

A dramatic photograph of an Atlas V rocket launching from a launch pad. The rocket is oriented vertically, ascending into a dark sky. A massive, billowing plume of white smoke and fire erupts from the base of the rocket, partially obscuring the launch pad structure. To the right, a complex metal service structure is visible. In the foreground, a concrete walkway with a metal railing leads towards the launch area. The overall scene conveys the power and scale of heavy-lift rocketry.

ATLAS V
Paper Model Kit



ATLAS V

This paper rocket kit is designed to help you build a 1:150 scale model of the Atlas V rocket with your printer and basic tools. As with all paper model kits, your level of success will depend on your precision and the time you take. It is recommended to let the glue fully dry in each step before the next. Please take care not to cut yourself and do not leave children unattended with sharp tools.

Your Atlas V paper model kit will require:

- 8.5" x 11" cardstock prints of the 4 pages at the end of this document, (save paper and ink by only printing the pattern pages 16-19 and view the instructions online)
- A cutting mat
- Scissors and/or an x-acto knife (children should not use x-acto or be left unattended with cutting tools and anyone attempting this kit should take care to avoid injury from cuts)
- Glue (super glue or other adhesive is not necessary)
- A straight edge or ruler
- A sharpened pencil

Optional supplies:

- A few toothpicks for applying glue to small areas
- A small dish to hold a dollop of glue while building
- A long wooden dowel or chopstick to help you apply pressure to glued areas far into the rocket body



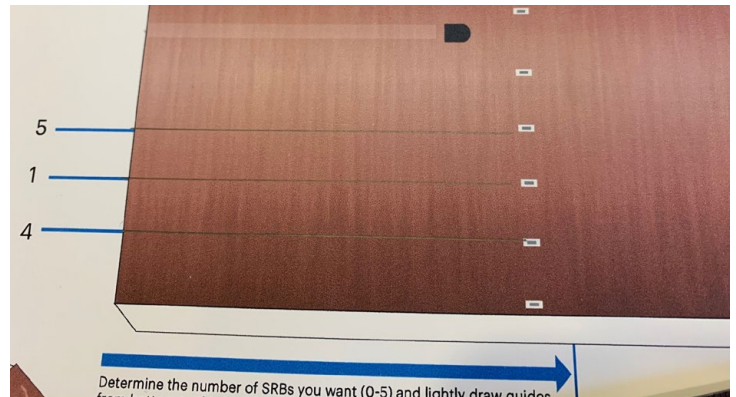
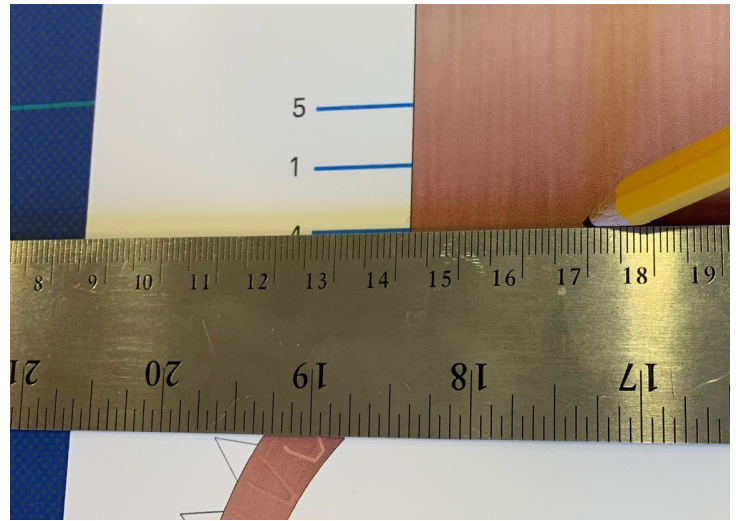
STEP 1

Mark the booster (A) for solid rocket boosters before cutting

Atlas V uses up to five solid rocket boosters (SRBs) for added performance. You will mark the locations for the SRBs first.

Determine how many SRBs your model will have. This example shows five. If you decide to have none, skip to the next step.

The numbers show the location lines for the quantity of SRBs you choose to use. Use a ruler across the blue marks at the top and bottom of the booster (A), to lightly draw the SRBs location lines, using the blue arrow as a guide. Do not go past the blue arrow with your marks or the pencil will show on the final model.



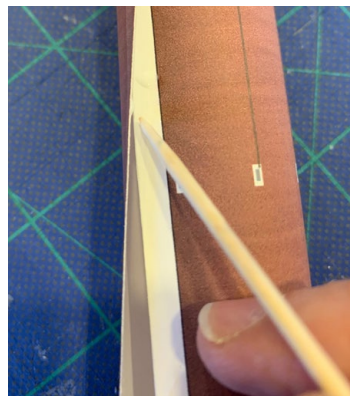
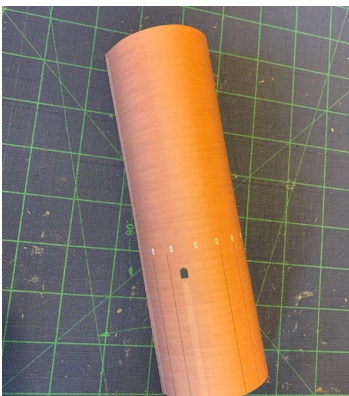
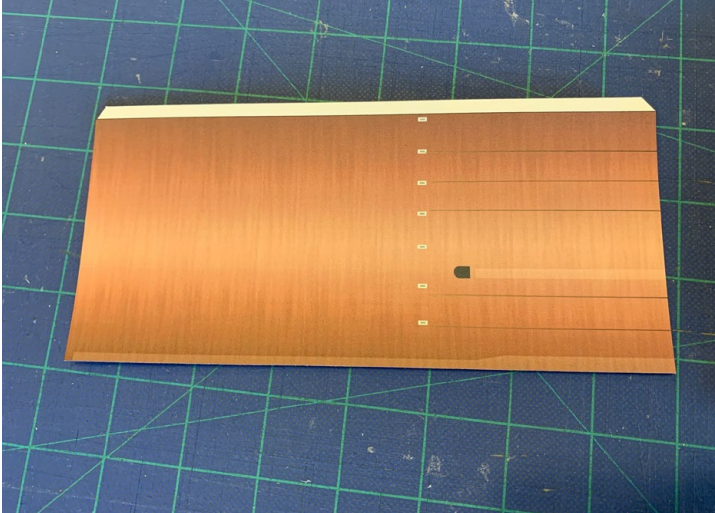
STEP 2

Trim out the booster (A)

Trim out piece A. Apply glue to the white strip on the side of the piece.

Gently curl the booster to make a tube and hold the glue until it dries in place.

You can use a wooden dowel or chopstick to put pressure on the inside of the tube where your fingers may not reach.

