Finishing the Rocket

15. After all the glue has completely dried, you may now paint your Apogee Aspire model rocket. Sealing and sanding the balsa parts reduces drag (higher flights) and greatly improves the rocket's appearance. Apply a coat of sanding sealer to the fins with a paint brush. When the sealer is dry, lightly sand the sealed surfaces. Repeat the sealing and sanding procedure until the balsa grain is filled and the fins look and feel smooth.

16. Roll a piece of paper and insert it into the aft end of the body tube so you can hold the model while painting it. For best results, paint the model with primer before using the final paint colors. Follow the directions on the paint can, and always paint outdoors with the wind against your back. Let the paint harden at least 24 hours before proceeding. You may mask and paint the model to match the picture on the cover.

17. Cut around the perimeter of the decal with a pair of scissors. Peel off the paper backing, and affix the decal in place on the model. Use the picture on page 1 for decal placement.

Installing rocket motors into the Apogee Aspire Kit

The largest motor size (29 mm dia.) is simply taped into the aft end of the rocket. Wrap tape around the outside of the motor and the aft end of the body tube as shown.

The smaller motors (24 mm dia.) are first taped into the motor adapter. Then the adapter is inserted into the rocket - one of the CR24-29 rings extends out of the tube. Tape is applied over the rocket and the aft centering ring of the motor adapter as shown in the illustration.

Aspire Parts List

<table>
<thead>
<tr>
<th>P/N</th>
<th>Description</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>10091</td>
<td>Airframe Tube (AT-24/3.75&quot;)</td>
<td>1</td>
</tr>
<tr>
<td>10110</td>
<td>Airframe Tube (AT-29/13&quot;)</td>
<td>2</td>
</tr>
<tr>
<td>13008</td>
<td>Airframe Coupler (AC-29)</td>
<td>1</td>
</tr>
<tr>
<td>13031</td>
<td>Centering Ring (CR18-24)</td>
<td>1</td>
</tr>
<tr>
<td>13035</td>
<td>Centering Ring (CR24-29)</td>
<td>4</td>
</tr>
<tr>
<td>13056</td>
<td>Launch lug (SBL-0328) 3&quot; Long</td>
<td>1</td>
</tr>
<tr>
<td>19114</td>
<td>Plastic Cone (PNC-29A)</td>
<td>1</td>
</tr>
<tr>
<td>15031</td>
<td>Balsa Fin Sheet</td>
<td>1</td>
</tr>
<tr>
<td>30305</td>
<td>Mylar Streamer 4&quot; X 56&quot;</td>
<td>1</td>
</tr>
<tr>
<td>29326</td>
<td>300# Kevlar Shock Cord (36&quot; Long)</td>
<td>1</td>
</tr>
<tr>
<td>37012</td>
<td>Tube Marking Guide Sheet</td>
<td>1</td>
</tr>
<tr>
<td>41020</td>
<td>Decal Sheet</td>
<td>1</td>
</tr>
<tr>
<td>31048</td>
<td>Aspire Instruction Sheet A</td>
<td>1</td>
</tr>
<tr>
<td>31049</td>
<td>Aspire Instruction Sheet B</td>
<td>1</td>
</tr>
</tbody>
</table>

Other Tools and Materials Needed

- Scissors
- Hobby Knife
- Pencil
- Wood Glue (or White Glue)
- Masking Tape
- Sandpaper & Sanding Block
- Ruler
- Centering Ring
- Paint Brush
- Spray Paint

Skill Level 2 - Previous Experience Suggested

The Apogee Aspire kit was designed with one purpose in mind. To achieve the highest possible altitudes from 29mm composite propellant motors. On the Apogee Components' F10 motor, this rocket is capable of flying higher than 1 mile! It can go even higher on 29mm G and H motors.

This is an easy to build kit, and can be further reinforced to fly with high thrust motors. By doing so, it is also capable of speeds exceeding Mach 1 on a G80 rocket motor. WOW!

While the model is easy and straight-forward to build, I recommend that you read the entire set of instructions first. By doing this, you’ll be able to construct this model in a very fast and efficient manner.

