

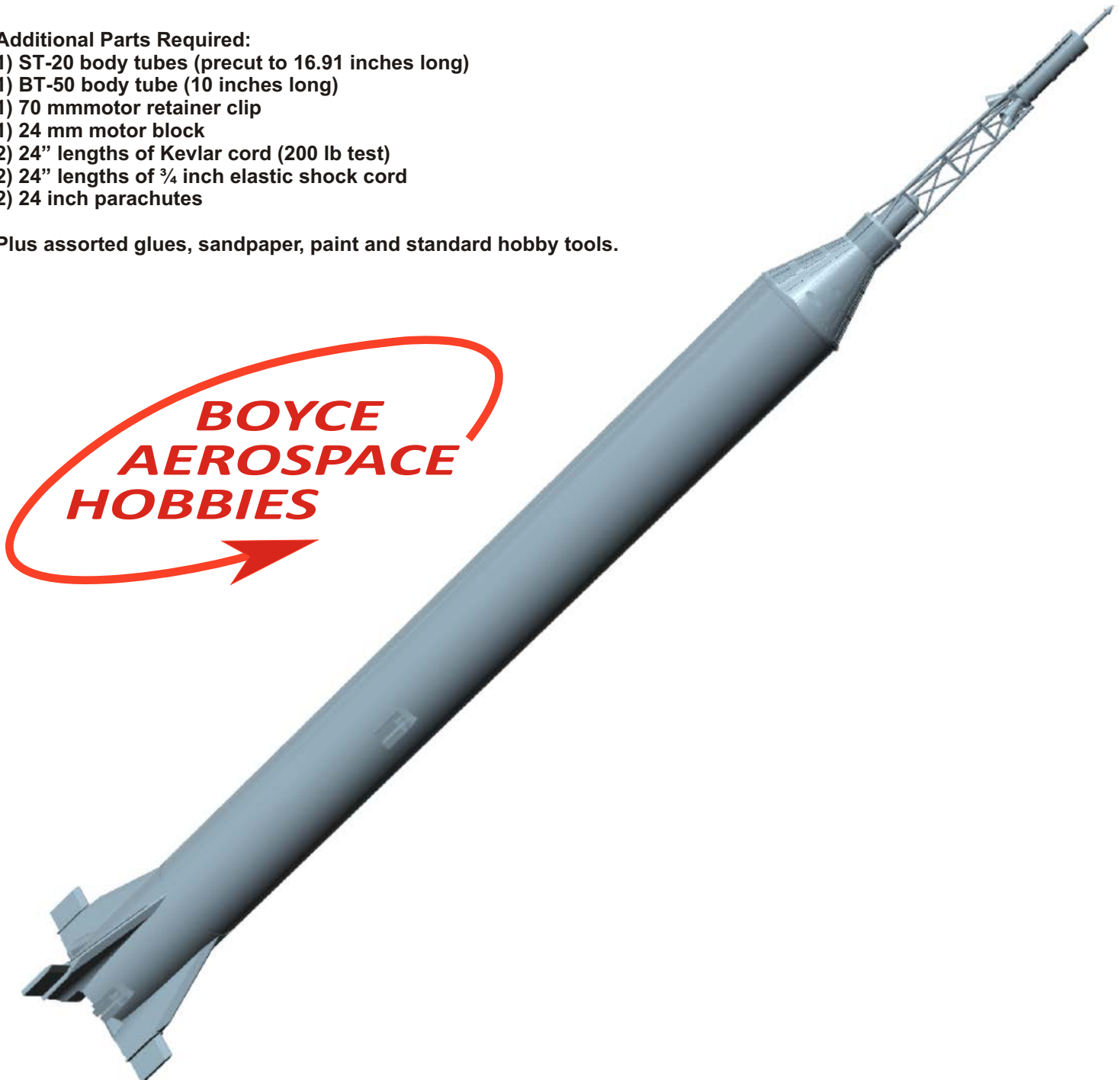
I-35TH SCALE MERCURY REDSTONE BUILDERS KIT

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Additional Parts Required:

- 1) ST-20 body tubes (precut to 16.91 inches long)
- 1) BT-50 body tube (10 inches long)
- 1) 70 mm motor retainer clip
- 1) 24 mm motor block
- 2) 24" lengths of Kevlar cord (200 lb test)
- 2) 24" lengths of 3/4 inch elastic shock cord
- 2) 24 inch parachutes

Plus assorted glues, sandpaper, paint and standard hobby tools.



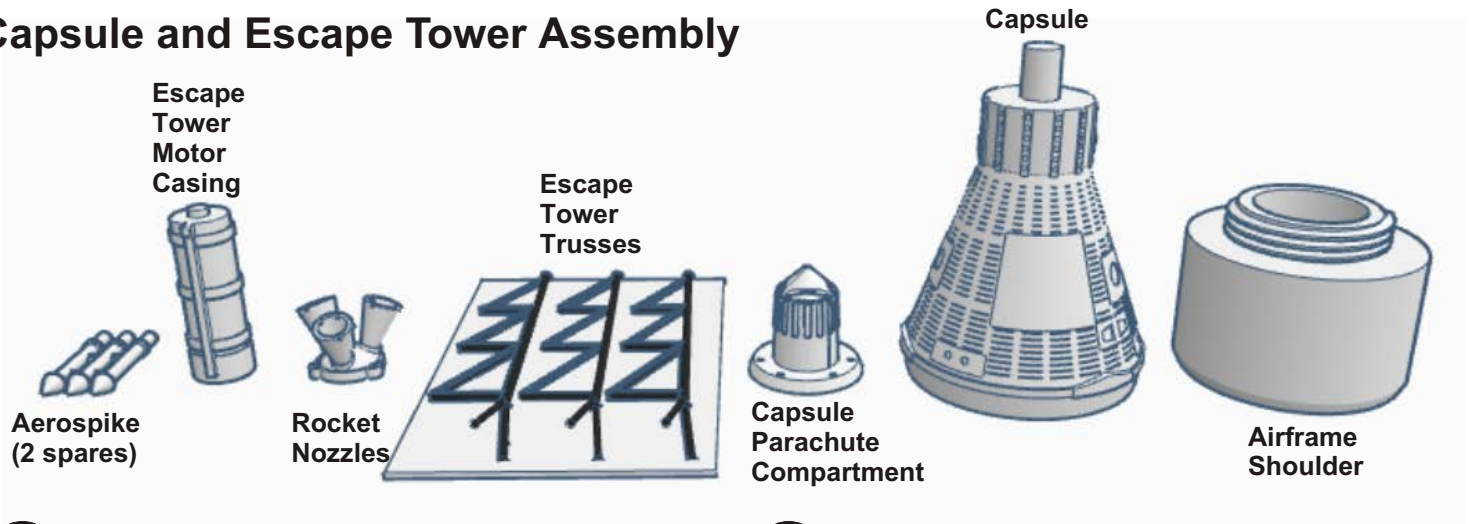
**BOYCE
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HOBBIES**

