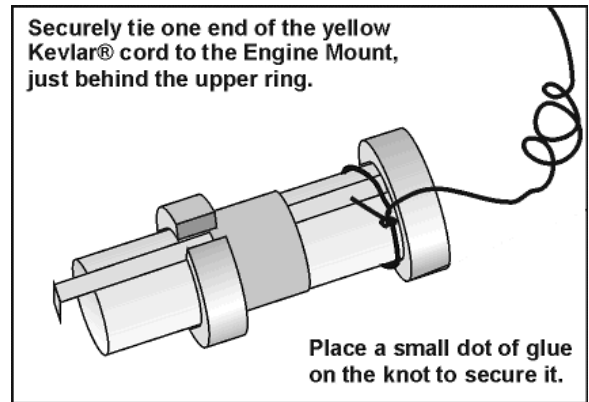
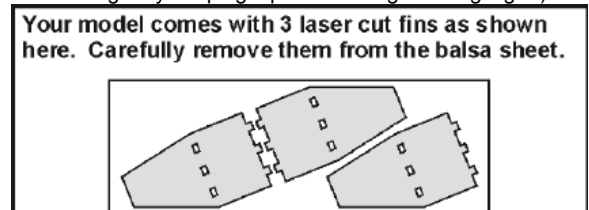


Figure 7

### Steps 8-12 Fin Assembly

8. **Figure 8** shows you many important details about the 3 fins that are provided with your model rocket kit. These fins were cut with a computer controlled laser beam for an exact fit! Carefully remove the 3 fins from the sheet of balsa wood and place a small mark at the leading edge of each fin. (**Thing-a-ma-FACT:** Fins are used to control the model's flight by keeping it pointed straight during flight.)



Take a moment to become familiar with all the parts of the fins.

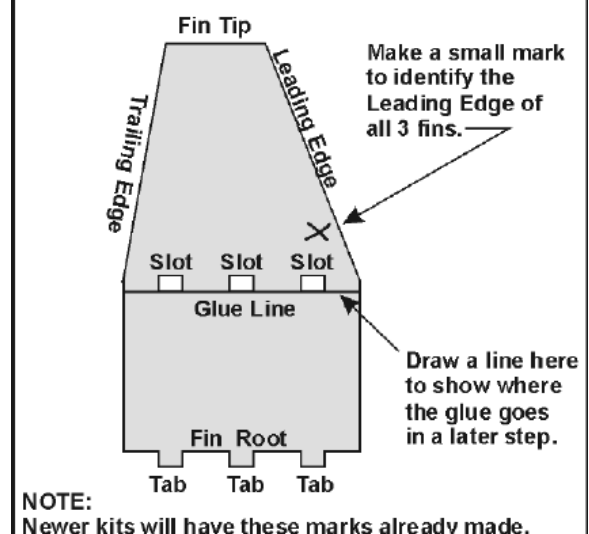


Figure 8

**NOTE:** The next several figures will show you how to assemble your “Jig/Tech” Balsa Fin Unit with the 3 fins provided. This first time through will be **PRACTICE** (without glue) so that you can become used to doing it. After you have practiced these steps, you will repeat them with glue. (**Thing-a-ma-FACT:** Jig/Tech is just a fancy name we came up with for our fins with tabs and slots. We think it’s cool ☺ )

- 9. Referring to **Figure 9**, connect the first two fins together as shown. The **INSET** drawing in the lower right shows you what your fins should look like connected together.

