

MODEL ROCKET SAFETY

Model rocketry is a hobby that is not without risk.

By using this rocketry product, you agree not to hold Rocketarium.com and/or Denau Hobby Supplies Ltd. and/or its employees or affiliates liable for any damages, or injuries, caused by (directly or indirectly) use of this product.

Always follow the National Rocketry Association (NAR, www.nar.org), CAR or Tripoli Rocketry Association (TRA, www.tripoli.org) safety rules.

PART LIST

1 x	Trident-13 Bands Decal	1060-22
1 x	Trident-13 Fin Decal	1060-23
1 x	12" Parachute	91112
3 x	1/16" Trident-13 Fin	1060-31
1 x	1.17" Tube. 5" Long	1117-0500
1 x	1.17" Tube 6" With Hole	1117-1060
1 x	1.17" Black Nose Cone	1060-41
1 x	1.17" Kraft Coupler	23529
3 x	BT5 Tube. 9" Long	24004
1 x	BT5 Spacer	25205

Small Parts Bag		1060-12
1 x	7.5" Kevlar Cord	B346-75
1 x	26" Shock Cord	45106-260
1 x	BT5 Cluster Bulkhead	1060-32
1 x	1.17" Coupler Bulkhead	1060-33
1 x	#214 Eye Screw	90007
3 x	BT5 Thrust Rings	22203
1 x	1/8" Launch Lug (L)	70113

Some parts are packed inside the tubes. Please remove everything from the tubes before verifying the content of the kit.

MISSING OR DAMAGED PARTS

If any part is damaged or missing, please email us at: support@rocketarium.com



T117-13

TRIDENT CLUSTER SERIES

PAYLOAD MODEL ROCKET

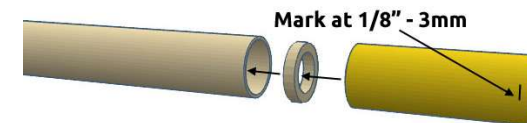
Additional tools required to finish this model: hobby knife, ruler, pencil, glue, sandpaper, masking tape and spray paint.

Please read all instructions before assembling any parts of this rocket kit. For each step, dry-fit pieces before gluing them together, to fully understand the assembly process.

1. Motor Mount Assembly

Find 3 identical motor tubes (9" long), 3 thrust rings and the yellow spacer. Take the spacer and make a mark at 1/8" from any end.

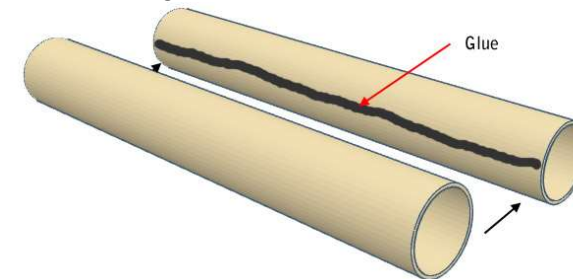
Place a ring of glue approximately 1/4" into the end of the Motor Tube (this is now the aft end). Using the spacer push the Kraft Motor Block into the aft end of the Motor Tube until the mark on the aft end of the Spacer is flush with the aft end of the tube. Remove the spacer.



The Motor Block distance will be 1 1/2" from the end of each Motor Tube (this means that the motor will protrude a 1/4" from the end).

It is important for the next step that you remember at what end the Motor Blocks are, that is, line up all the aft ends together. Glue remaining motor blocks into the two other motor tubes.

Run a light bead of glue along the length of one Motor Tube and then lay it on a flat surface with the glue line at a right angle to the surface. Next position another Motor Tube next to the first, top and bottom edges even, slowly bringing them together along the line of glue, adhering both Motor Tubes together.



Once dry, mark a distance of 3" at the forward end in the "valley" between the two Motor Tubes. Take the Kevlar Shock Cord and tie a knot on the end and then approximately 1.5" from the end knot, tie another.

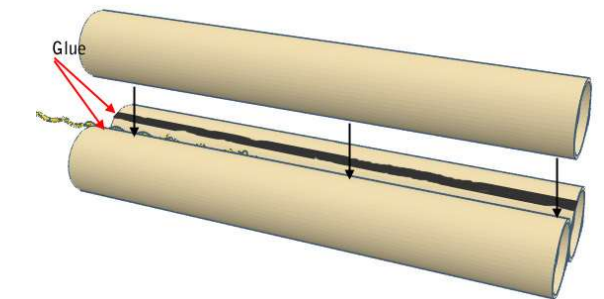


Apply a thin amount of glue in the "valley" between the two Motor Tubes from the forward end to the 3" mark. Lay the Kevlar Shock Cord in

the glue, with the end knot at the 3" mark and the rest of the Kevlar Shock Cord running forward.

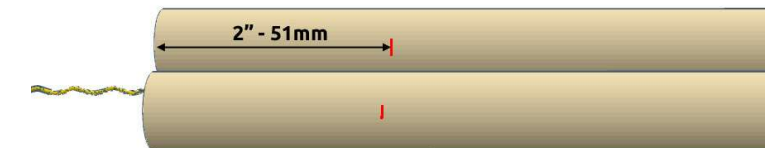
Apply a second coat of glue on top of the Kevlar Shock Cord that is resting in the "valley", ensure both knots are covered and allow glue to dry.