1/35th Scale Mercury Redstone Model Rocket Kit

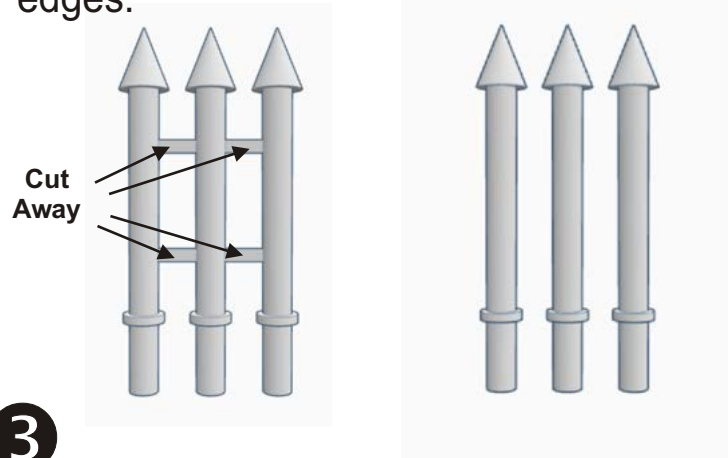
Thank you for purchasing a Boyce Aerospace Hobbies Mercury Redstone kit. Please review the drawings below before gluing and assembling your kit. Also please visit us at boyceaerospacehobbies.com for more scale model rocket kits.

Start by sanding all parts with 220/400 grit sand paper either wet or dry (your preference). Test fit all parts before gluing and until you have a nice slide fit between all mating parts. Once the model is complete wet sand the model until smooth then spray one coat of grey automotive primer over the model. After the model is dry repeat the wet sanding and primer steps until you have a nice paintable surface. Detail the model using modeling resources on the internet (see backside of these instructions).

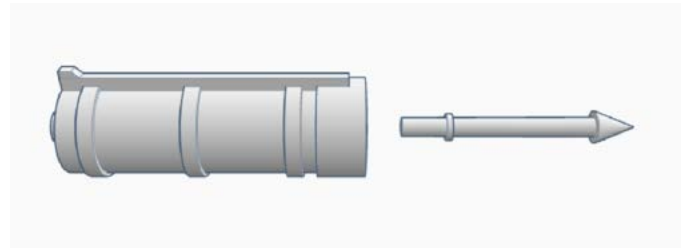
Capsule and Escape Tower Assembly



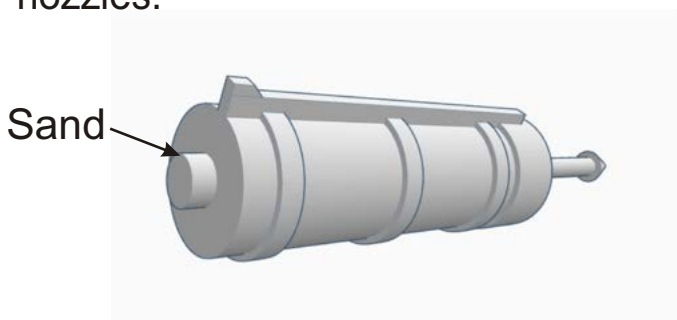
1 Carefully cut apart the three aerospikes provided. Use a hobby knife and 400 grit wet/dry sandpaper to clean up any rough edges.



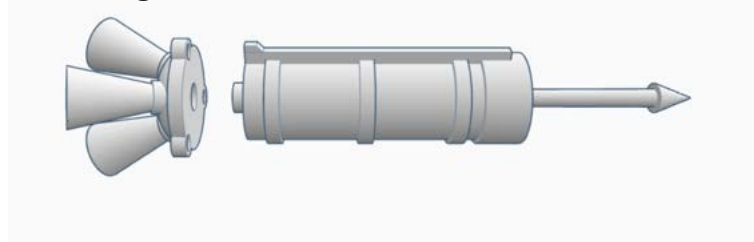
2 Test fit the aerospike into the top of the escape motor casing. Decide if you want to glue the aerospike in or just leave it a pressure fit so it can be removed for flight.



3 Sand around the sides of the male alignment tab with an emery board until it is a nice slide fit with the escape tower rocket nozzles.



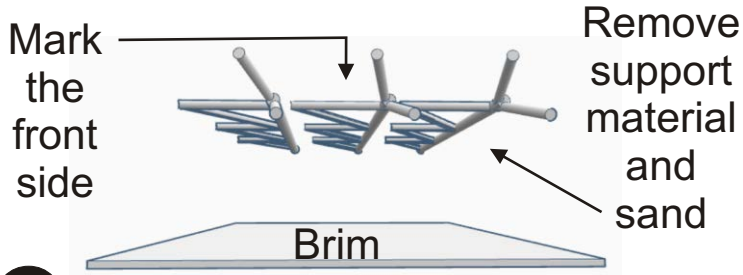
4 Test fit the rocket nozzle base plate with the escape tower rocket motor. Do not glue at this time.



1/35th Scale Mercury Redstone Model Rocket Kit

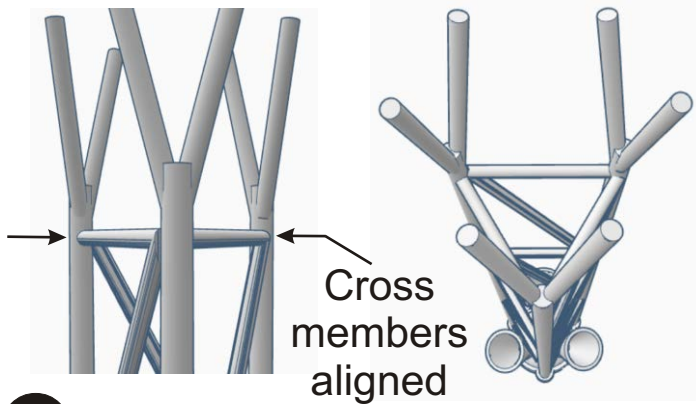
5

Mark the front of each tower upright. Pull the “brim” away from the escape tower uprights. Carefully remove the support material from the back side of the uprights. Sand the back side of the uprights until smooth.