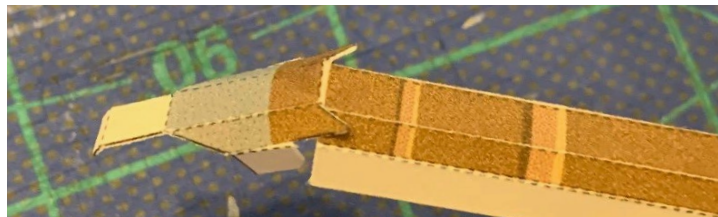
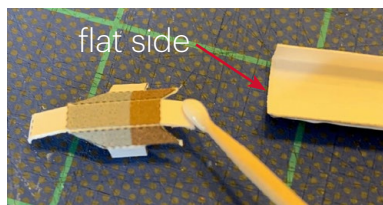
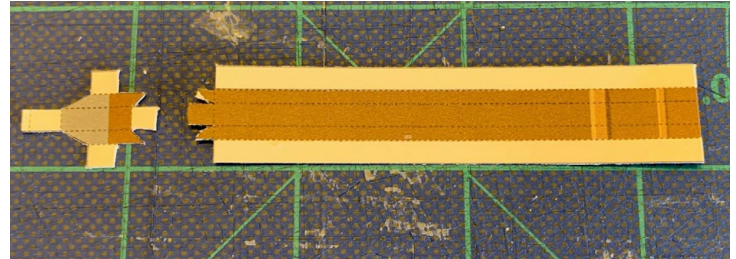
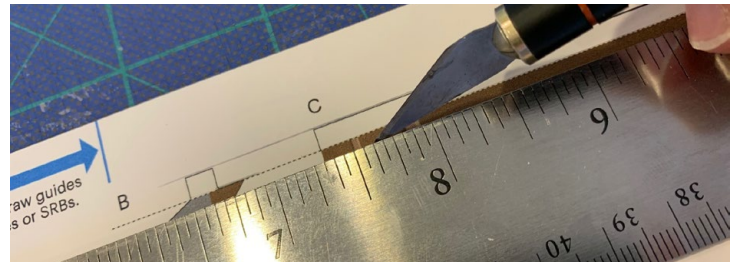


STEP 3

Score and trim the fuel line (B & C)

With the open blade of your scissors or an x-acto blade, you will lightly score the dotted lines on part B and C. For an x-acto, you will want to either use the back of the blade or extremely light pressure to avoid cutting the score lines. You may want to practice this first on a blank area of the cardstock. These will be fold lines.

With scoring done, trim out each piece.



STEP 4

Fold and attach the pieces

Fold along the scored edges on B and C to start to form box shapes out of each piece.

Next, turn part C over to show the white side, with a flat end, and apply glue to part B on the part as shown.

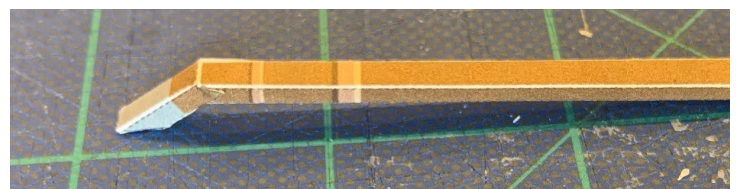
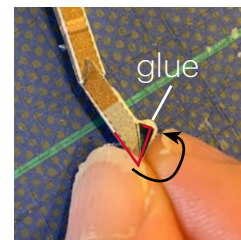
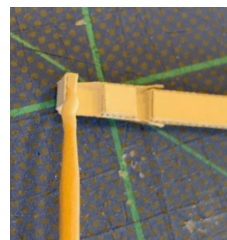
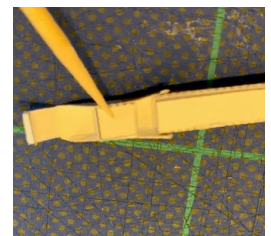
With the end of part B glued, flip B over and glue to part C, so just the tab sticks to the center-folded section, see photo at left. This will make a bend in the final part.

STEP 5

Fold and finish part B of the fuel line

Next, add glue to the white section of part C and fold to make a long rectangular box. Add glue to the same area on part B and fold it over as well to match (see red areas on right).

On Part B, fold the two scored areas on the white tab and add glue to the smallest folded area. Next, fold it into the backside to make a flat ramp, as shown in the photo.

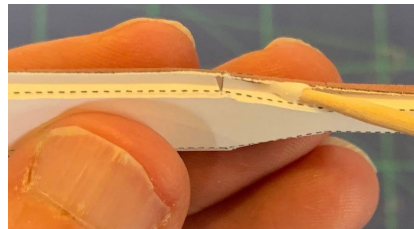
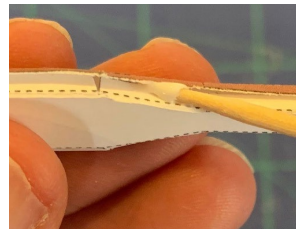
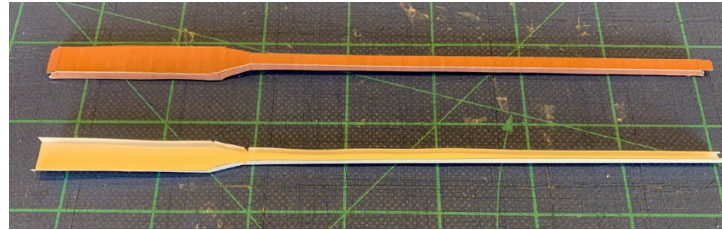
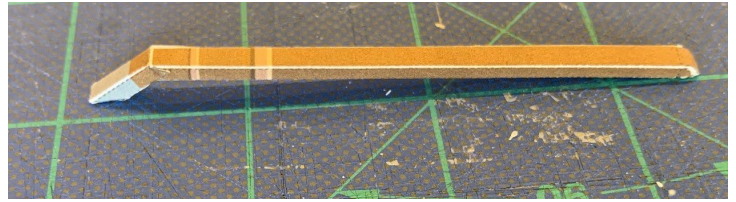
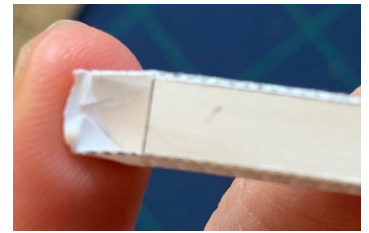
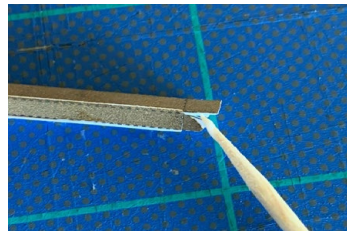


STEP 6

Finish the fuel line

On the back side of part C, apply glue to the white triangles and fold the scored areas to close the back side of the part.

You have finished the fuel line, set it aside for now.



STEP 7

Make the cable raceway (D & E)

Score the dotted lines on part D and E before trimming them out. These two parts will attach to one another, as a top and bottom to the cable raceway.

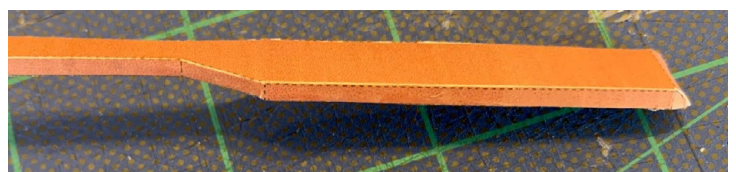
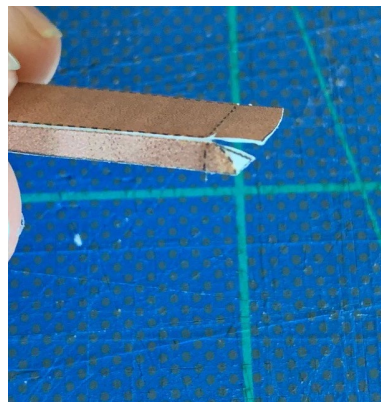
Fold the scored lines downward for each part. Flip part E over and fit part E into part D and glue the edges on the sides. The two pieces will fit together to form one piece with part E making the back side of the finished piece.

