

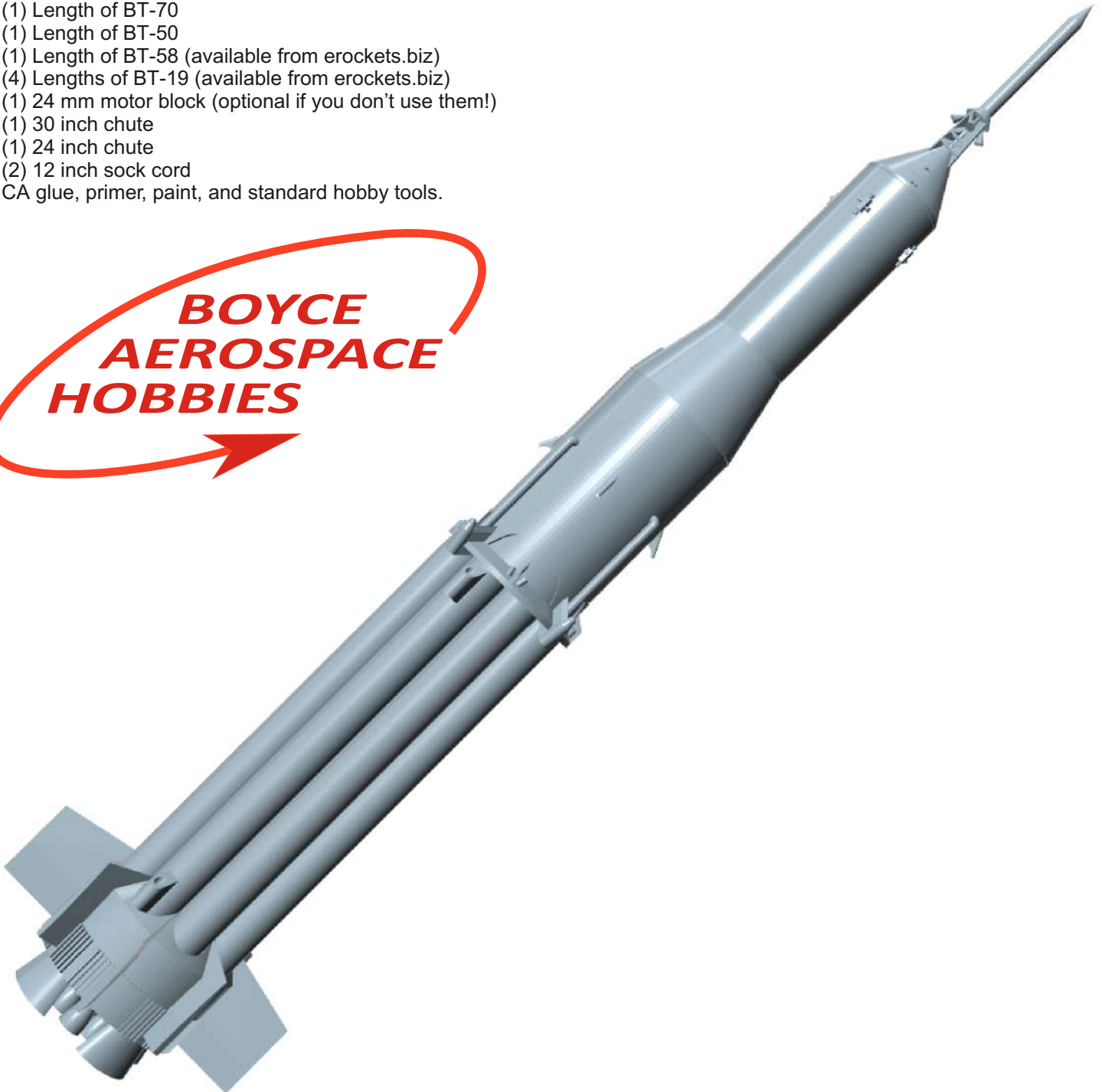
I-100TH SCALE SATURN I SA-7 BUILDERS KIT

DISCLAIMER - *The products sold by Boyce Aerospace Hobbies are intended for display and/or flight with use of explicitly stated model rocket motors. Launching of model rockets may be dangerous; use our products at your own risk. Boyce Aerospace Hobbies is not responsible for any damages or injuries incurred from the use or misuse of our products. Our kits are not intended to be modified or used with motor sizes different than stated. The product should be purchased by an adult and if used by a minor, under the supervision of a parent at all times.*

The following parts will also be needed to complete your SA-7 "Builders Kit":

- (1) Length of BT-70
 - (1) Length of BT-50
 - (1) Length of BT-58 (available from erockets.biz)
 - (4) Lengths of BT-19 (available from erockets.biz)
 - (1) 24 mm motor block (optional if you don't use them!)
 - (1) 30 inch chute
 - (1) 24 inch chute
 - (2) 12 inch sock cord
- CA glue, primer, paint, and standard hobby tools.

**BOYCE
AEROSPACE
HOBBIES**



1/100th Scale Saturn 1 SA-7 “Builders Kit”

Addendum

A few modelers who have built the “beta” version of the kit had a great suggestion. Skip steps 17, 18, and 22 until after the model has been painted and the decals have been applied. This will allow much easier application of the vinyl decals without the need to cut and perfectly place the wrap decals in sections.

After the decals have been applied and are completely dry you can go back to steps 17, 18 and 22 to attach the fuel lines, verniers and electrical conduit directly over the sections of decal wraps. Remember to use a straight pin to poke holes in the attachment points for “glue rivets” and use super glue sparingly so you won’t mar your decals. Don’t forget to give your model a clear coat or two to make sure the decals stay in place.