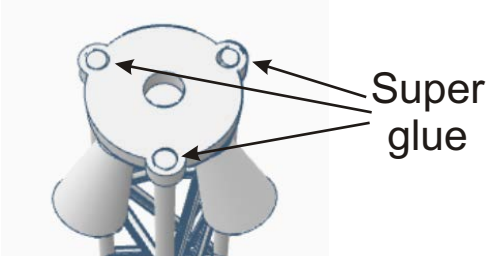
7

Align the uprights to the nozzle assembly as shown. Align the cross members as shown.



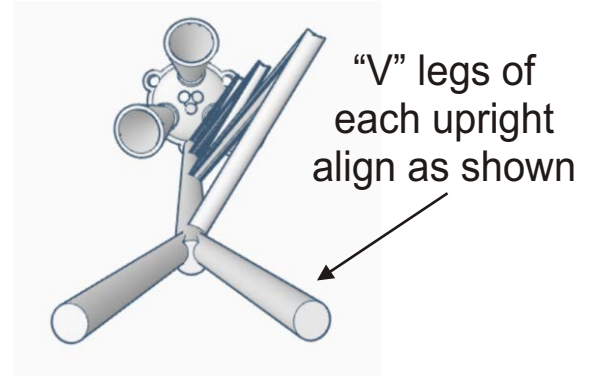
9

Carefully flip the tower assembly over and insure each upright is fully inserted into its hole in the nozzle assembly. Apply a drop of super glue to the top of each tower upright through the holes.



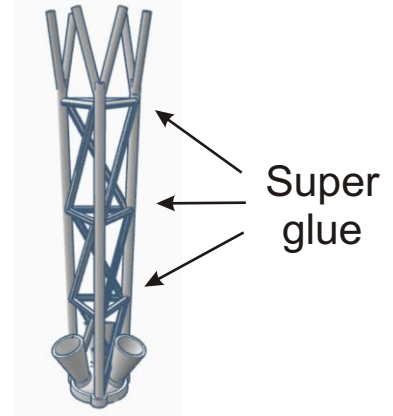
6

Lay the escape tower nozzle assembly upside down on a smooth flat surface. Fit all uprights in the holes in the nozzle assembly until they touch the surface (see step 8 image). Align as shown below.



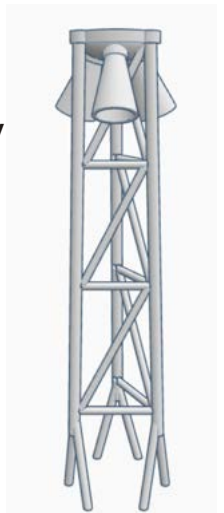
8

After all 3 uprights are seated and aligned apply super glue to each cross member/upright joint and hold till dry. Repeat for each upright.



10

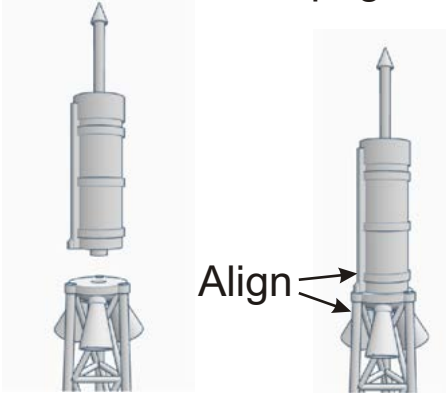
After the tower is dry, check it for vertical trueness on each of its 3 sides. Carefully sand the base legs of the tower to adjust trueness if needed.



1/35th Scale Mercury Redstone Model Rocket Kit

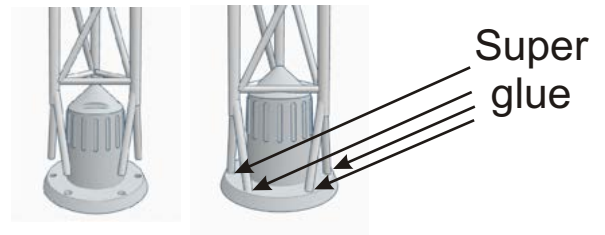
11

Glue the escape tower rocket motor casing in place. Make sure to align the tunnel on the side of the casing to one of the tower uprights.



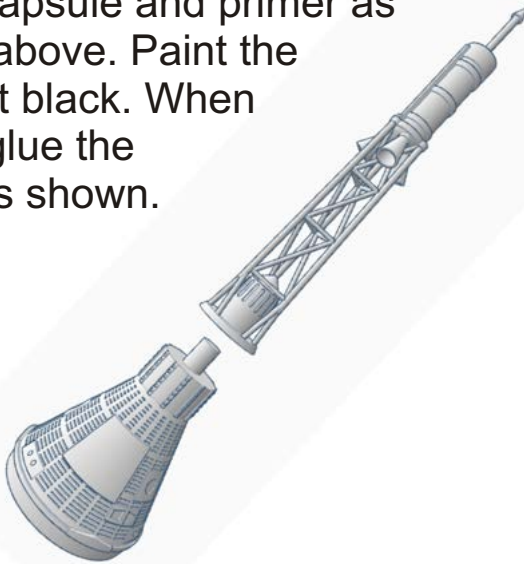
12

Sand and use auto spray primer to coat the tower. Sand and repeat until tower is ready for paint. Spray the tower bright red. Using a drill bit the same size as the tower "V" legs, drill angled holes in the positions indicated on the tower attachment base. Sand and paint the base flat black. Glue the tower to the base as shown.



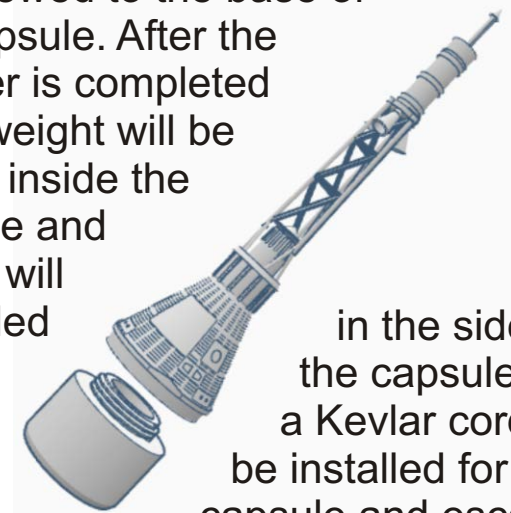
13

Sand the capsule and primer as described above. Paint the capsule flat black. When dry super glue the tower on as shown.