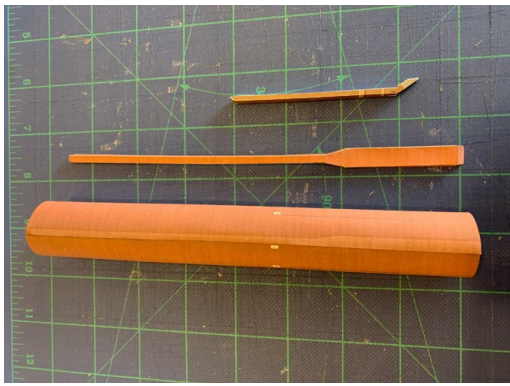
STEP 8

Finish the cable raceway ends

Each end of the raceway will need to be finished in the same way you finalized the fuel line. Fold the scored white triangles inward and add glue to them, then fold the center down and glue the triangles to the center flap, making a rounded end cap.

Do this to both ends to finish the cable raceway.



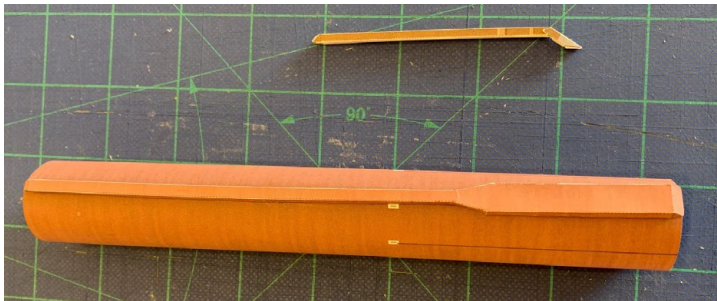


STEP 9

Attach the cable raceway to the booster

The backside of the booster, near the seam, will have an area that matches the cable raceway shape. Apply glue to the back of the cable raceway and affix it to this location on the booster. Be sure to keep the cable raceway on the booster, top to bottom as the glue dries.

Do not glue the fuel line in place yet.

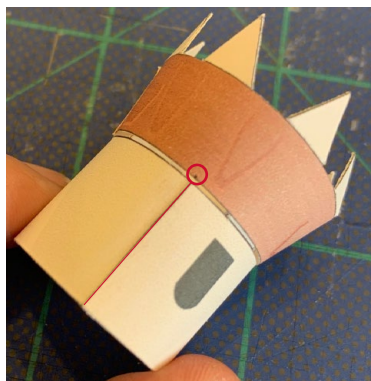
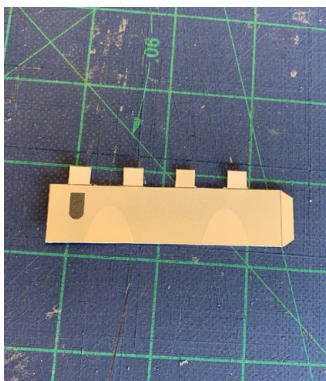
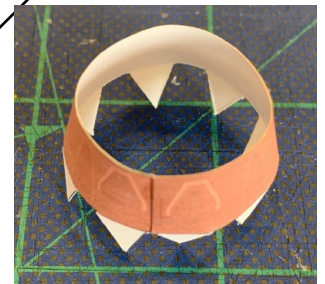
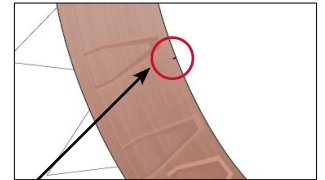


STEP 10

Attach the bottom of the booster (F)

Trim out part F which will be the bottom of your booster. Please note this part has a very small black dot in one location that will act as a locator when you add the heat shield. Be careful not to trim this dot off.

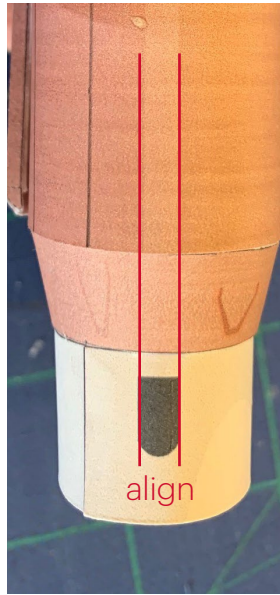
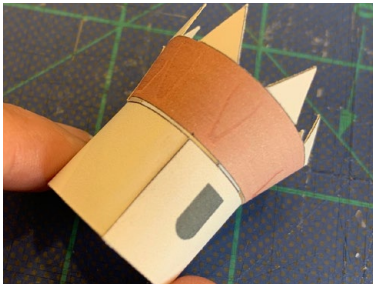
Wrap this base around and make a cone of part F, and set this piece aside.



STEP 11

Make the heatshield (G)

Trim out the heatshield (part G) and wrap it around, gluing it into a cylinder. Next, glue the rectangular ends and attach this heat shield to the booster piece you just made (F), lining up the seam of the heatshield with the locator dot on part F.



STEP 12

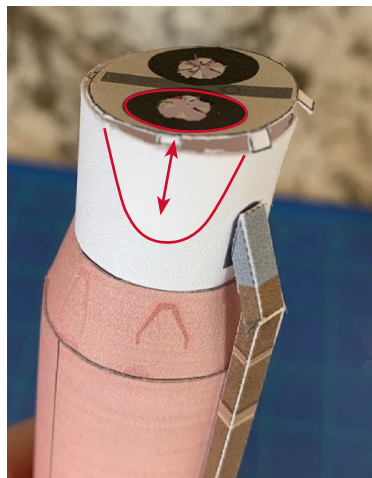
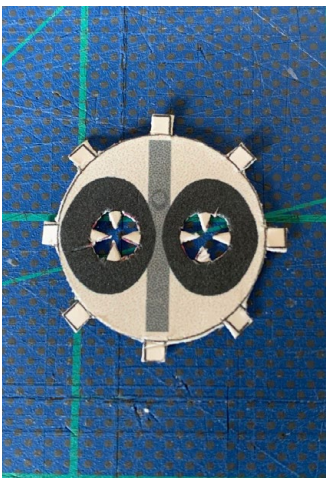
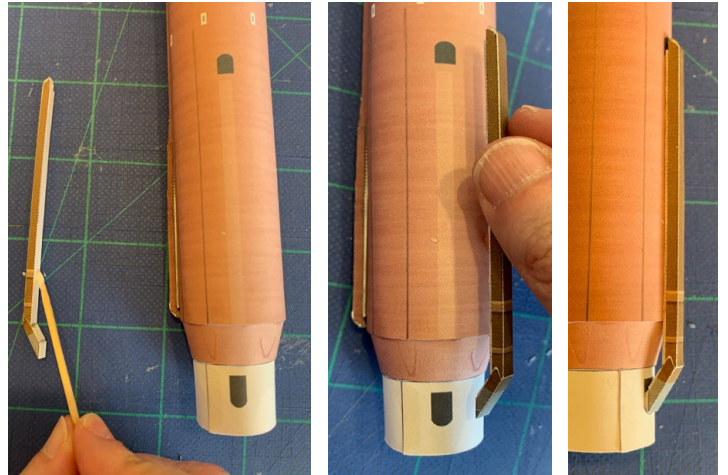
Attach the heatshield and base to the booster

Apply glue to the triangles of the bottom of the booster (part F), and rotate the booster so that the seam to part F and the seam to the booster align. With those seams lined up, you'll notice the gray shape on the heatshield lines up with the lighter line on the booster (shown to the left). You can reach into the bottom of the heat shield to secure the glued triangles in place when the alignment is correct.