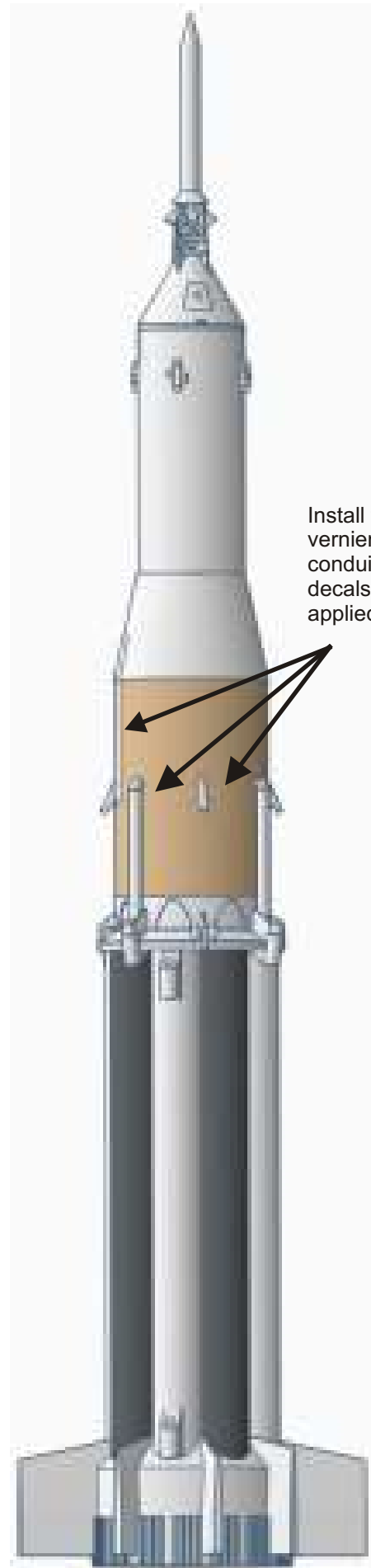
Thanks again for purchasing a Boyce Aerospace Hobbies product!

Visit us on the web at:

boyceaerospacehobbies.com

Visit our Facebook page at:

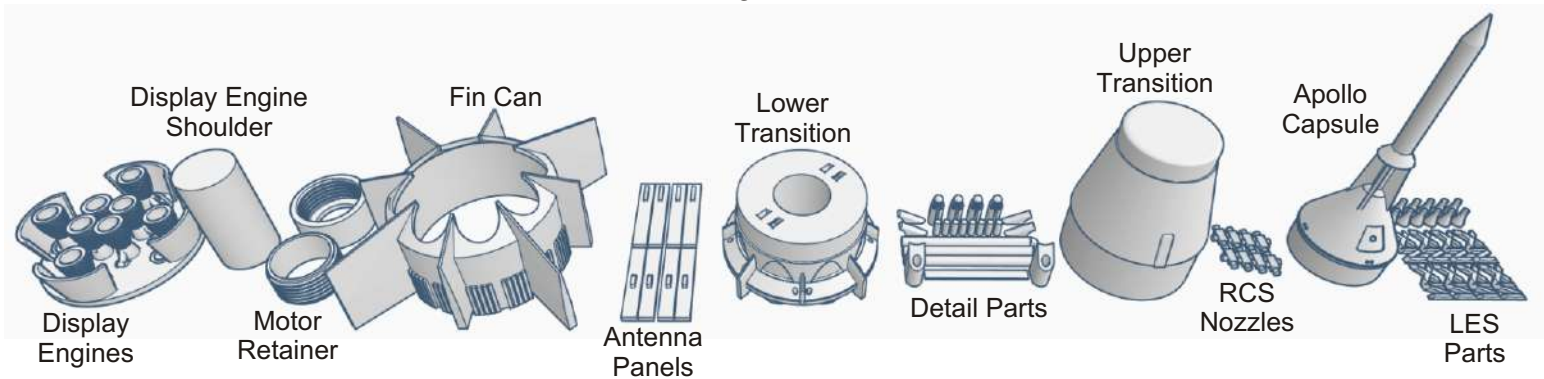
<https://www.facebook.com/Boyce-Aerospace-Hobbies-271569486582394/>



Install the fuel lines, verniers and electrical conduit after paint and decals have been applied.

1/100th Scale Saturn 1 SA-7 "Builders Kit"

Thank you for purchasing a Boyce Aerospace Hobbies Saturn 1 SA-7 kit. Please read these directions fully before you begin. All parts will be referred to in these instructions as labeled in the drawing:



The following parts will also be needed to complete your SA-7 "Builders Kit":

- (1) Length of BT-70
- (1) Length of BT-50
- (1) Length of BT-58 (available from erockets.biz)
- (4) Lengths of BT-19 (available from erockets.biz)
- (1) 24 mm motor block (optional if you don't use them!)
- Recovery system (shock cord and chute)
- CA glue, primer, paint, and standard hobby tools.

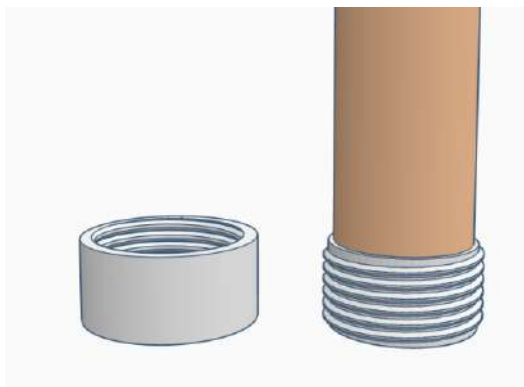
1

Cut all of the body tubes needed to build the model as follows:

Tube	Length	Quantity
BT-70	80.36 mm	1
BT-19	201 mm	8
BT-50	255 mm	1
BT-58	90.33 mm	1

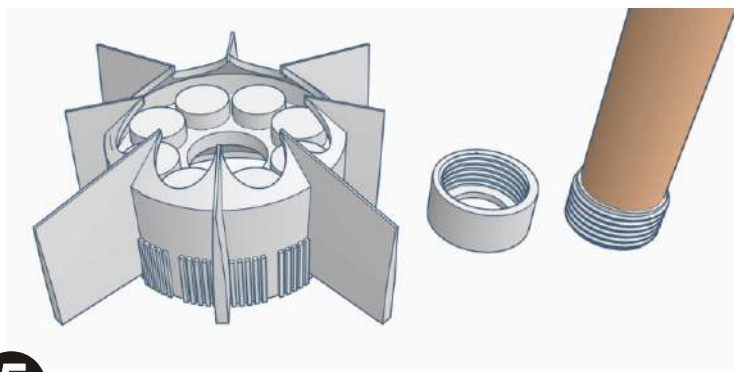
2

Glue the motor retention threads flush at the end of the BT-50 motor tube.