14

The capsule shoulder can now be screwed to the base of the capsule. After the booster is completed nose weight will be added inside the capsule and a hole will be drilled



in the side of the capsule for a Kevlar cord to be installed for the capsule and escape tower recovery system.

15

Make sure the shoulder is left unpainted. The shoulder can be sanded if needed for a nice slide fit in the ST-20 tube..



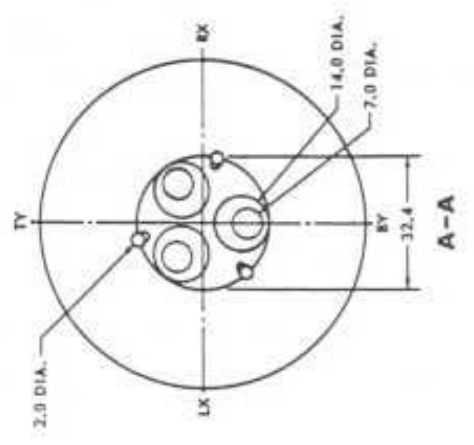
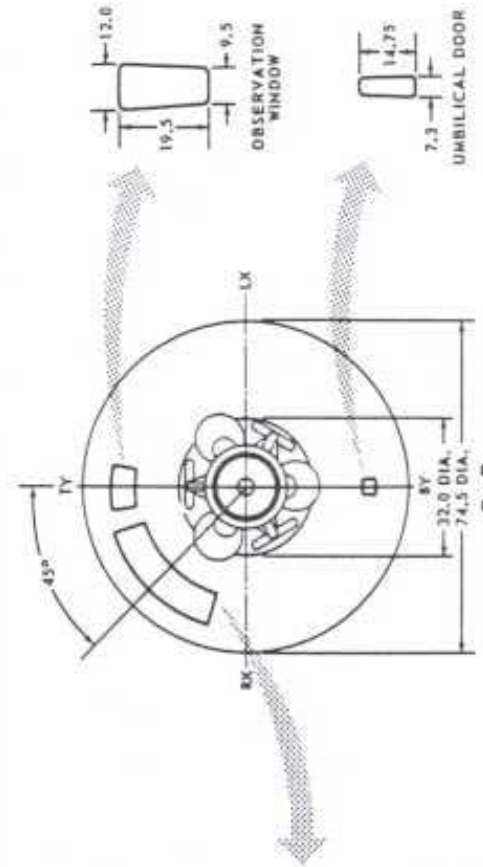
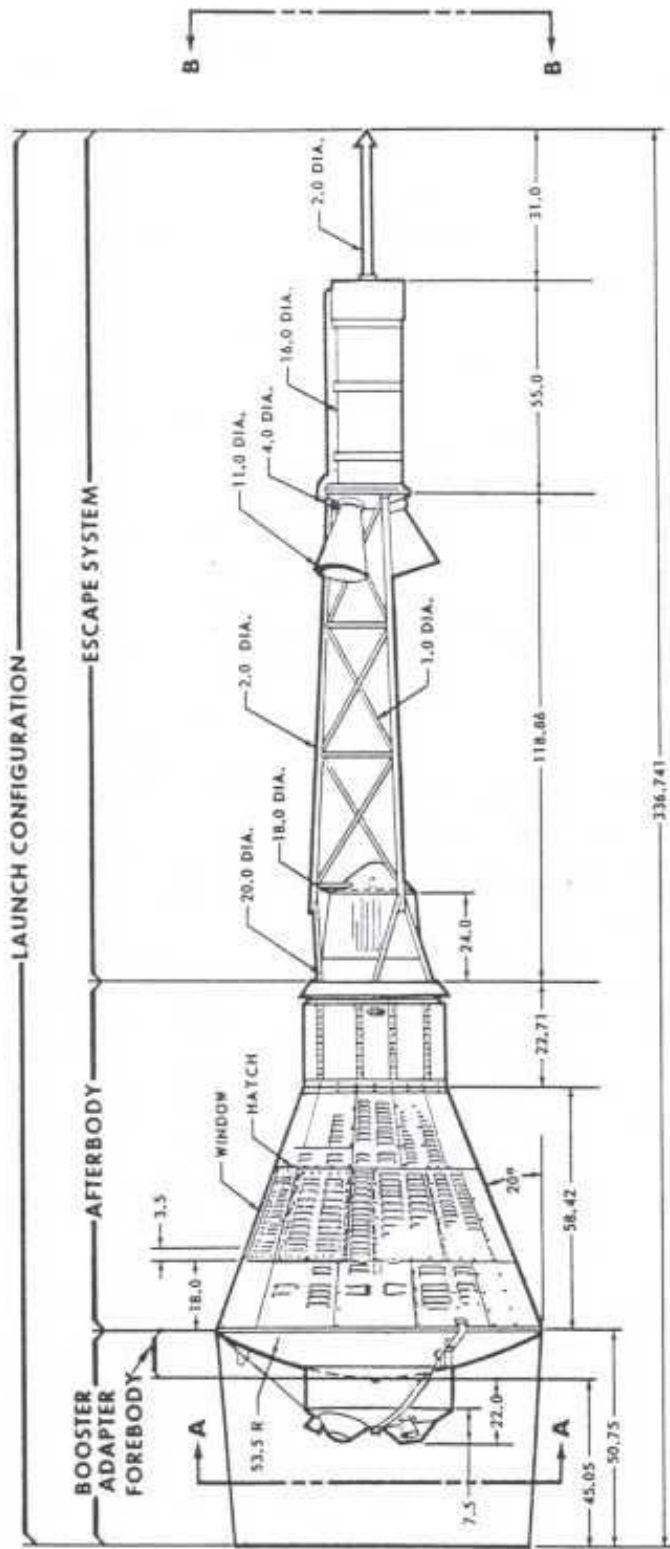
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MCDONNELL MERCURY SPACECRAFT