STEP 13

Attach the fuel line

Add glue to the top half of the fuel line, and align the top of the fuel line to the dark gray shape on the booster, as shown at the right. Once the top is in place, add a small dot of glue to the bottom attach point on the fuel line, to attach the angled part to the gray area on the heatshield.



STEP 14

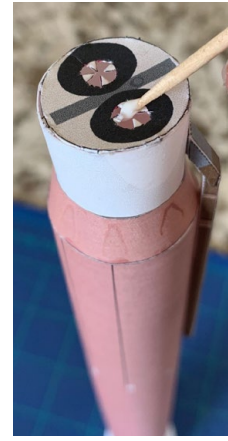
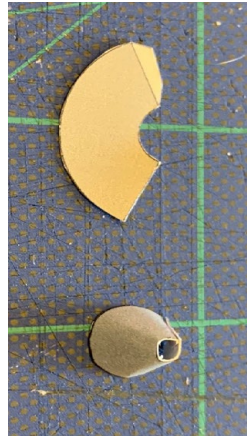
Create the bottom of the heat shield (H)

Trim out part H, being sure to cut out the pink portion of the piece. Fold the rectangles back and add glue, and set the piece into the bottom of the heatshield. Take care to place the two black circular shapes, to match up with the white "U" shapes on the side of the heatshield as shown on the left.

STEP 15

Make the RD-180 engine nozzles (I & J)

Trim out part I and J on your pattern and wrap each part around, gluing the ends in order to make two cones. Next, add glue to the small triangles at the base of the heat shield. Push the engine nozzle cones into each hole and even them out to each other.



STEP 16

Make the Centaur interstage adapter (M)

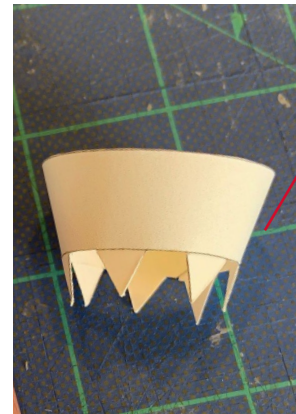
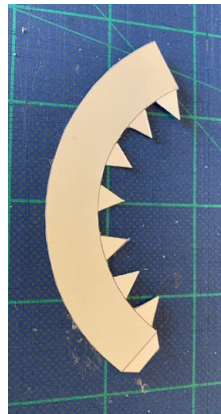
Cut out part M, glue the end and wrap to form a cylinder. Add glue to the tabs and, while aligning the seams of both the booster and the interstage, glue the interstage into the top of the rocket booster.



STEP 17

Make the boattail (N)

Trim out part N, wrap and glue the ends to form a slight cone. Next, add glue to the triangles and attach the boattail to the top of your interstage. Be sure to align the seams to the back seams, so all the seams are hidden on your final model.



STEP 18

Make the payload fairing (O)

Cut out part O, glue the end and wrap to form a cylinder. Add glue to the tabs and, while aligning the seams of the boattail and the payload fairing, glue the bottom of the payload fairing into the boattail.

STEP 19

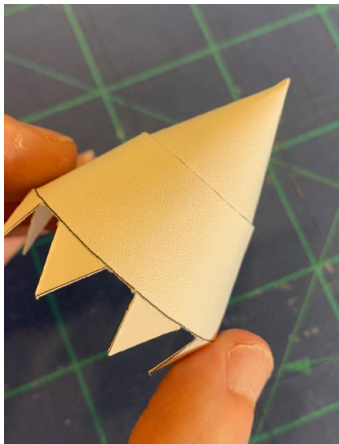
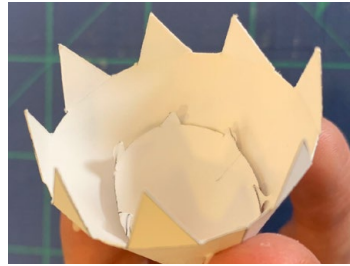
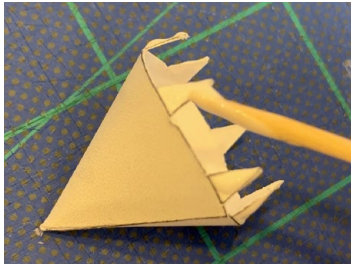
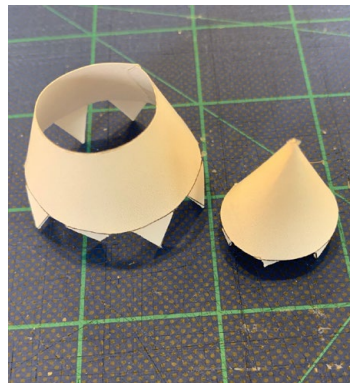
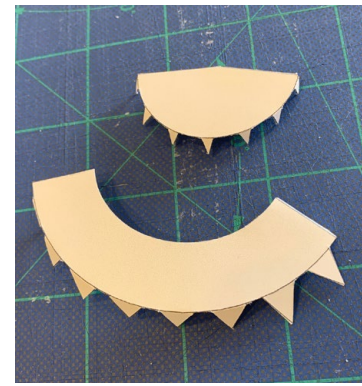
Finish the payload fairing (K & L)

Cut out parts K and L which will be the nosecone on the payload fairing. Slightly bend all the triangles back, then glue the ends and wrap them into their shape shown to the left.

Next, take the cone, part L, and add glue to the triangles. Line up the seams from both parts so they match up and drop the tip of the cone into the wider side of part K, to make a full nosecone. Center the top of the nosecone (L) and press the triangles down on the inside until they dry.

After the nosecone is dry, glue the triangles of the nosecone into the top of the payload fairing piece, as shown on the right.

If you chose to add no SRBs, your Atlas V 501 model is now complete and you can skip to the model base. To include SRBs, follow the next steps.

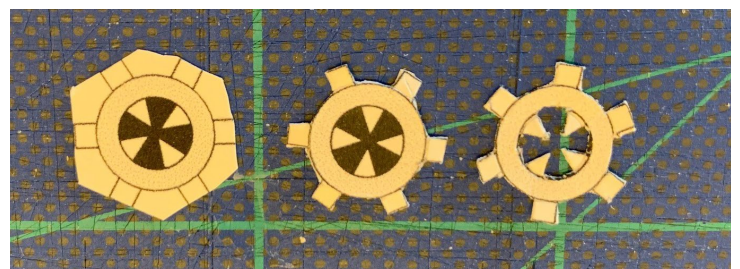
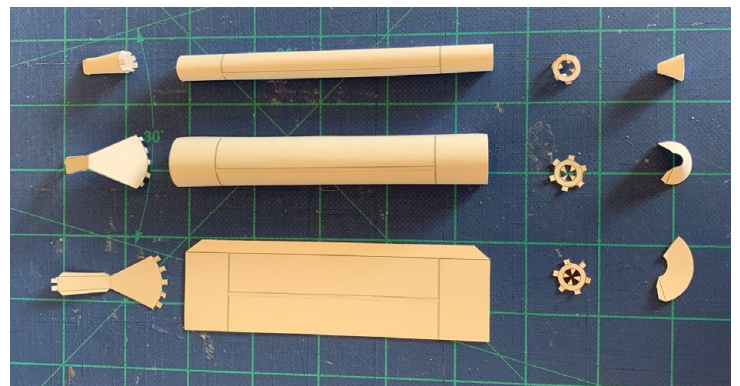