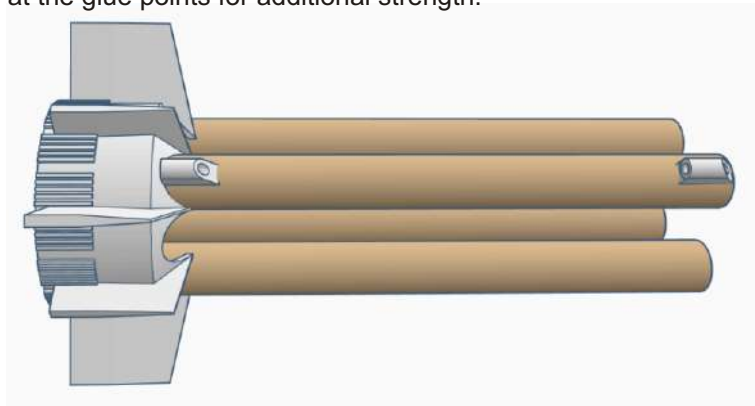
3

Sand the fin can in preparation for paint. Sand the central hole until the BT-50 is a nice slide fit into the fin can.



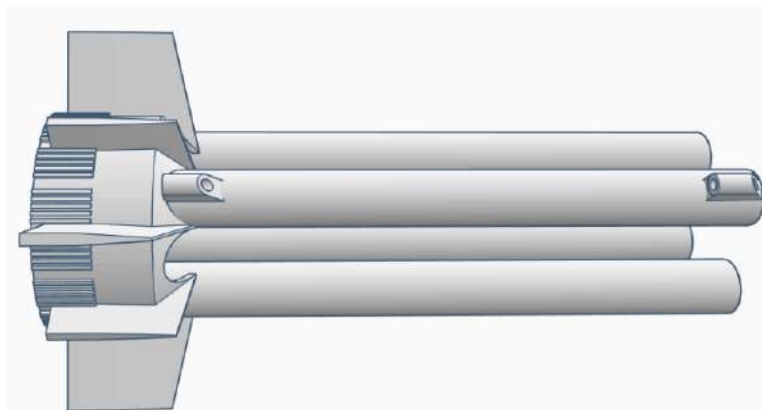
4

Glue every other pre-cut BT-19 into the fin can as shown. Note: each tube should be on the left side of the larger fin when looking edge on. When dry glue the launch lugs on one of the tubes as shown. Use a straight pin to poke holes at the glue points for additional strength.



5

Paint the fin can tube assembly semi-gloss white.



1/100th Scale Saturn 1 SA-7 "Builders Kit"

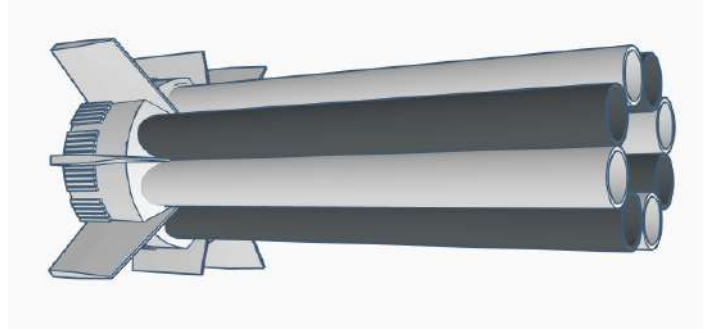
6

Paint the remaining four BT-19's semi-gloss black.



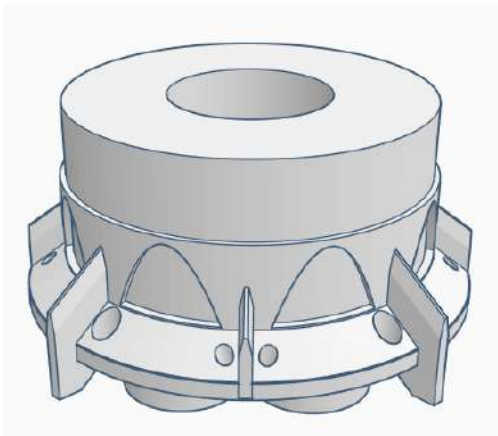
7

When dry, glue the four black tubes into place on the fin can. No glue is needed between the tubes.



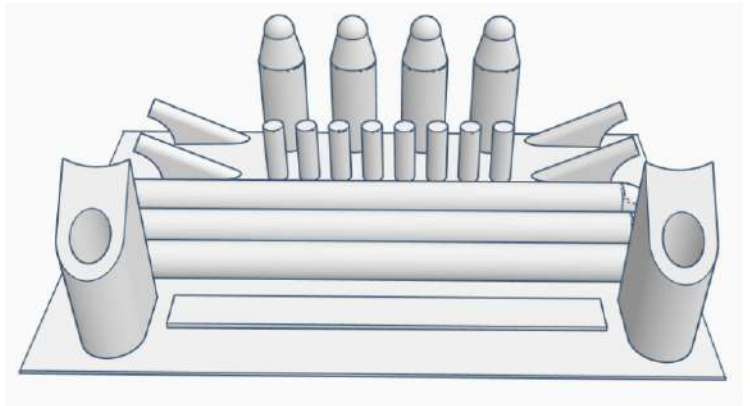
8

Sand the lower transition in preparation for paint. Sand the center hole until the 24 mm motor tube (BT-50) is a nice slide fit.



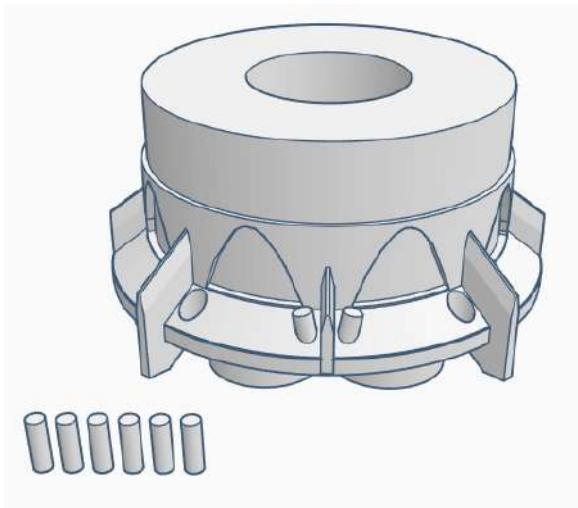
9

Carefully remove all of the detail parts off the raft by flexing the raft. If needed slide a razor blade under the parts to pop them off.