FIRST FREE MAN IN SPACE



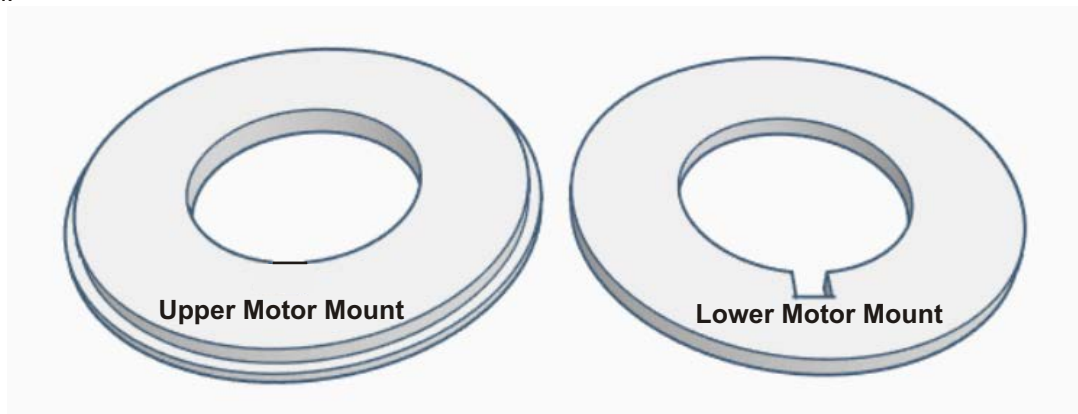
ALL DIMENSIONS IN INCHES

1/35th Scale Mercury Redstone Model Rocket Kit

Redstone Booster Assembly

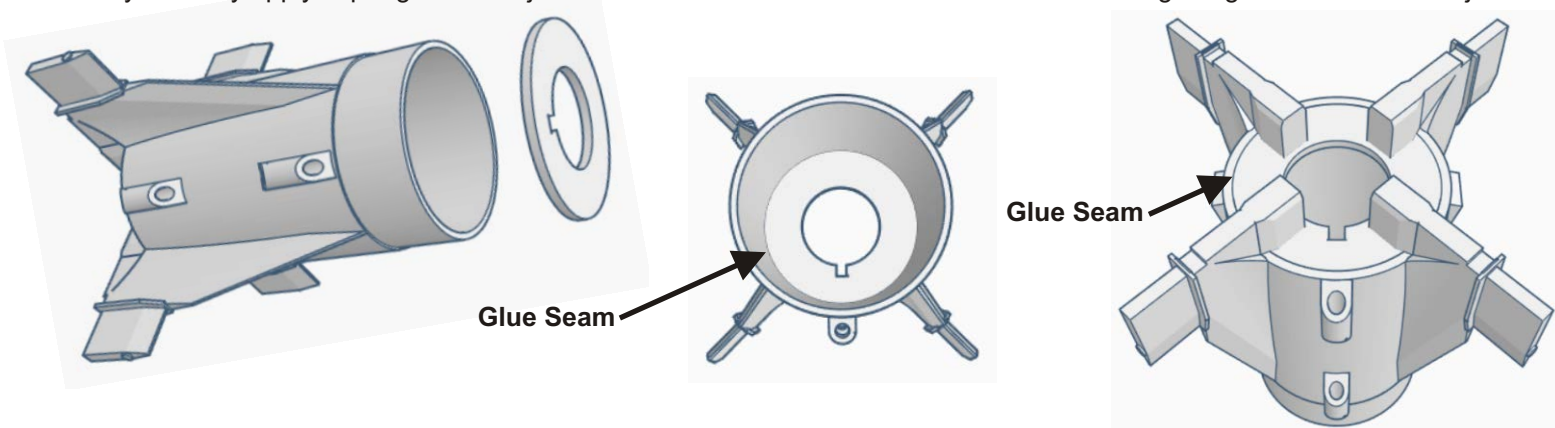
16

Sand the inside hole edges of both motor mounts until they are a nice slide fit with your 24 mm motor tube. Test fit both motor mounts into the fin can. The lower mount should slide all the way to the bottom of the fin can. The upper mount will just fit on the top of the fin can.



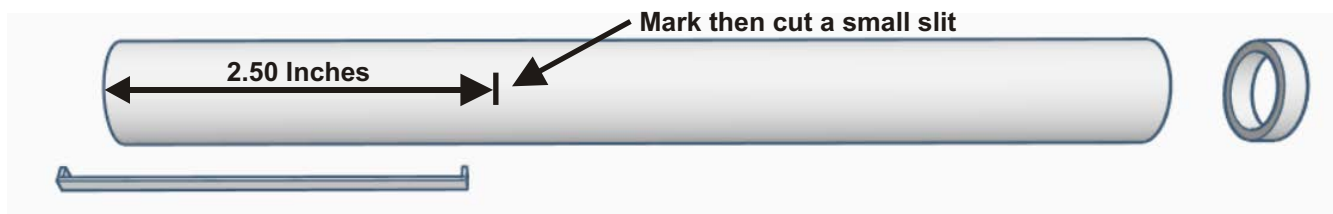
17

Install the lower motor mount into the fin can with the motor retainer notch aligned with the launch lugs on the fin can. Apply super glue (CA) to the mount from inside the fin can. Roll the fin can at an angle to spread the super glue all the way around the mount. When dry carefully apply super glue to the joint between the motor mount and the fin can allowing the glue to wick into the joint.



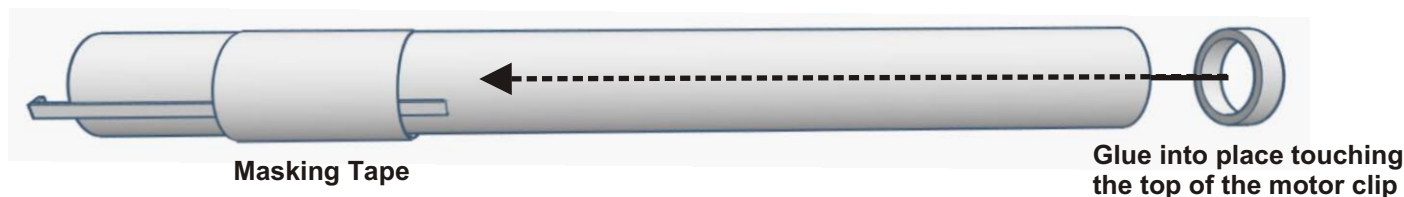
18

Using a pencil mark on end of the 24 mm motor tube at a point 2.5 inches from one end. Using a hobby knife cut a small slit in the tube at the mark for the end of the motor retention clip.