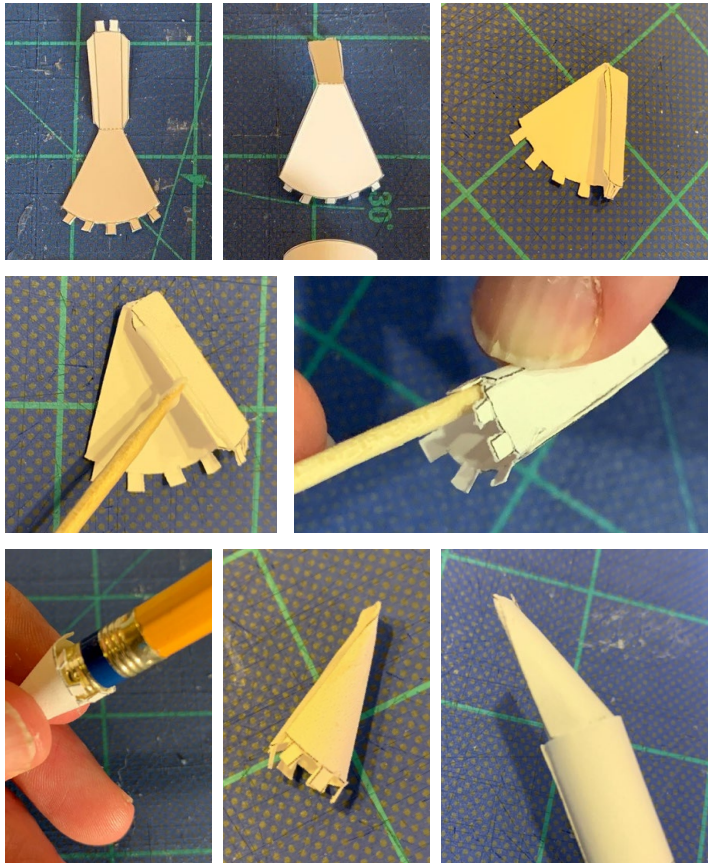
STEP 20

Trim out the SRBs from page 18

Each SRB will require one each of parts P, Q, R and S. Cut out as many of each part as you have selected for your rocket. This example will show all five SRBs for our final rocket.

Part Q requires the most patience and precision to trim. Cut out each section slowly, and remove the black portion in the center to leave a hole and four triangular points, then fold them back. Be careful not to cut yourself, as these parts are tricky and tiny.





STEP 21

Make the SRB nosecones (S)

Cut out part S and fold in half along the dotted line. From the smallest/skinniest side, add glue to one of the glue tabs and wrap the cone shape around to meet and attach to this tab. Let this dry completely before repeating and attaching the second side.

Once both sides are glued, you'll notice the part is a bit oblong. Use a pencil eraser in the end of the nosecone and round the end for an easier fit into the SRB tank. When you glue this part into the tank, you'll want the flat part of the nosecone to match the seam of the tank.

STEP 22

Assemble the GEM-63 SRBs

Nosecone (part S): see previous step.

SRB tank (part R): roll this around a pencil and glue the ends together to form a tube.

SRB Base (part Q): will be glued into the bottom of the SRB tank to hold the engine.

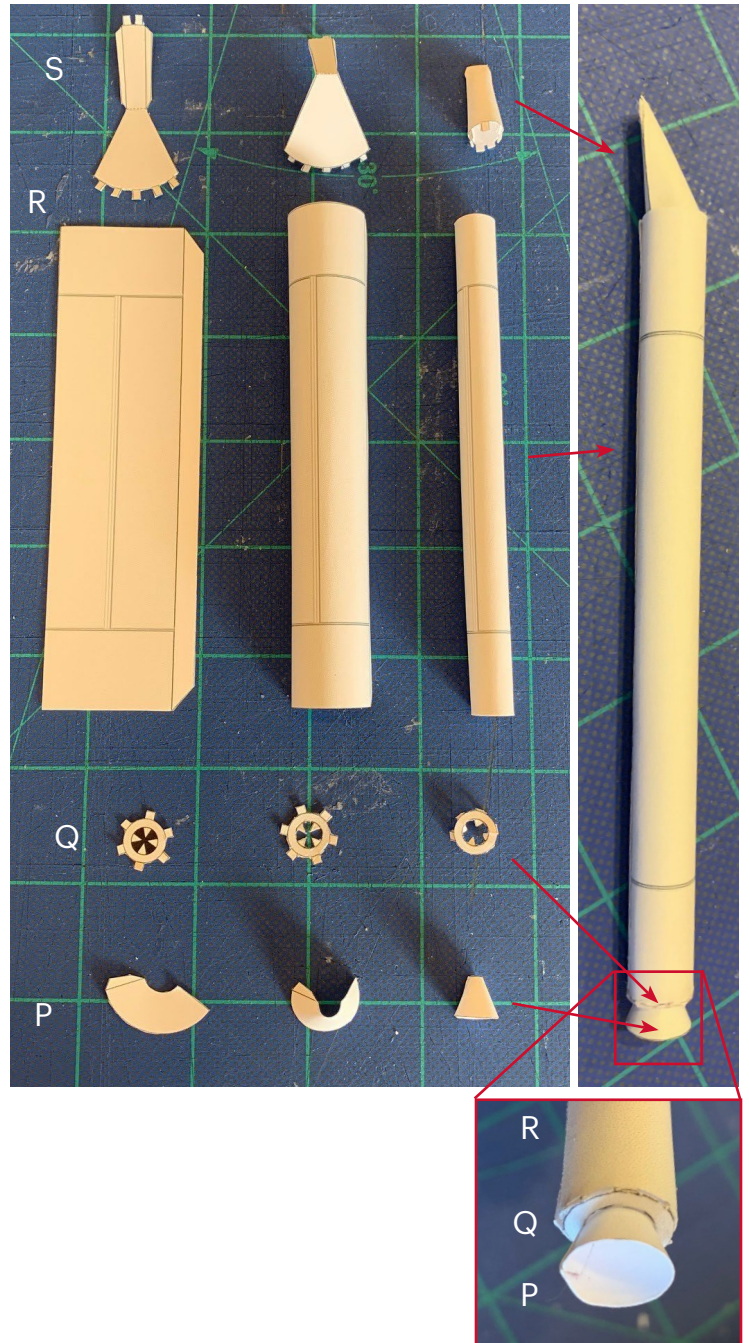
Engine nozzle (part P): wrap around and glue the end to make a cone.

Assemble the SRBs one at a time, making sure the glue dries on each part before proceeding.

Once each part is formed, glue the nosecone into the top of the SRB tank by adding glue to the rectangles and sliding it into the tank tube, flat side of the nosecone should face the SRB tank seam. Then glue the base (part Q) into the opposite side of the tank.

Add glue to the triangles in the hole of part Q, and attach the engine nozzle (part P) by pushing it into the hole with the glued triangles. Center the part before the glue dries.