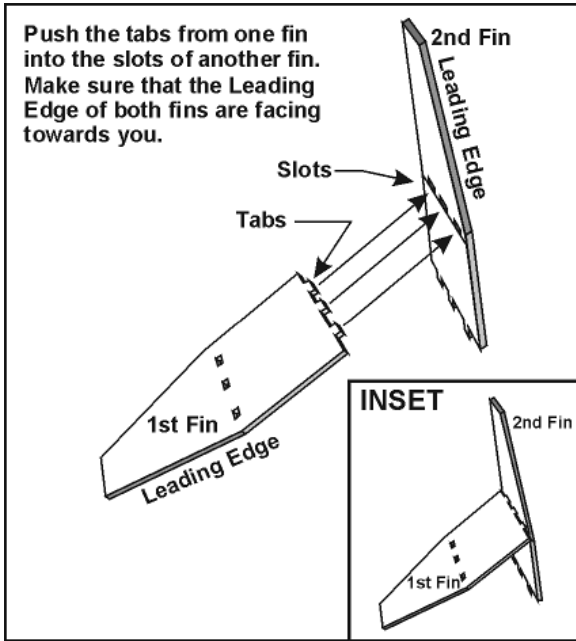


Figure 9

- 10. The third fin is rather tricky the first time, but real easy once you figure it out. **Figure 10** shows you how to connect this third fin to your Fin Unit.

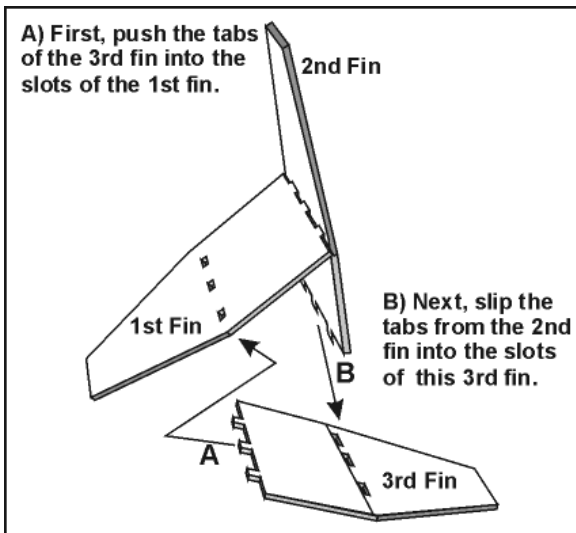


Figure 10

- 11. When you are done, your Fin Unit should look like that shown in **Figure 11**.

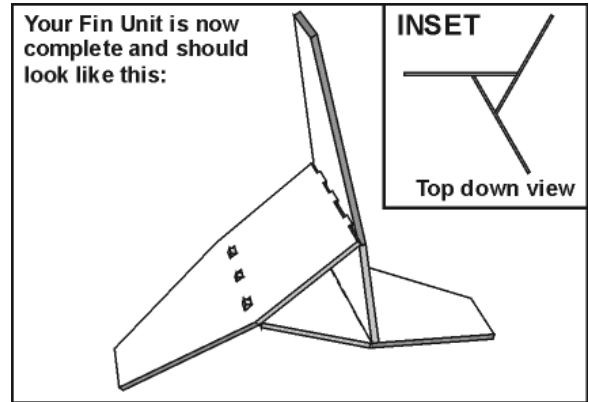


Figure 11

- 12. That was a good practice! Now that you are familiar with these steps, you will take your Fin Unit apart and reassemble it, but with **GLUE** this time! **Figure 12** shows you how to apply the glue to the glue line on all 3 fins. Once you have done this, go back and repeat Steps 9 – 11.

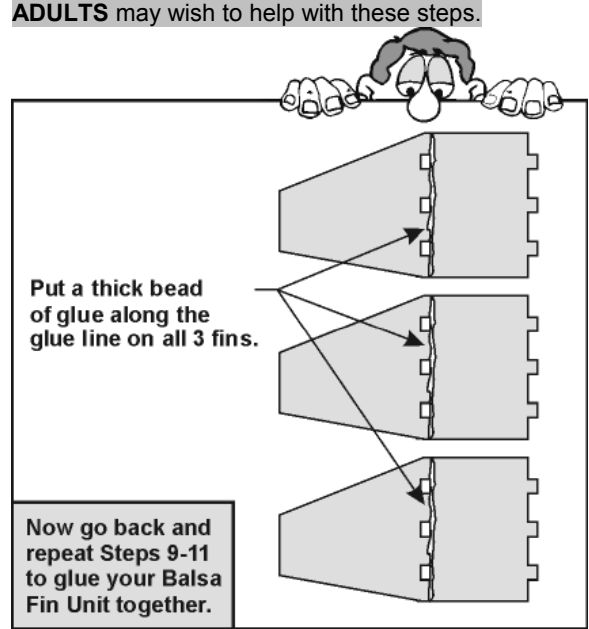


Figure 12

### Steps 13-18 Parachute Assembly

- 13. **Figure 13** shows you the **Parachute** unfolded. You need to cut out the 6-sided parachute as described. (**Thing-a-ma-FACT:** The **Parachute** is used to slow the model’s descent after its flight.)