19

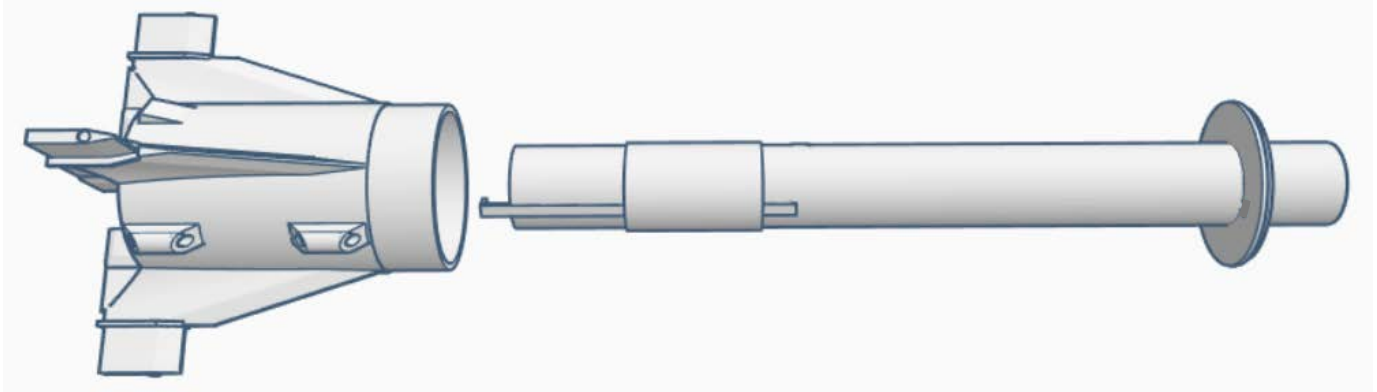
Install the motor retention clip and masking tape in place as shown. Using a dowel stick spread white glue in the motor tube just above the top of the motor clip. Use the dowel stick to slide the motor block into place.



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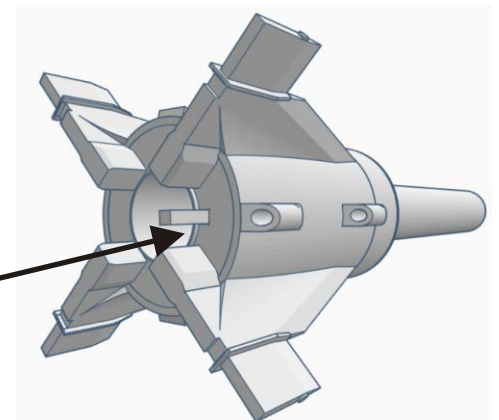
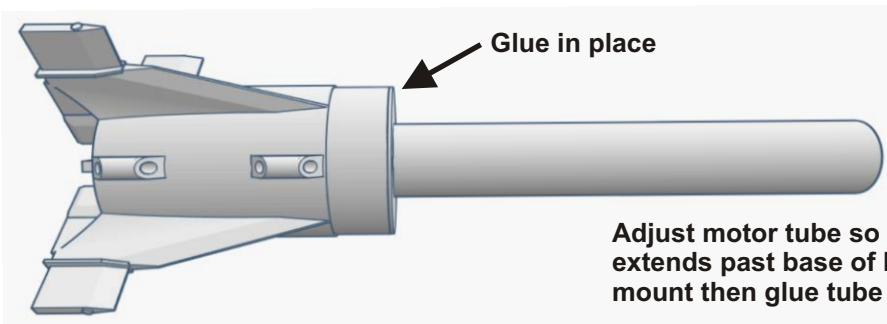
20

Slide the top motor mount onto the motor tube and slide the assembly into the fin can as shown.



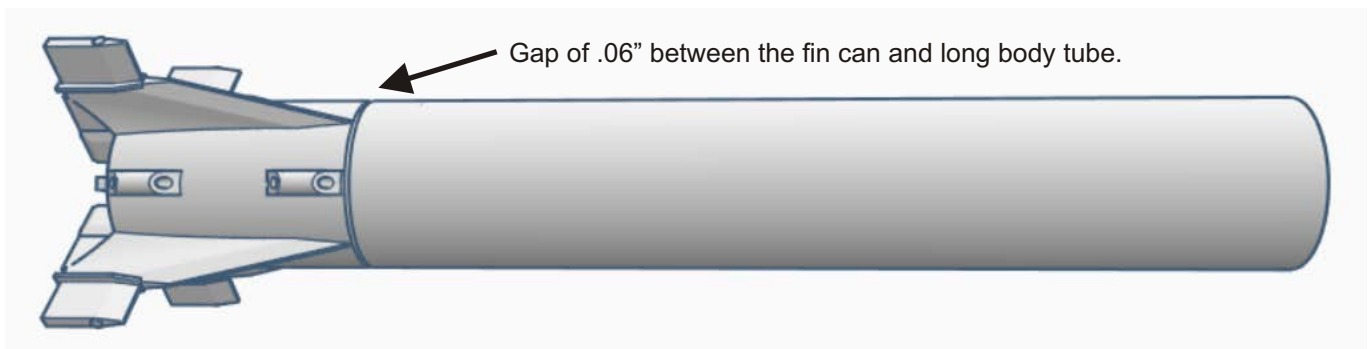
21

Super glue the top motor mount onto the top of the fin can. After the glue has dried adjust the motor tube so just 1/8th of an inch of the motor tube extends past the bottom motor mount of the fin can. Super glue the motor tube in place from both sides of the fin can.



22

Using a sharp hobby knife cut your piece of ST-20 body tube to a length of 16.91 inches. Super glue the body tube to the fin can leaving a gap of .06 inches.

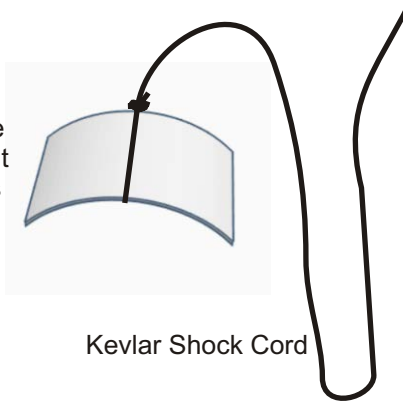


1/35th Scale Mercury Redstone Model Rocket Kit

23

Locate your scrap piece of ST-20 tube and Kevlar shock cord. Cut a section of ST-20 as shown below and tie the end of the Kevlar shock cord around it. Epoxy the piece inside the end of the ST-20 tube as shown. Make sure it is down deep enough in the tube to not interfere with the shoulder of the Mercury Capsule.

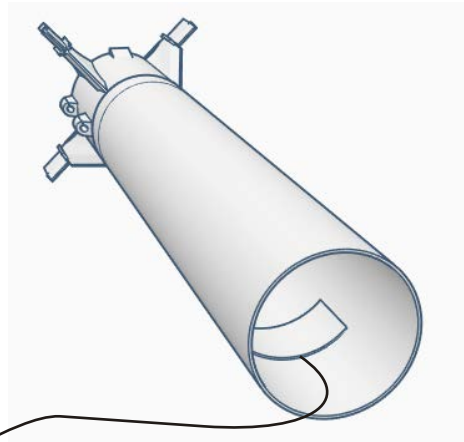
Scrap piece of ST-20 cut to shape as shown.