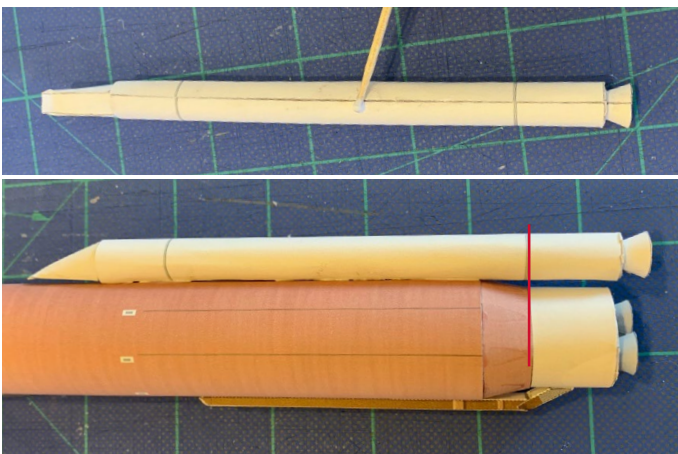
Make as many SRBs as you need for your model, up to 5 SRBs.



STEP 23

Glue the SRBs to the rocket

Remember those lines you drew on the rocket tank in step 1? You will now add glue to the top half of the seamed side of each SRB (this hides the seams) and stick them to the lines, one at a time, letting each one dry and assuring they are straight and lined up to each other. You'll want to align the bottom line of the SRB tank with the seam where the heatshield meets the base of the booster.



COMPLETED ATLAS V ROCKET



MODEL STAND

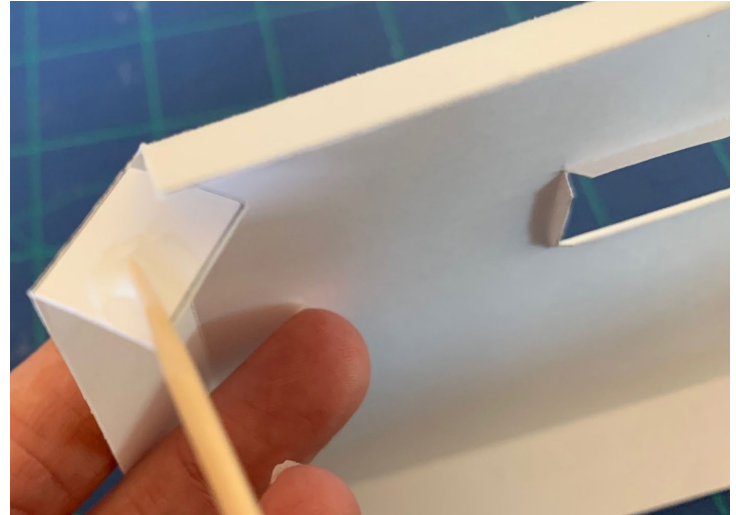
STEP 1

Make the base of the stand (T)

Trim out part T, as shown, and be sure to score all fold lines in this stand model. Score the lines by using the back side of the x-acto knife or cutting very lightly so the blade doesn't go through the line). The folds need to be crisp and 90 degrees to provide a sturdy stand for the rocket.

Remove the black section marked "cut out and remove." The white portion of this area can be scored and the corners cut to allow each tab to fold down. See photos on the right.

Add glue to corners of the box to make the base for the stand. Allow glue to fully dry.

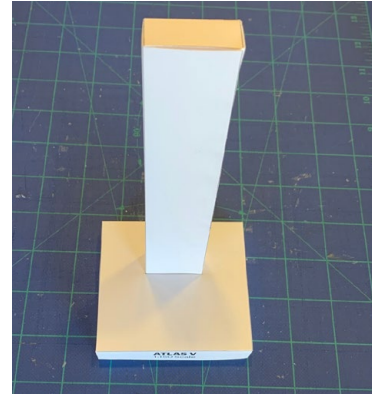
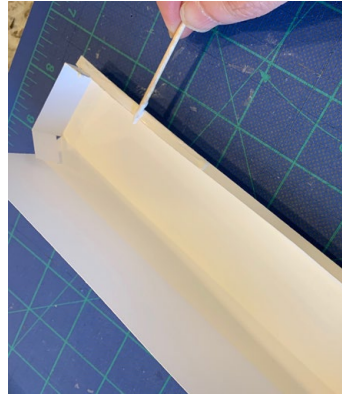


STEP 2

Make the support tower (W)

Trim out part W from the pattern, and again, score all the fold lines for a clean fold. Add glue to corners to make the shape in the photo, a tall, thin box.

Insert the support tower (W) into the base (T) and even the length with the side walls of the base. This will ensure that the support tower is touching the ground or table when it stands and will provide further support. You can also add glue to the folded tabs to secure the base to the tower, once you have the positioning correct.



STEP 3

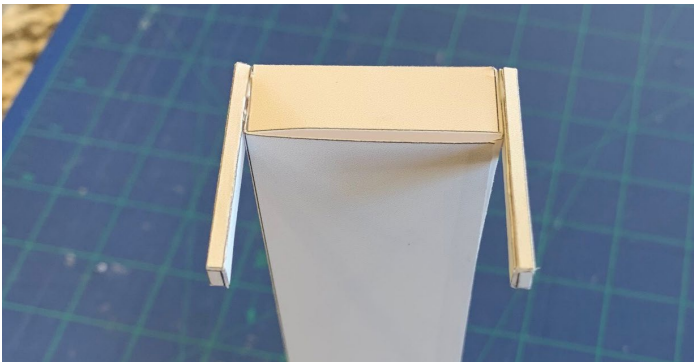
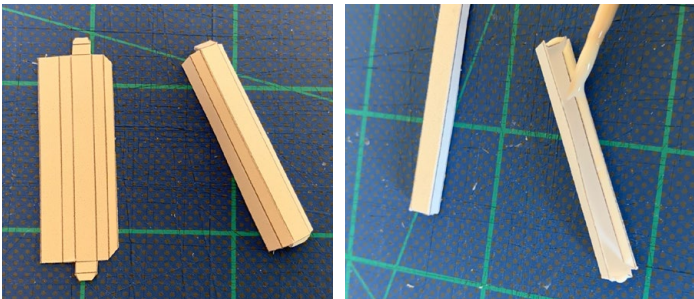
Make the support arms (U & V)

Trim out parts U and V, scoring the fold lines, then fold and glue together to make small boxes.

Next, glue the support arms to the sides of the support tower, at the very top, so that the widest surface is attached to the tower. See the photo for reference.

Let glue dry.