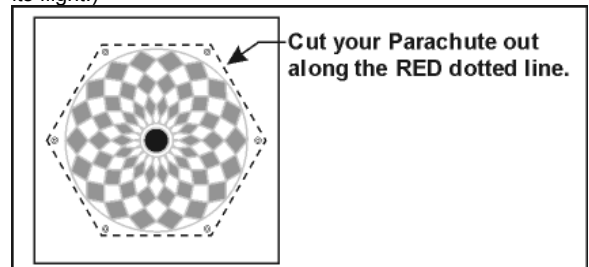


Figure 13

14. Locate the 6 **Tape Disks**. Find a circle on a corner of the parachute and stick on one Tape Disk as shown in **Figure 14**. Repeat for the other 5 corners. (**Thing-a-ma-FACT: Tape Disks** are used to provide added strength to the corners of the parachute, where the parachute lines (shroud lines) will be attached)

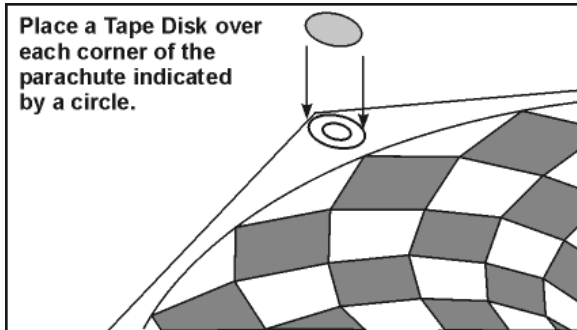


Figure 14

15. **Figure 15** shows you how you can use a hole punch to punch holes in the center of each tape disk. **ADULTS** may wish to help with this step.

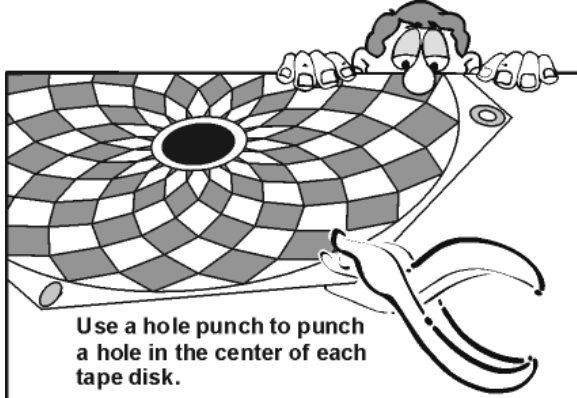


Figure 15

16. Locate the white cotton **Shroud Line** (it is the bundle of white string held together with tape). Carefully remove the tape and unravel the thread without tangling it. Referring to **Figure 16**, cut this thread into 3 equal length shroud lines, each about 32" long. **ADULTS** may wish to help with this step. (**Thing-a-ma-FACT: Shroud Lines** are the lines that connect to the parachute to make it function properly).

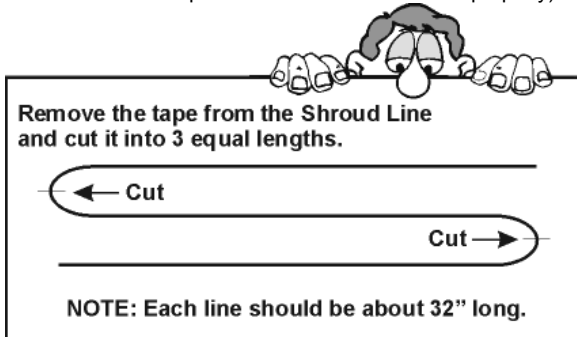


Figure 16

17. Referring to **Figure 17**, tie one of the Shroud Lines to one of the holes you made in a tape disk. **ADULTS** may wish to help with this step.