Kevlar Shock Cord

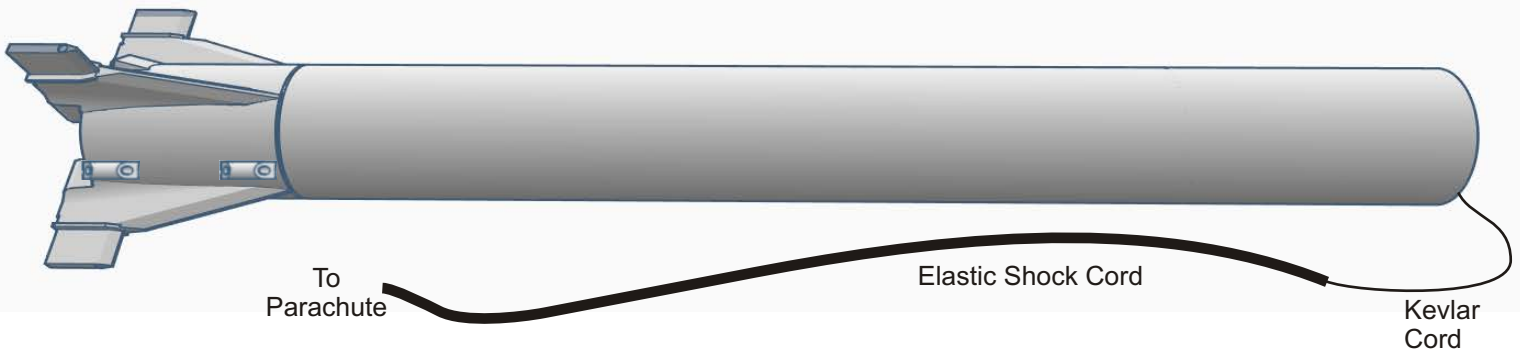
24

This is how the completed shock cord mount should look in the tube.



25

Your completed Redstone booster should look as shown below. Tie a length of elastic shock cord to the end of the Kevlar cord then tie a 24 inch parachute to the shock cord.



To Parachute

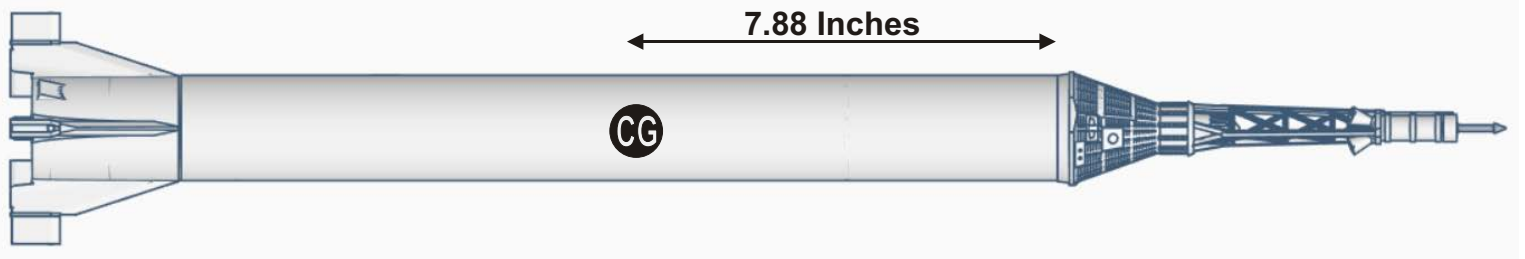
Elastic Shock Cord

Kevlar Cord

1/35th Scale Mercury Redstone Model Rocket Kit

26

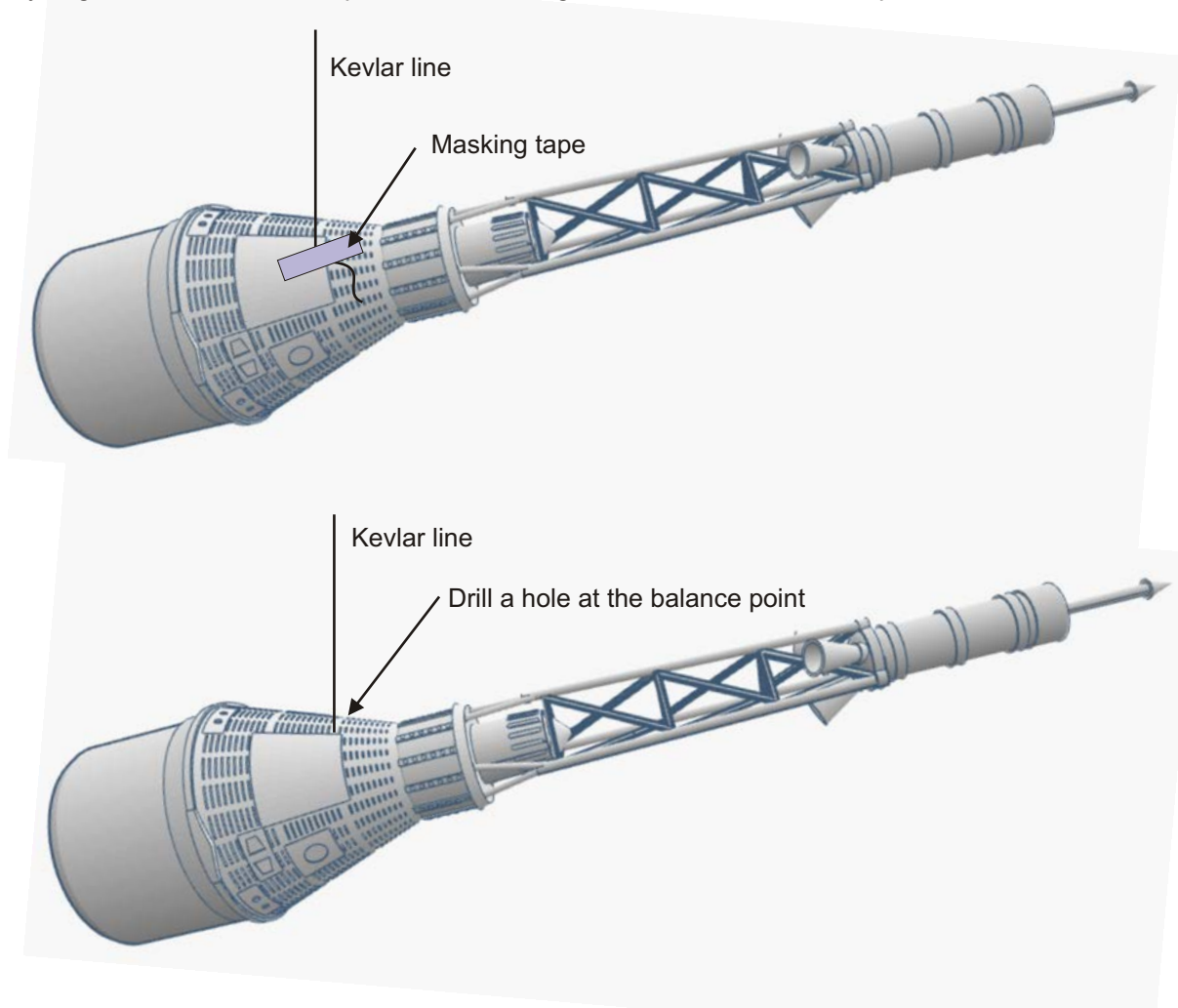
At this point nose weight must be added to move the model's center of gravity ahead of its center of pressure in order to assure the model's stability. Slide the capsule section onto the airframe and install the motor you plan on using for the first flight. Apply a piece of masking tape to the model and draw a line on the tape exactly 7.88 inches from the front edge of the airframe tube. The model must balance at or forward of this point. To add nose weight we recommend unscrewing the capsule shoulder and pressing clay into the recess in the capsule until the model is balanced as shown.