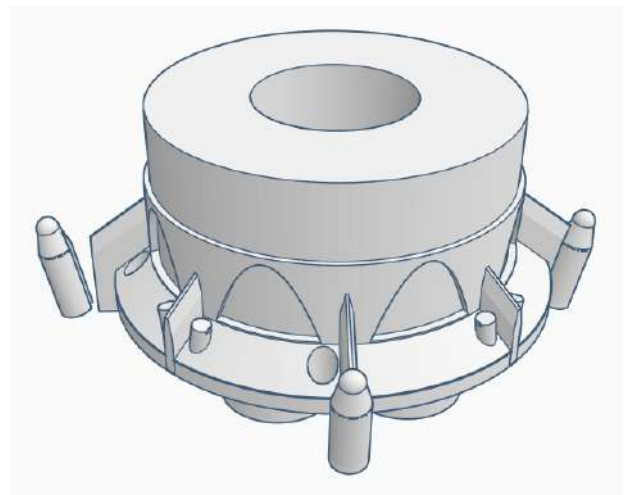
10

Press fit the small rods into the small holes on either side of each small airfoil. After all eight rods have been inserted apply a drop of CA to the base of each rod.



11

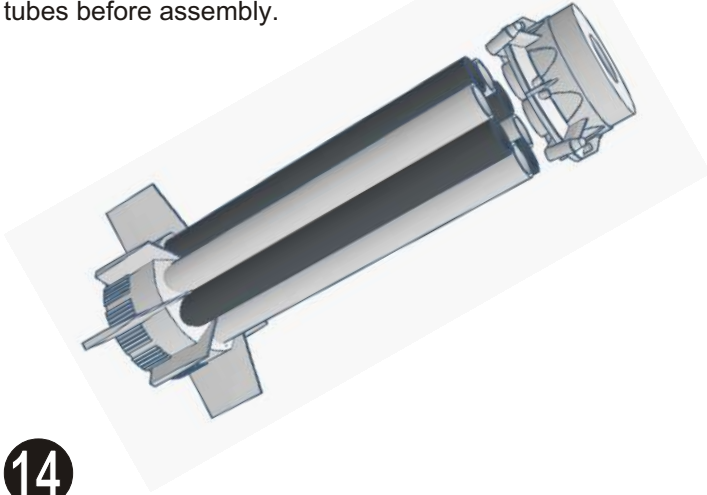
Glue the 4 retro-rockets into place on the larger airfoils.



1/100th Scale Saturn 1 SA-7 "Builders Kit"

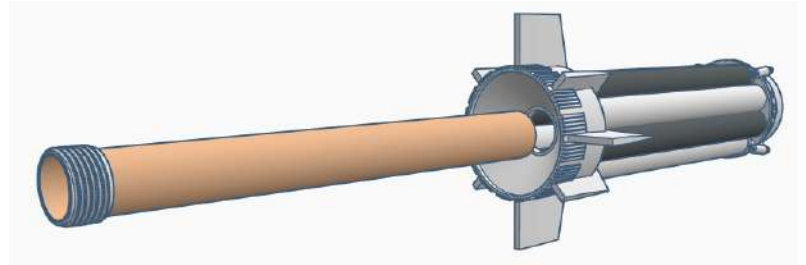
12

Tip the bottom transition and align the first stage fuel tanks into their respective holders. Make sure the transition is oriented as shown. Use super glue gel in the tops of the tubes before assembly.



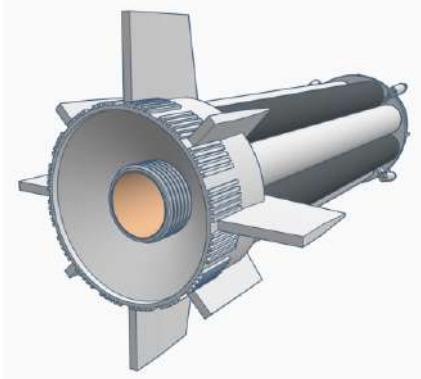
13

Install and glue the motor tube into the first stage as shown. Make sure the tube is inserted completely, the motor retention threads should be against the fin can bulkhead.



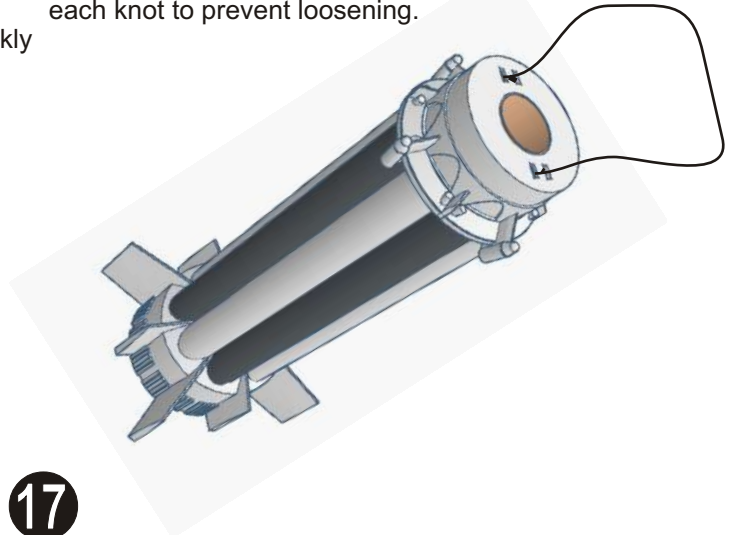
14

When dry you can install a 24 mm motor block in the tube using a dowel stick and white glue. After wiping white glue in the tube at the desired depth quickly slide a motor block and a used motor in place and screw on the retention ring completely. Quickly remove the retention ring and motor then allow the assembly to dry.