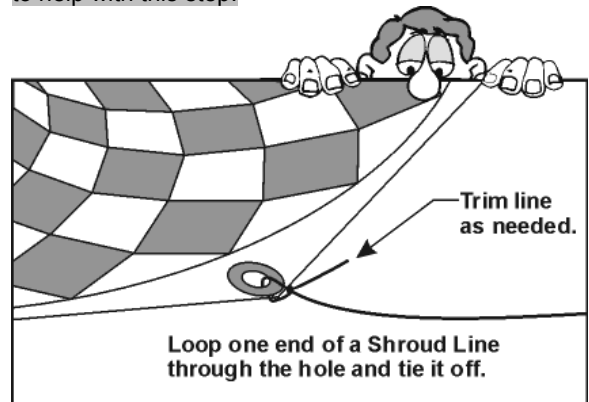


Figure 17

18. Tie the other end of this same Shroud Line to the next hole, so that **ONE** Shroud Line is tied to **TWO** holes. Repeat this step with the other 2 Shroud Lines until your parachute looks like what is shown in the **INSET** of **Figure 18**. **ADULTS** may wish to help with this step.

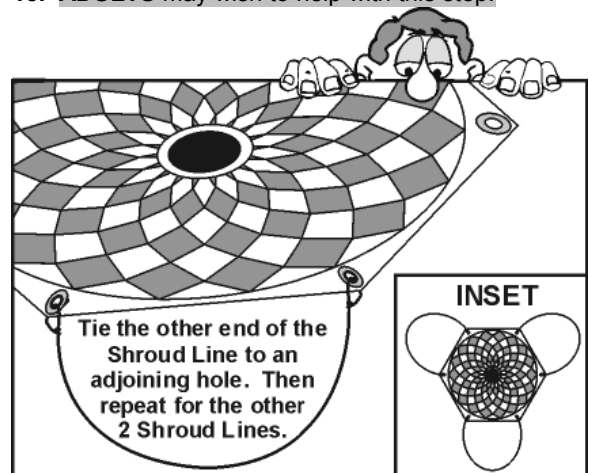


Figure 18

### Steps 19-27 Attach Motor Mount & Fins

19. Locate the "**Fin Marking Guide**" on the last page and cut it out carefully. Wrap this around one end of the Body Tube and tape it in place. Referring to **Figure 19**, make a mark on the body tube at each arrow shown on the guide.

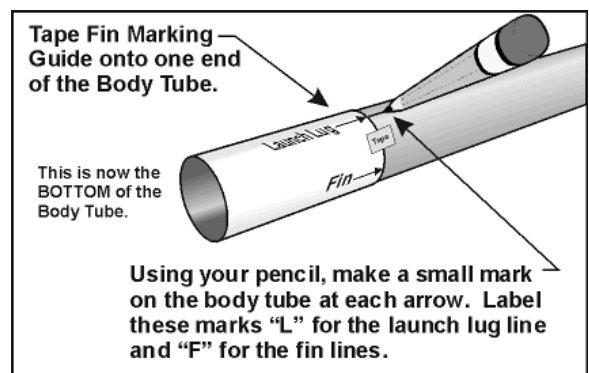


Figure 19

20. You now need to draw a line at all 4 marks on your body tube. **Figure 20** shows you how you can use a "drawer sill" to draw a straight line. Open a drawer and lay your body tube just inside the drawer front (this is the "sill"). Use the top of the drawer front as a guide to draw your straight line. You can also use the vertical edge of a door opening.

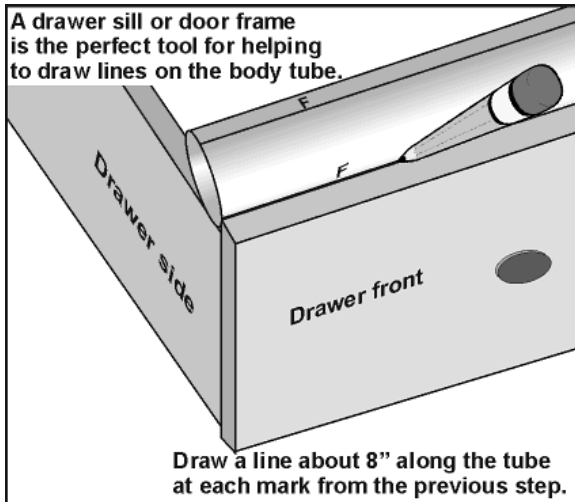


Figure 20

21. Locate your completed Engine Mount from Step 7. Referring to **Figure 21**, pass the Kevlar® Cord up through the body tube, from the bottom, until the cord comes out of the top of the body tube.