Please note that this procedure must be repeated if you use a larger/heavier rocket motor on later flights. Failure to correct the model's center of gravity may result in an unstable flight which can damage or destroy the model and cause harm to personal property and human life.

27

Now that the nose weight has been added to the capsule the Kevlar line for the capsule's recovery system may be installed. Using the short piece of Kevlar line use masking tape and test various points on the capsule until you find the point where the capsule balances as shown below. Drill a hole with a small drill at the balance point and feed the Kevlar line into the capsule. Use epoxy glue the line into the capsule. Attach a length of shock cord and a 24" parachute to the Kevlar line.



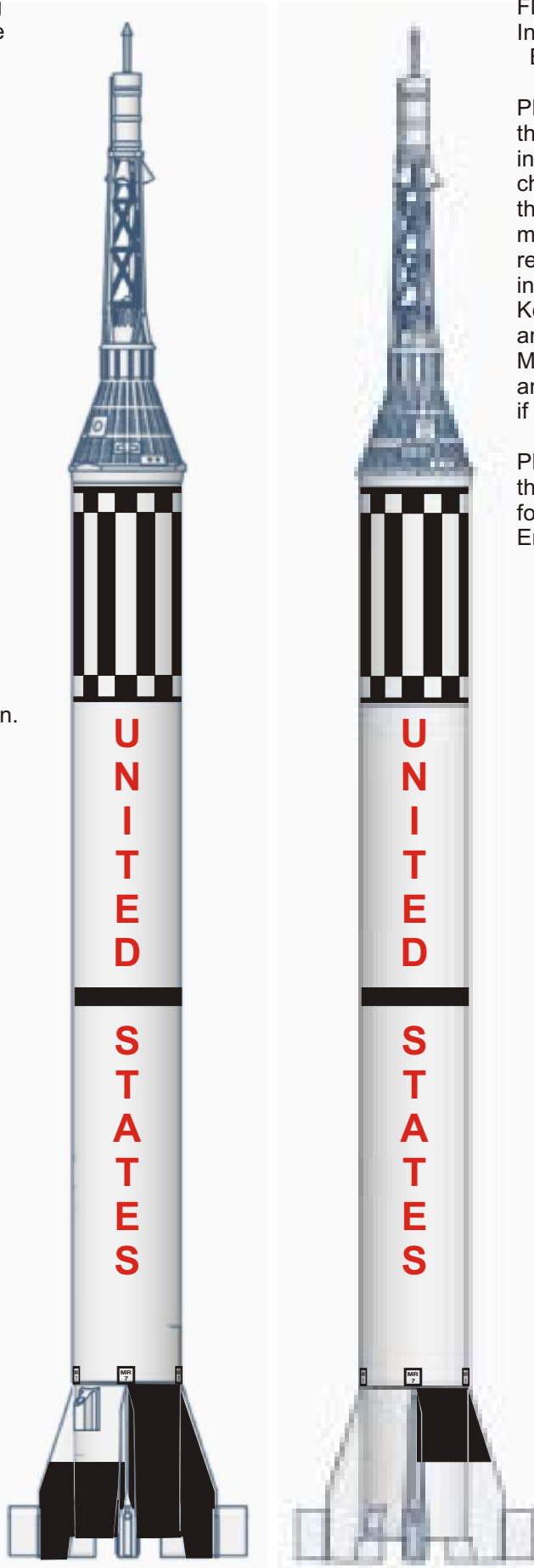
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Use spray primer to begin the painting process on the Redstone booster. The primer will fill in the 3D printing layer lines on the fins. Sand the model after each coat of primer paying extra attention to the fins and launch lugs.

After about 3 coats of primer the 3D printed layer lines will disappear and the model will be ready to paint. Paint the entire booster with a good quality semi-gloss white enamel spray. Let each coat dry before the next coat is applied. Give the model at least three spray coats of paint.

After the paint has dried (24 hrs or more depending on temperature) carefully mask the paint pattern on the fin can. The images on this page show the fin roll patterns 180 degrees opposite each other. Tape a large garbage bag over the rest of the airframe and spray paint the fin roll pattern with semi-gloss black paint. When dry carefully remove all masking tape and the bag.

Finally apply decals provided as shown.



Flight preparation for the model:
Install your flight motor:
Estes E9-4 (Apogee 467')

Place ejection wadding in the rocket then fold and place the capsule chute in the body tube. Follow the capsule chute with the booster chute. Placing the chutes in this order improves the models recovery reliability. Pile the remaining shock cord and Kevlar cord into the model. Tuck the capsules Kevlar cord along the capsule shoulder and slide the capsule onto the booster. Make sure the shoulder slides smoothly and does not bind. Sand the shoulder if needed.

Please follow the NAR safety code and the motor manufacturer's instructions for igniting and flying your model. Enjoy your Boyce Mercury Redstone!

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