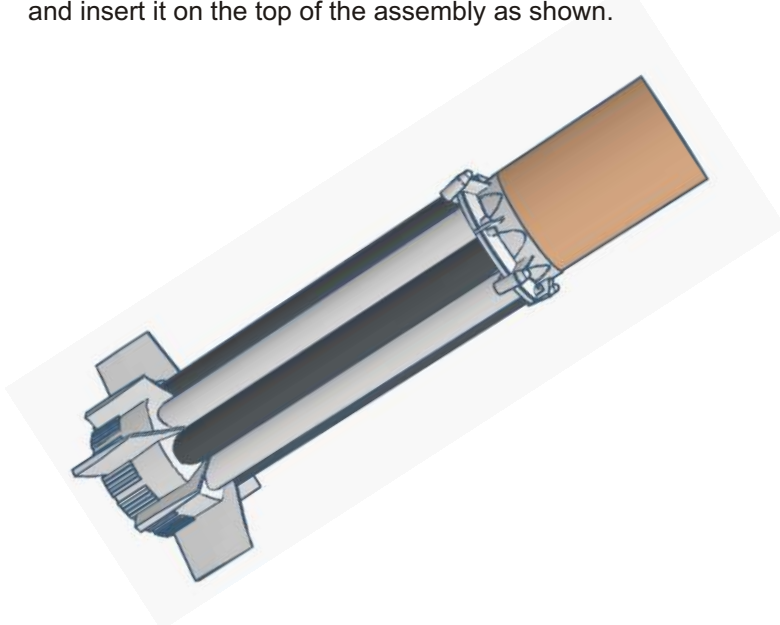
15

Tie one of the supplied lengths of Kevlar cord to the top of the first stage assembly as shown. Apply a drop of super glue to each knot to prevent loosening.



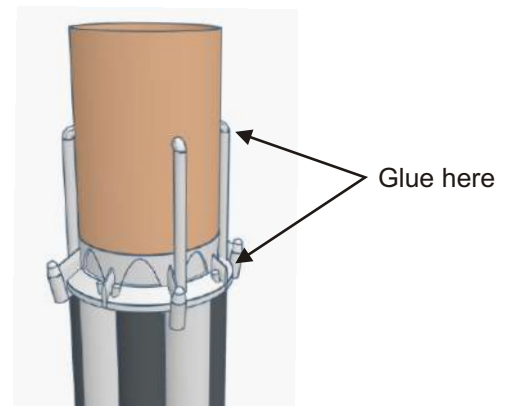
16

Apply glue to the inside edge of the precut section of BT-70 tube and insert it on the top of the assembly as shown.



17

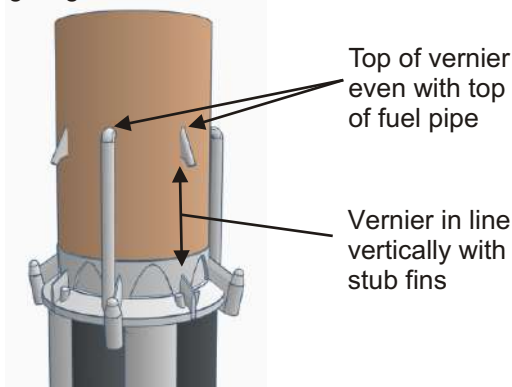
Test fit the three fuel tubes as shown. Sand if needed for a good fit. Using a pencil mark where the top of each pipe will glue to the body tube (make sure the pipes are fully inserted into their respective holes). Using a straight pin poke a few small holes in the body tube where the pipe will be glued. Glue the pipes in place at their base and top.



1/100th Scale Saturn 1 SA-7 “Builders Kit”

18

Glue the verniers in place. They are positioned even with the top of the fuel pipes and centered over the stub fins (the fins without the retro rockets). Again, after marking their position with a pencil, poke holes in the body tube to act as glue rivets for strength prior to gluing.



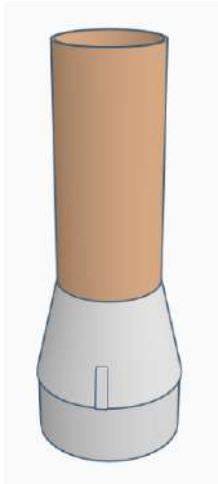
19

Sand the upper transition in preparation for paint. Also check for fit with its respective body tubes (BT-70 and BT-58).



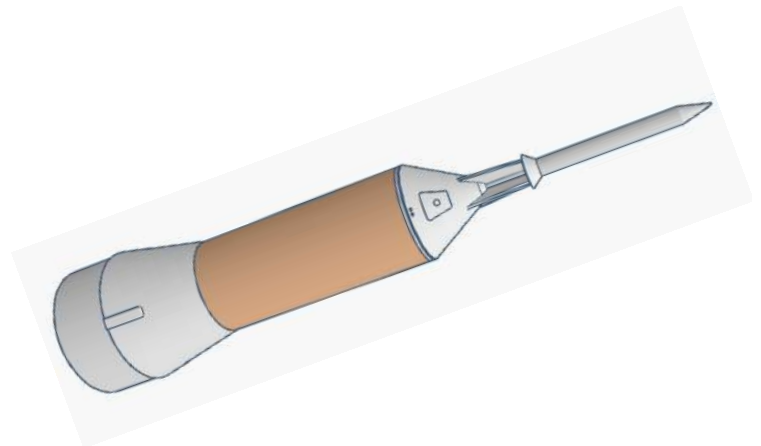
20

Glue the precut section of BT-58 to the top shoulder of the upper transition.