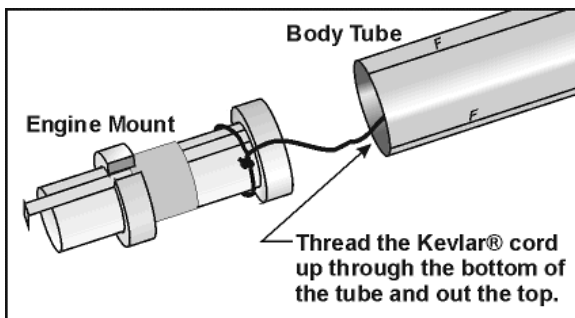


Figure 21

22. Referring to **Figure 22** apply a bead of glue about 1" inside the bottom of the body tube. **NOTE:** If you get some glue on the Kevlar® Cord, don't worry, that is fine. Once the glue is in place, **QUICKLY** push the Engine Mount all the way into the Body Tube until the two tubes are flush (even) with each other, as shown. **ADULTS** may wish to help with this step.

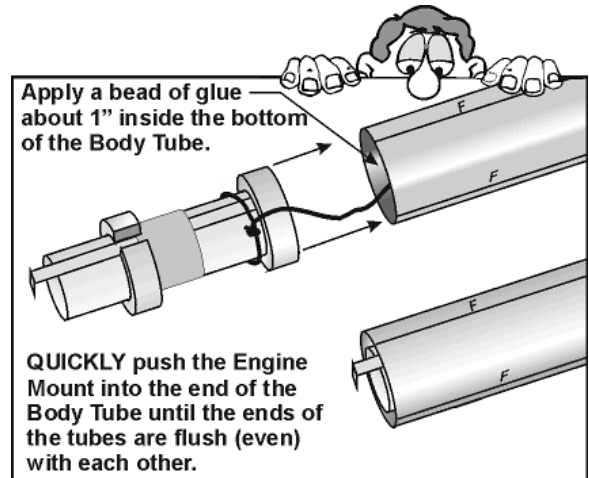


Figure 22

23. Make a mark on the body tube, on the Launch Lug Line, 3" from the bottom of the tube as shown in **Figure 23**.

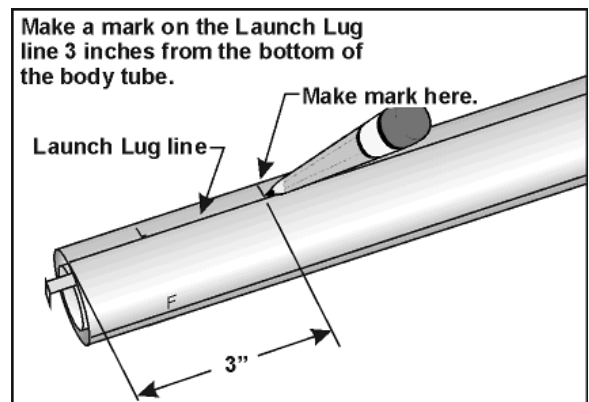


Figure 23

24. Referring to **Figure 24**, glue your Launch Lug in place as shown. (**Thing-a-ma-FACT:** The Launch Lug is used to guide the model along its first three feet of flight. This lug slides over a three foot long "Launch Rod" (thin steal rod) that is on the launch pad.)