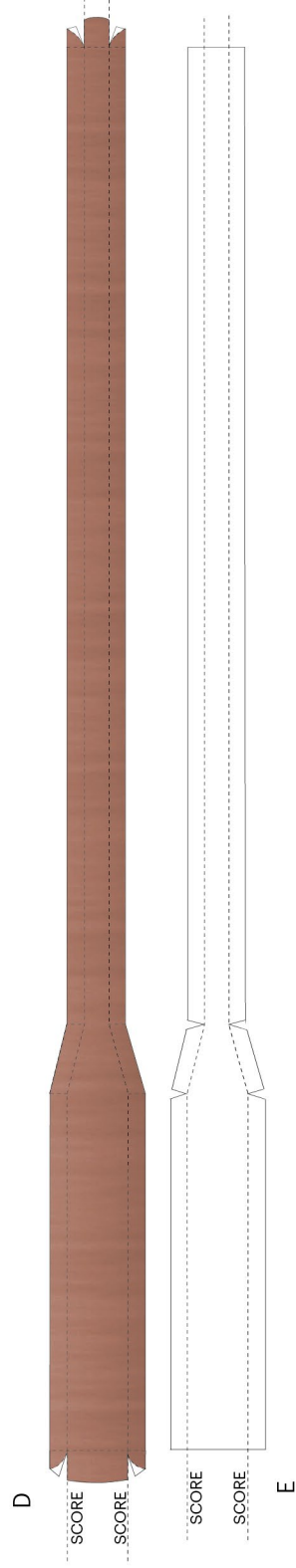
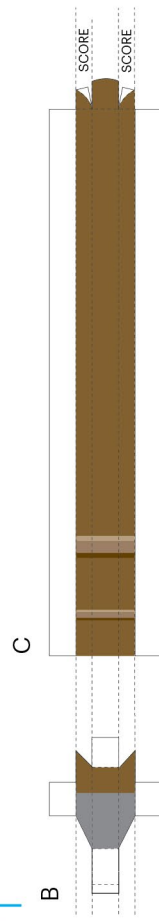
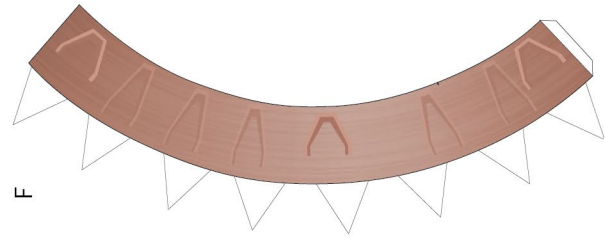
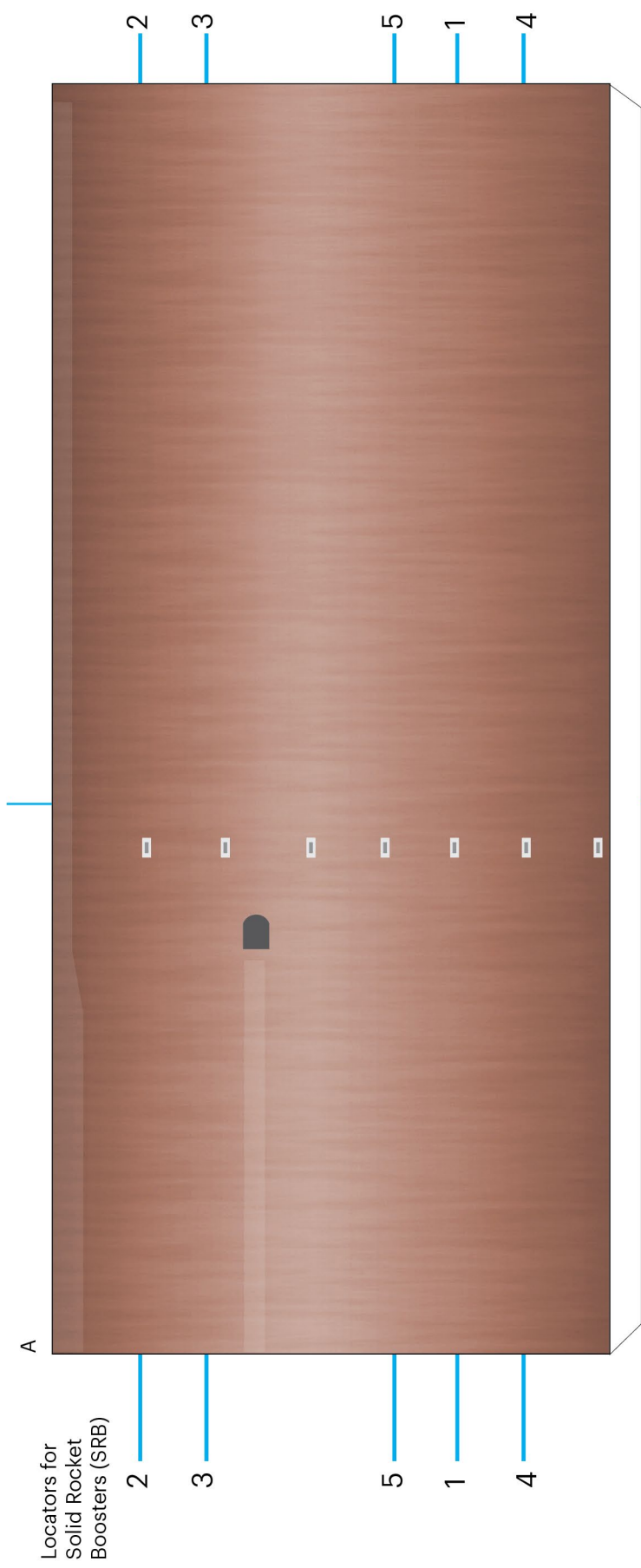
Add the rocket! The support arms should fit nicely around the booster, just above the SRBs.

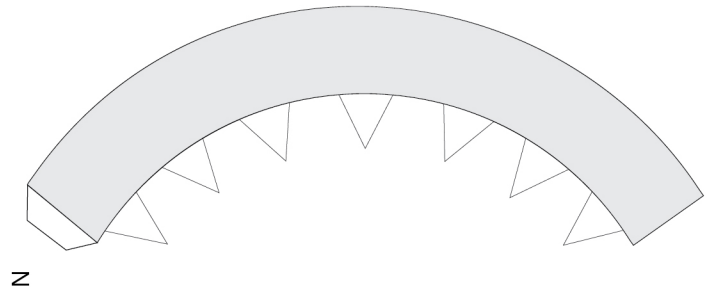
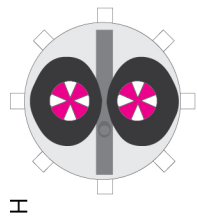
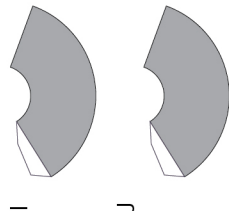
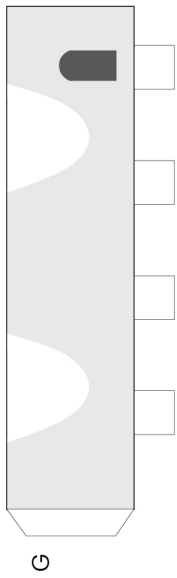
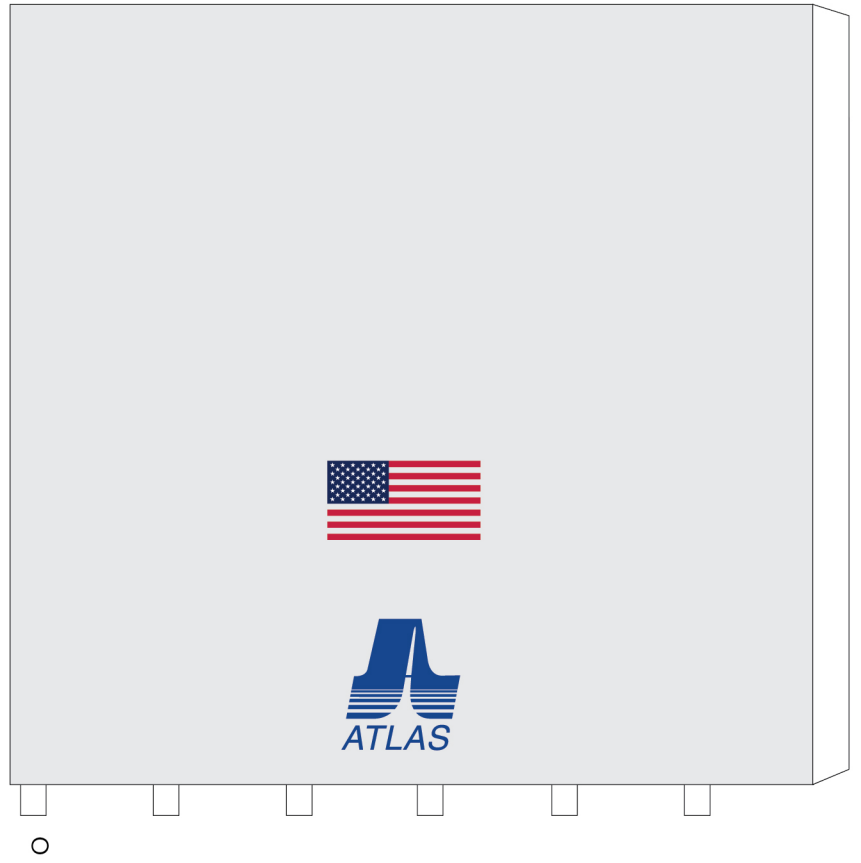
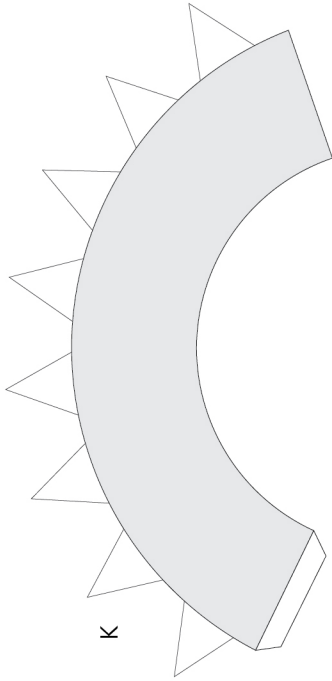
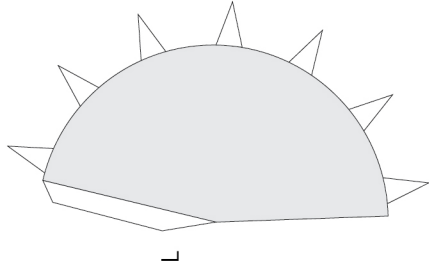