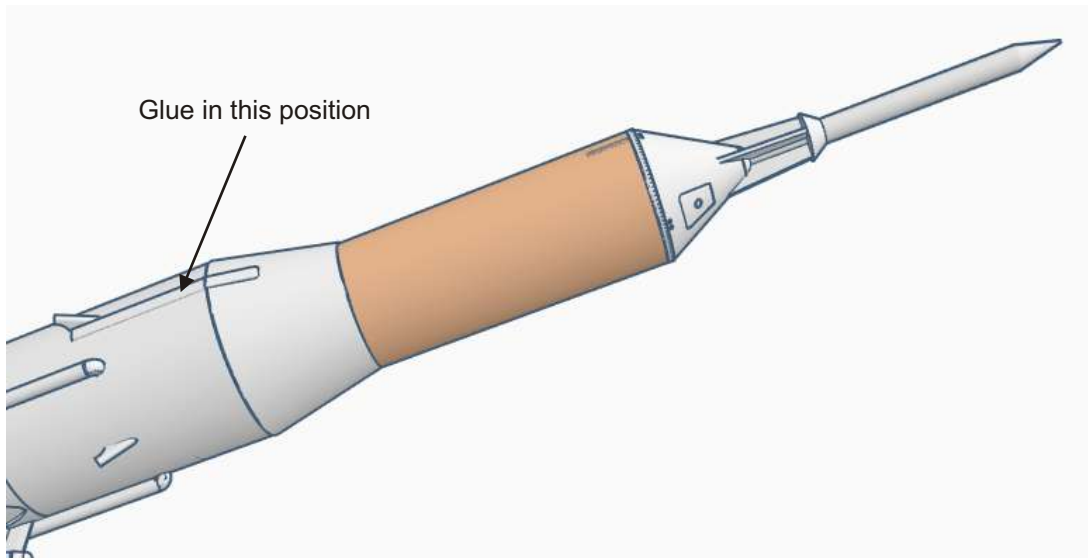
21

Sand the Apollo capsule in preparation for paint. Install the nose cone on the top of the assembly. **DO NOT GLUE!**



22

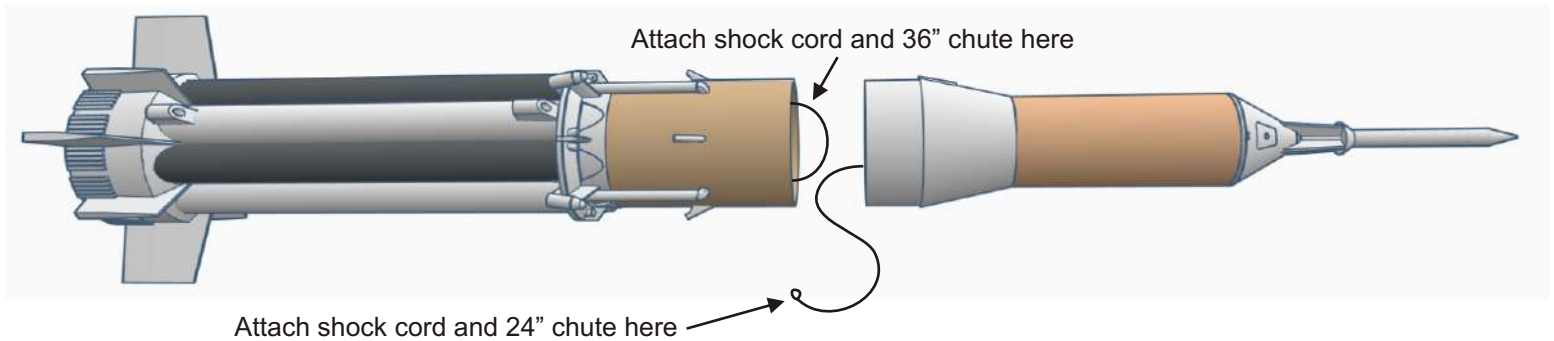
Slide the upper stage assembly in place. Rotate the assembly until the electrical conduit is orientated as shown (just to the right of the vernier that does not have a fuel pipe to its left). Sand and glue the remaining section of conduit in place.



1/100th Scale Saturn 1 SA-7 “Builders Kit”

23

Install the remaining piece of Kevlar cord to the attachment point in the base of the upper stage assembly. Tie a loop in the opposite end of the cord. Again, apply a drop of super glue to each knot. Attach your shock cords and parachutes to the Kevlar cords.



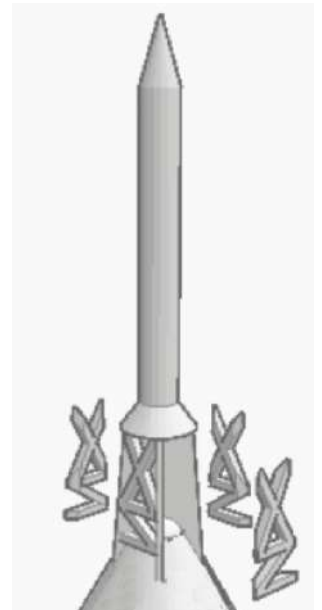
24

Pop all of the tower truss parts off the 3D printed “raft”. You can flex the raft to help deattach them. If they are stubborn you can carefully use a hobby knife to assist in removal. Set up 4 of the truss parts in front of you with the beveled side down and in the order shown. (Extras are provided).



25

Using a toothpick and tweezers apply super glue and carefully align each truss **in order** and glue in place. Use tweezers to hold the trusses in place as you glue them.

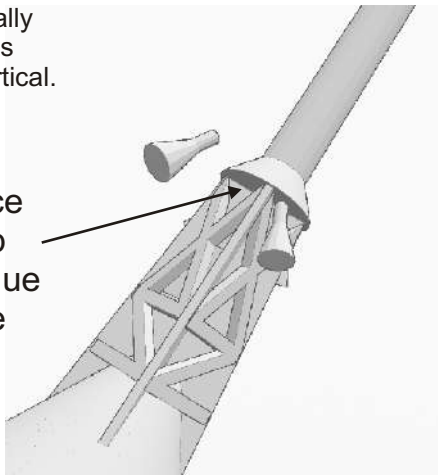


26

Using a toothpick, place a drop of super glue in the notch of the top truss then place each rocket nozzle in position. Each nozzle should rest in the “v” of the truss nicely until the glue hardens up. Take your time and the end result will be nice.

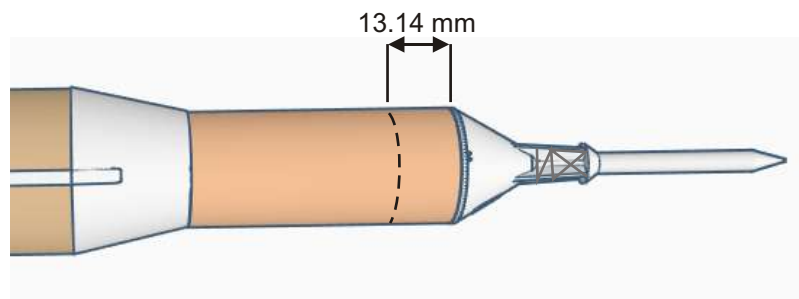
For those of you who really need to know the nozzles are thirty degrees off vertical.