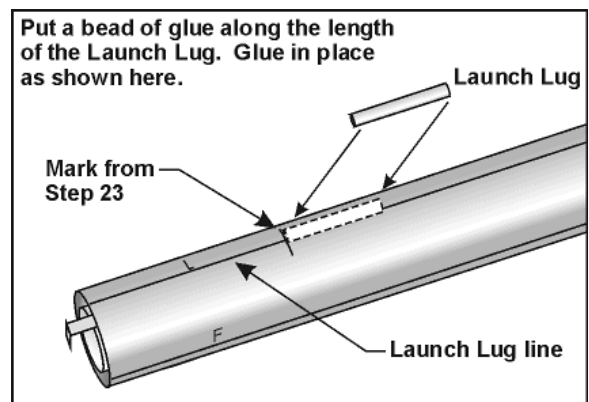
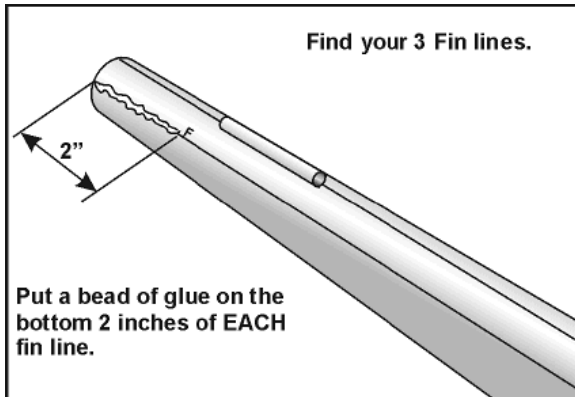


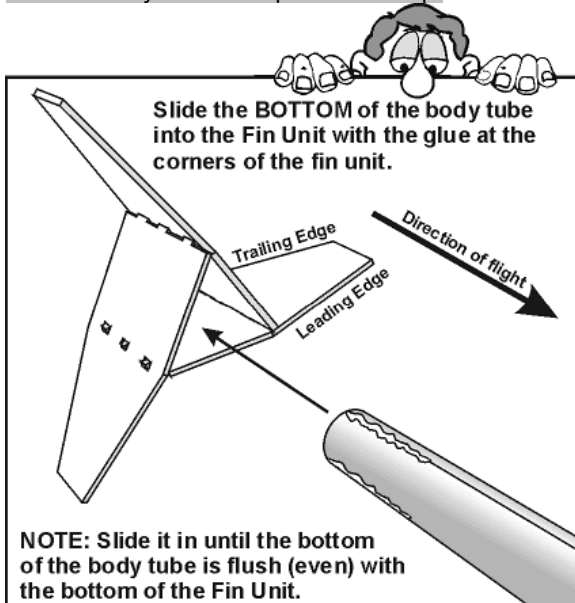
Figure 24

25. To attach your Fin Unit, you will need to apply a bead of glue along the bottom 2 inches of each fin line as shown in **Figure 25**.