ATLAS V ROCKET

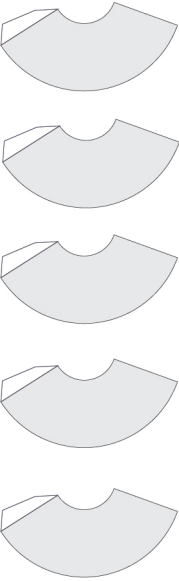
With Model Base



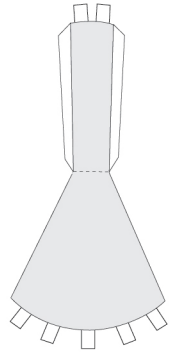




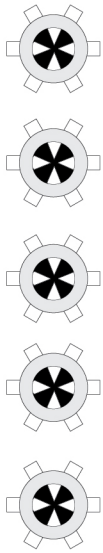
P (5 Parts)



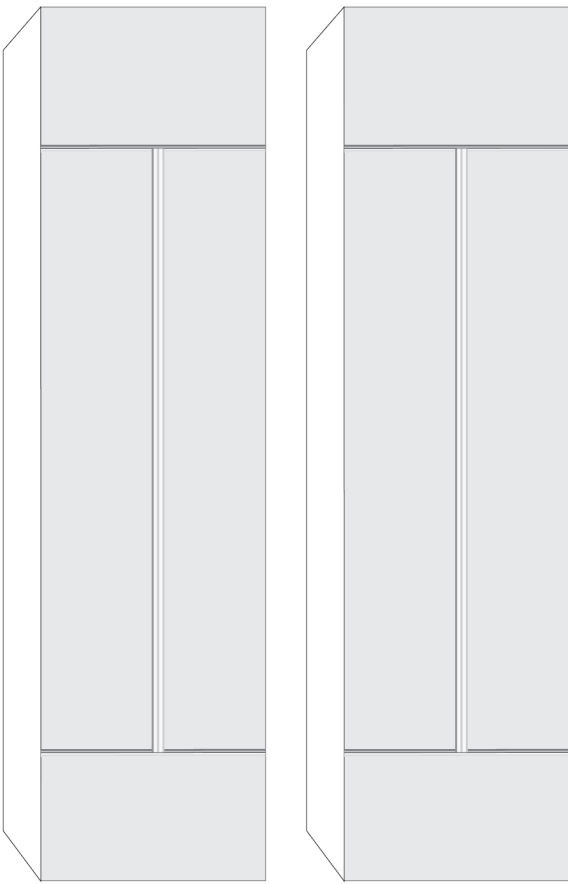
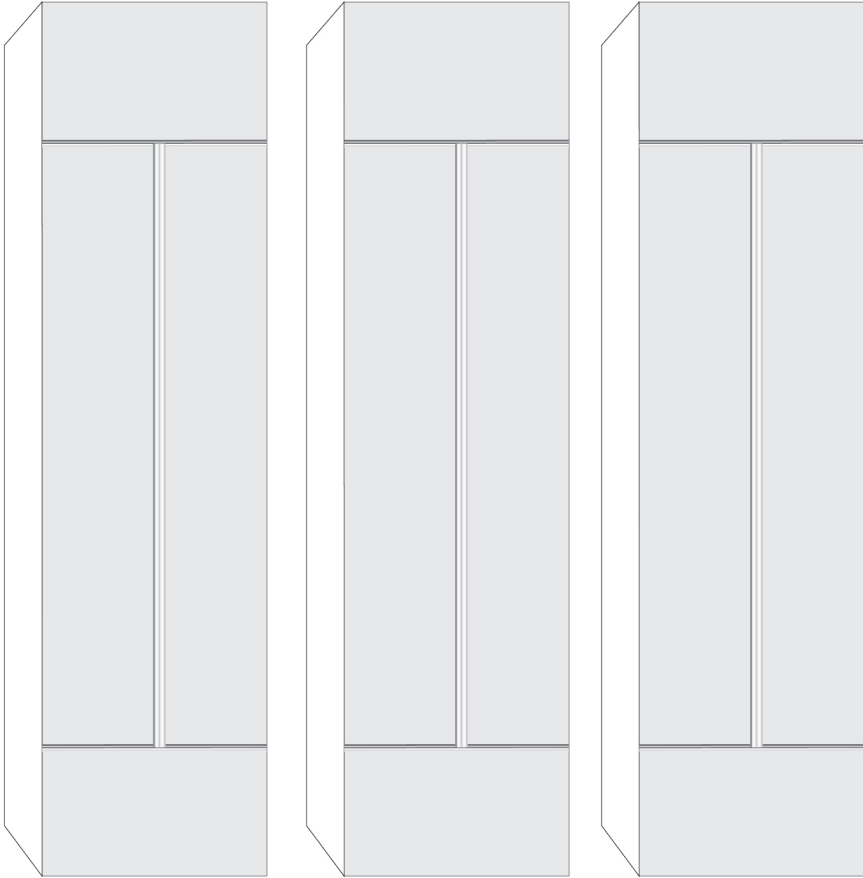
S (5 Parts)



Q (5 Parts)



R (5 Parts)



MODEL BASE

Score all folding lines on this page