Place drop of glue here



27

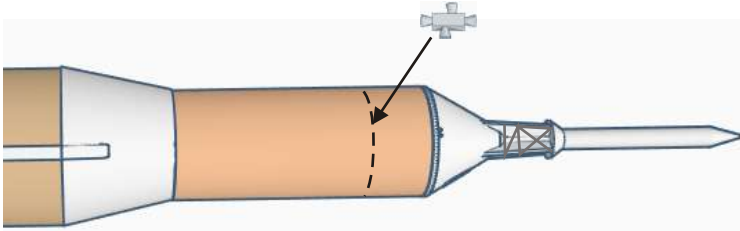
Draw a line around the upper stage 13.14 mm down from the base of the capsule.



1/100th Scale Saturn 1 SA-7 “Builders Kit”

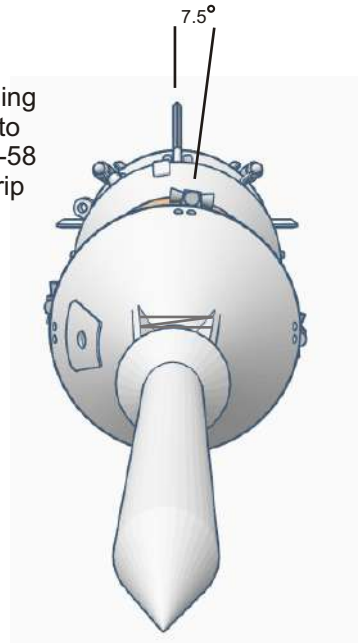
28

Carefully remove the RCS thrusters off there raft with a single edge razor blade. Clean them up with fine sandpaper or emory boards. They will be glued 7.5 degrees past the main fins and 180 degrees opposite each other centered on the pencil line.



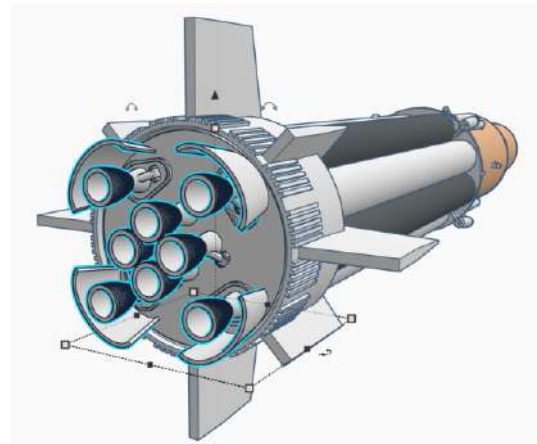
29

The suggested method for determining the position of the RCS thrusters is to wrap a strip of paper around the BT-58 and cut it to length. Then fold the strip end to end twice. Unfold and place a pencil mark on each fold line. The pencil marks are the positions of each RCS thruster. Just determine your first thrusters position then use the paper guide to mark the remaining RCS positions.



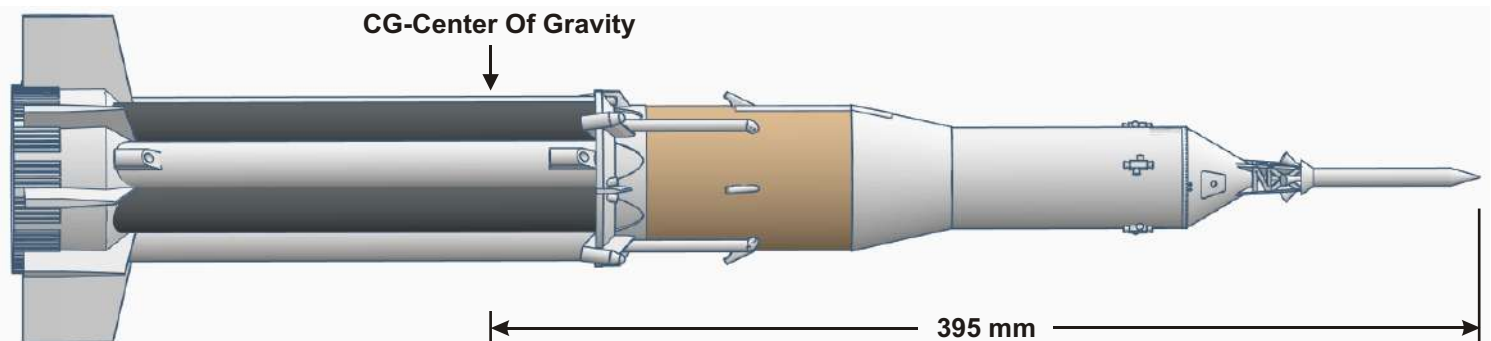
30

Glue the shoulder tube to the display motor assembly. When dry slide the unit in and orient as shown for display. If your display engines are too loose add a small strip of tape to the shoulder until you get a nice slide fit.



IMPORTANT!

Make sure that your rocket's center of gravity is at or forward of the position shown below (with rocket motor in place). Add additional weight to the inside of the Capsule as needed (clay is recommended). Failure to do so will result in a potentially dangerous unstable flight. Once balanced epoxy the clay in place and glue the nose cone in place as shown.