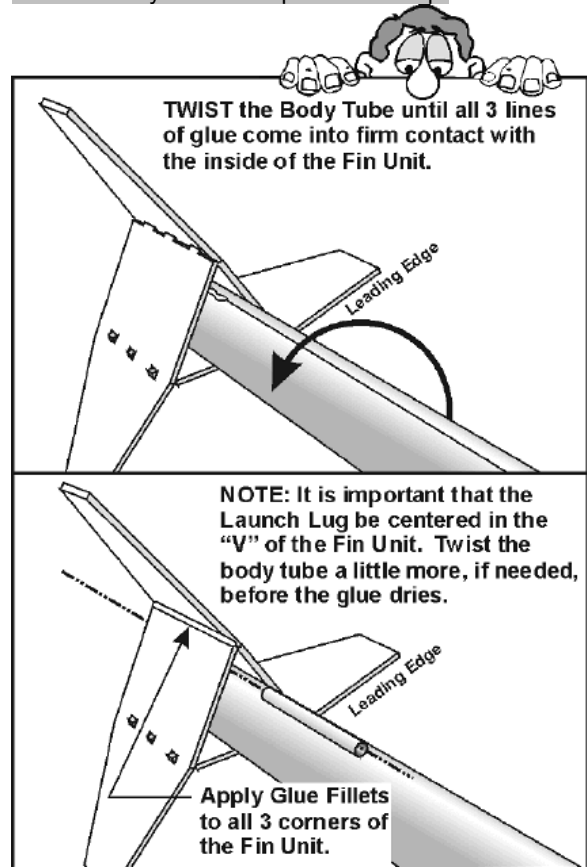
**Figure 25**

26. Referring to **Figure 26**, slide the Fin Unit onto the bottom of the body tube so that the lines of glue fit inside the **CORNERS** of the Fin Unit and do not touch the fins. The bottom of the Fin Unit should be even with the bottom of the body tube. (**Thing-a-ma-FACT:** The **Leading Edge** of a fin is simply that part of a fin that **LEADS** the rest of the fin in flight. You will notice in the figure that the Leading Edge is the edge that faces the direction of flight. Likewise, the **Trailing Edge** is the edge of the fin that **TRAILS** (is behind) the rest of the fin in flight. **ADULTS** may wish to help with this step.



**Figure 26**

27. Now you must **TWIST** the fin unit around so that all 3 lines of glue come into firm contact with the fin unit and the Launch Lug is now aligned with a corner of the fin unit, as shown in **Figure 27**. When complete, apply strong glue fillets to all 3 corners of your Fin Unit as shown in the bottom of **Figure 27**. (**Thing-a-ma-FACT:** **Glue Fillets** are like **beads of glue**. You apply the bead of glue then smooth it out with the tip of your finger. This will make the joint very strong and will also make the joint look better when you apply paint. **ADULTS** may wish to help with this step.



**Figure 27**

Continued onto Step 28 on the next page.

**NOTE:** The **Fin Marking Guide** used in **Step 19** is found on the next page. Carefully cut this out and follow Step 19 for instructions on how to use it.

## Steps 28-31 Nose Cone Assembly

28. Referring to **Figure 28**, make a hole near the center of the base of the **Nose Cone**. Fill the hole with glue then screw the **Screw Eye** into place. Screw it in all the way. (**Thing-a-ma-FACT**: The **Nose Cone** is the very top of the rocket and provides a smooth shape that cuts easily through the air. The **Screw Eye** is an attachment point that allows you to connect the nose cone to the body tube in a later step)

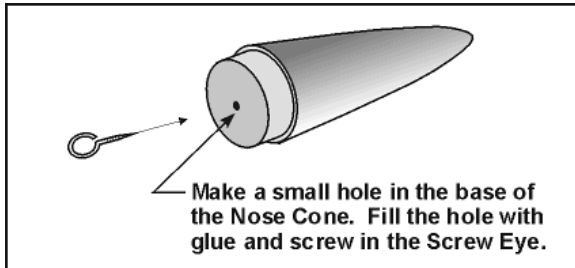


Figure 28

29. **Figure 29** shows you how to attach the nose cone to the body tube using the Elastic Shock Cord. Tie one end of the elastic cord to the end of the Kevlar® Cord that is coming out of the top of the body tube. The other end of this elastic cord gets tied to the screw eye in the nose cone. (**ADULTS** may wish to help with this step. (**Thing-a-ma-FACT**: The **Shock Cord** is used to act as a "shock absorber" when the nose cone pops out of the body tube at the end of the flight, to keep it from breaking the rocket or snapping the Kevlar® cord.)

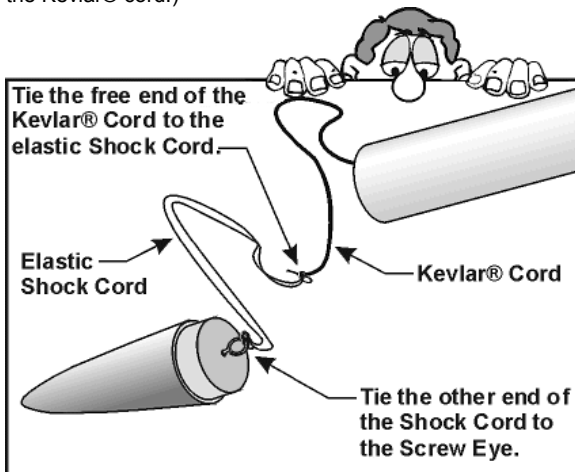
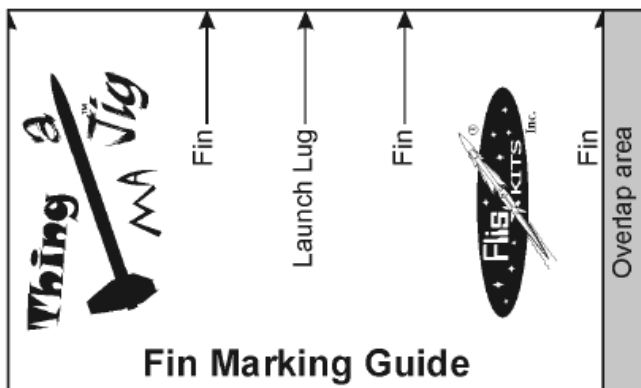