Another quality flying model rocket kit from:

Apogee Components, Inc.
3355 Fillmore Ridge Heights
Colorado Springs, CO 80907 USA

Visit our web site at: www.ApogeeRockets.com

Software

See how high your “Apogee Aspire” rocket will fly on any rocket motor – before you even start building this kit.

Download the Free Demo version of the RockSim software from the Apogee website.

www.ApogeeRockets.com
Apogee Aspire Rocket Assembly

1. Fine sand the balsa die-cut sheets before removing the fins. Carefully remove all the pieces from the balsa sheet by freeing the edges with a sharp hobby knife.

2. Group the four fins together, and gently sand the edges as shown in the illustration.

3. Test fit the red coupler in place in one of the body tube sections (if you have trouble inserting it, try sanding the coupler or peeling of some of the red paper layer). Apply wood glue around the perimeter to one end of the red tube coupler. Quickly insert it 1/2 way into one end of a 29mm diameter body tube. After the glue has set, apply glue around the portion sticking out, and insert into the other 29mm body tube.

Note: If you plan on using longer 29mm rocket motors than the 3.5" (8.9 cm) long Apogee F-10 composite propellant motor, you may omit the next step.

4. Carefully glue one of the CR24-29 centering rings into one end of the body tube assembly using wood glue. Recess it 3-1/8 inch (7.9 cm) into the tube from the end. It is easiest to push it into the tube using a 29mm diameter rocket motor. From now on, this end of the tube will be the aft end of the tube.

5. Cut out the tube marking guide from the pattern sheet. Wrap the guide around the aft end of the body tube and tape the ends together. Mark the body tube at each of the arrow points. Remove the marking guide.

6. Using a door frame, draw a pencil line down the outside of the body tube at each pencil mark. Label the launch lug line so you don’t glue a fin in the wrong position.

7. Apply glue to the root edge of one of the fins. Allow the glue to dry slightly for a few minutes, then attach it to one of the body tubes, as shown in the illustration. Each fin is attached .75" (19mm) from the end of the tube. Make sure the fin is straight along the tube. Allow the fin to dry before proceeding with the next fin. Repeat this step three more times as you attach the other two fins.

8. Apply a bead of wood glue to both sides of each fin-body tube joint. Pull your finger along the joint to smooth out and remove the excess glue. Lay the tubes horizontally while the glue dries. (Note: If you plan on flying with high thrust rocket motors to achieve supersonic speeds, it is recommended that you apply a fillet of FIXIT® Epoxy-clay to each side of the launch lug for extra strength.

9. Using wood glue, attach the launch lug to the tube. Position it on the pencil line, about 4 inches (10.2 cm) from the end of the tube near the center of gravity. Allow the glue to dry. (Note: If you plan on flying with high thrust rocket motors to achieve supersonic speeds, it is recommended that you apply a fillet of FIXIT® Epoxy-clay to each side of the launch lug for extra strength.

10. Tie one end of the shock cord to the loop on the base of the nose cone. Tape the streamer to the shock cord near the nose cone. Make sure the streamer is securely attached so that it can’t come off.

11. Cut the paper shock cord mount anchor from the pattern sheet. Spread wood glue over one side of the paper and position the free end of the shock cord at a slight diagonal across the length of the paper. Fold the paper twice at the fold lines indicated on the pattern. Squeeze it between your fingers, and at the same time, curl the edges slightly to match the inside curvature of the body tube. When the glue has set, glue the assembly inside the body tube. Be sure to position it far enough into the tube so that the nose cone can fully be inserted into the tube.

Construction of 24 mm Motor Adapter

12. Use one large centering ring (CR24-29) on the forward end of the 24 mm diameter tube. It should be flush with the end of the tube.

13. Glue the remaining two centering rings (CR24-29) on the other end of the tube, 3/8 inch (9.5 mm) from the end of the tube. Smear a thin film of wood glue on all the outside surfaces of the centering rings to prevent the paper from fraying.

14. Glue the smaller centering ring (CR18-24) inside the 24 mm diameter tube as an engine block. It is recessed 7/8 inch (22.2 mm) from the forward end. Use a scrap piece of balsa to help apply the glue to the inside of the tube. Again, use a rocket motor to push the motor block into the tube (see step #4).