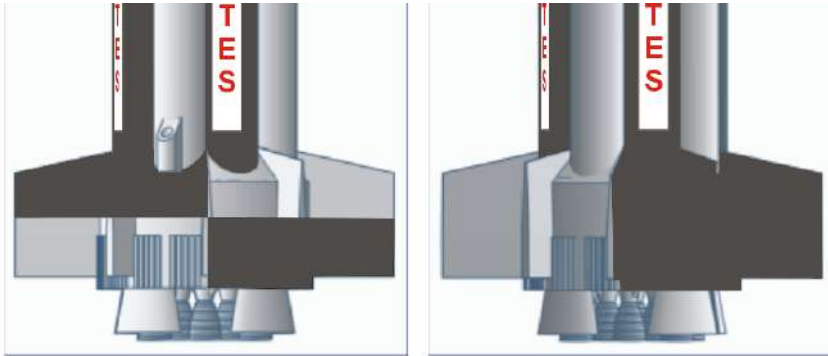
1/100th Scale Saturn 1 SA-7 “Builders Kit”

Painting and detailing your model:

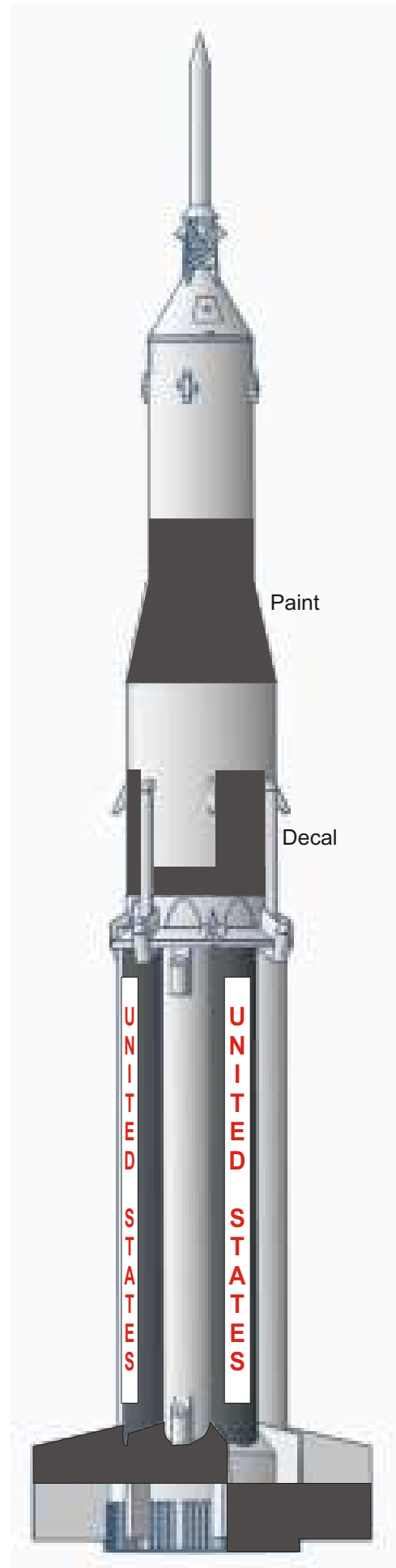
- 1) Mask off the pre-painted first stage using a large plastic bag and blue painters tape.
- 2) Paint the upper part of the model semi-gloss white.
- 3) When dry remove and mask off the upper section of the model in a plastic bag so the transition and lower one third of the BT-58 can be sprayed semi-gloss black.
- 4) Sand and paint the four antenna panels white.
- 5) Carefully position the antenna panels and CA into place.
Note - matching panels are opposite each other on the vehicle.
- 6) Mask off and paint the fin roll patterns as shown
- 7) When dry apply the vinyl decals per the instructions below.

Here’s a great set of instructions for applying vinyl graphics:

<https://locprecision.com/iq-content/uploads/LOC-PRECISION-Vinyl-Decal-Application-Instructions.pdf>



Opposite sides of vehicle



1/100th Scale Saturn 1 SA-7 “Builders Kit”

SA-7



Flight Prep:

Slide your rocket motor into the model. Screw the motor retention cap onto the model to hold the rocket motor in place. Insert four to five sheets of recovery wadding into the parachute recovery compartment. Carefully fold both your parachutes and insert the nose cone parachute into the compartment then the booster parachute on top. Slip the nose cone into place on the model. Install your model rocket motor ignitor per the rocket motor manufacturer instructions. Slide the model onto a stable model rocket launch pad and attach the ignitors. Check the sky for aircraft, start your countdown and launch.

Post Flight Prep:

Unscrew the motor retention cap and remove the spent rocket motor. Fold your parachutes and place them back in the model. Slide your display motors into place and align as previously shown.

Recommended Motors:

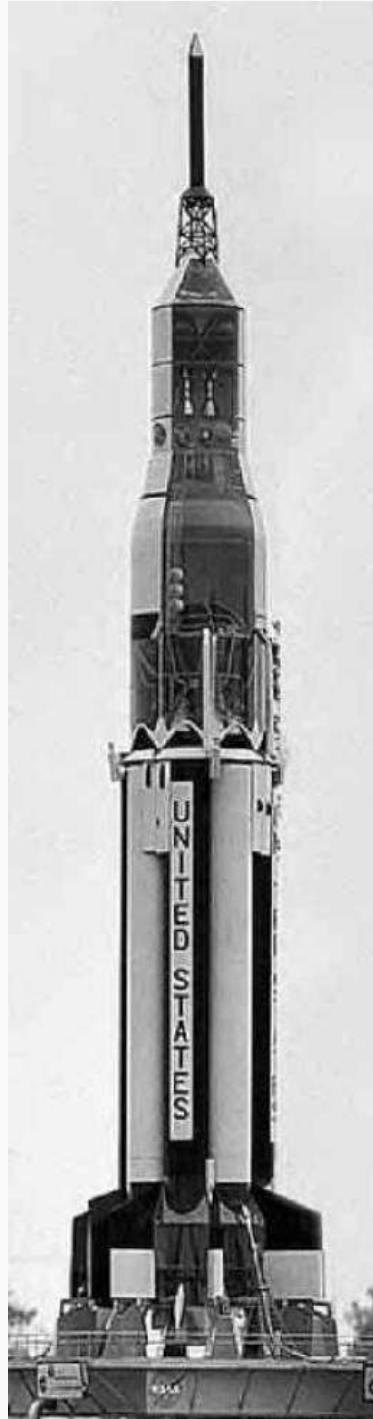
Estes D12-3

Estimated Altitude:

400 feet

Use a software program such as ROCKSIM to model the rocket's flight if higher performance motors are used.

Please follow all local laws and the NAR Model Rocketry Safety Code when flying this model. Fly safe and have fun!



SA-7



SA-9