Figure 29

## Thing-a-ma-Jig Fin Marking Guide



## Fin Marking Guide

30. Referring to **Figure 30**, tie the parachute shroud lines to the screw eye as shown. The easiest way to do this is to pinch the parachute in the very center of the plastic and sliding your other hand down the parachute to the shroud lines, gathering them together at the end. (**ADULTS** may wish to help with this step.)

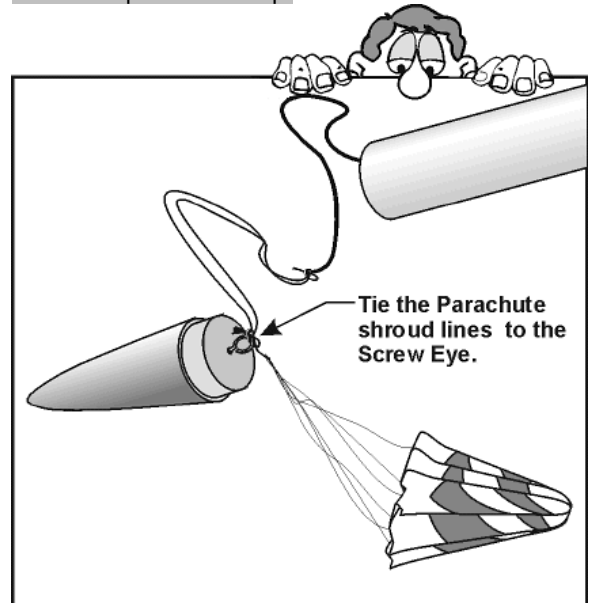


Figure 30

31. **Figure 31** shows you how to fold your parachute before putting it into your rocket. Be sure that the parachute is folded tight enough to **EASILY** fit into the body tube.

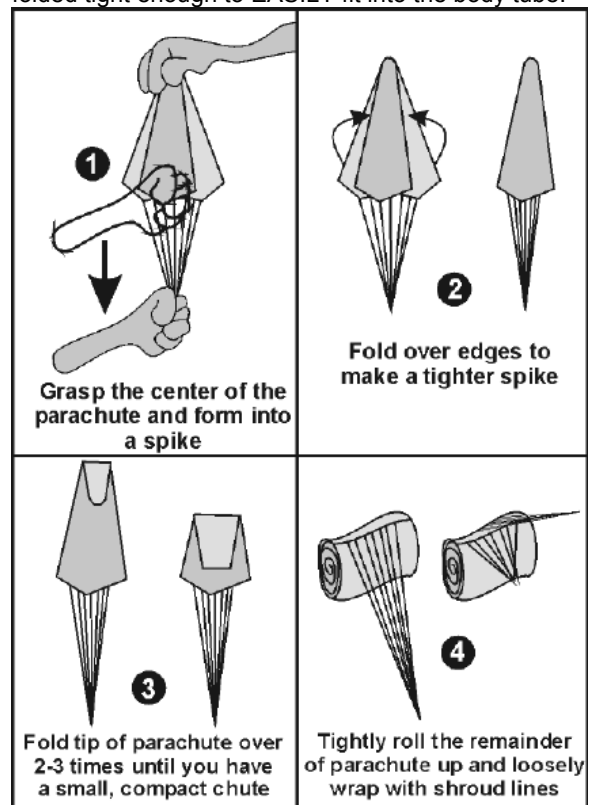


Figure 31

See the first page for finishing instructions.