Position the third Motor Tube on top of the two glued ones, creating a pyramid or triangle shape. Mark with a pencil, a line along the length, where the top Motor Tube touches the other two Motor Tubes. Remove the single Motor Tube, and now run a light bead of glue along each of those pencil lines, then place the third Motor Tube back on top, making sure the edges are even.



While this assembly is drying, test fit the Cluster Bulkhead into the Airframe. It should slide in freely. If not, lightly sand around the circumference of the Cluster Bulkhead till it does.

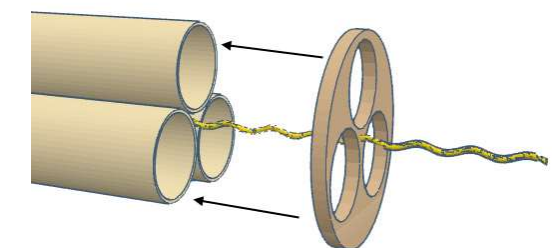
Mark a distance of 2" from the forward end on all Motor tubes.



Take the free end of the Kevlar Shock Cord and feed it through the small center hole in the Cluster Bulkhead.

Slide and then glue the Cluster Bulkhead to the forward end of the Motor Tubes, ensuring that the holes in the Cluster Bulkhead are lined up with the Motor Tubes and none of the tubes stick outside the cluster bulkhead, or the motor mount will no longer fit.

Note that motors or thrust rings are not supposed to fit through the holes in the bulkhead.

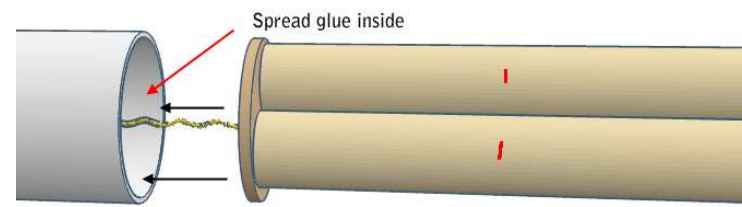


Hold the Kevlar cord and Elastic Shock cord (white) side-by-side with the ends even with each other. Tie a single parallel overhand knot 1" from the ends. Pull both ends to set the knot.



1060-21

Find the longer (6") tube with the hole on the side. The hole is at the forward end of the tube and you will glue the motor assembly into the other end. Spread the glue inside aft end of the tube, drop through the Kevlar/Elastic Shock Cord, and with a twisting motion slide in the Motor Tube Assembly to the 2" mark.



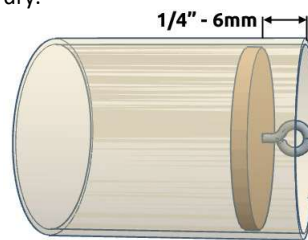
Place and roll on a flat surface to ensure the Motor Tubes are straight and in line with the Sustainer Airframe and not warped. Let dry.

2. Payload Section Assembly

Thread the Screw Eye through the center hole of the Bulkhead Plate (plywood disk with small hole in the center). Unscrew, and squirt glue into the hole you just made, and then screw in the screw eye again. Allow to dry. Once dry, check the fit of the Bulkhead Plate into Coupler Tube. If it is a tight fit, lightly sand the circumference of the Bulkhead Plate.



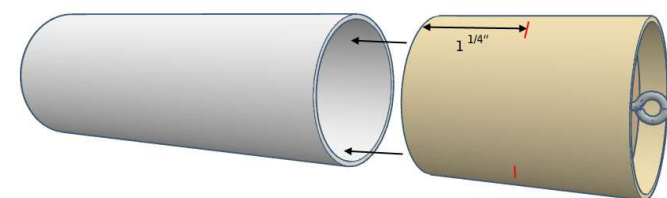
Apply a bead of glue inside of one end of the Coupler. Once the glue is tacky, apply another bead of glue and then holding onto the Screw Eye slide the Bulkhead Plate approximately 1/4" into the Coupler Tube, trying to ensure an even distance from the end of the Coupler Tube. Set aside to dry.



Apply another layer of glue inside the Coupler Tube, on top of the Bulkhead Plate and threaded portion of the Screw Eye. Again, set aside to dry.

Finally, turn this Bulkhead Assembly over and apply a generous amount of glue on the Bulkhead Plate, with deliberate attention to the Bulkhead Plate/Coupler Tube attachment. Set aside to dry.

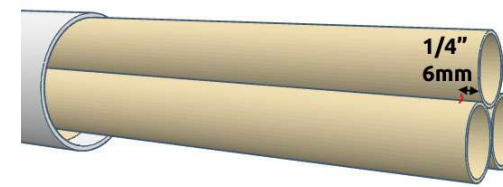
If you are satisfied the assembly is dry, mark a distance of 1 1/4" from the top of the Coupler Tube (open end) in three places (preferably equally spaced). Place glue around the inside of one end of the Payload Section, slide the Bulkhead Assembly into the Payload Section till the 1 1/4" mark touches the Payload Section.



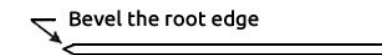
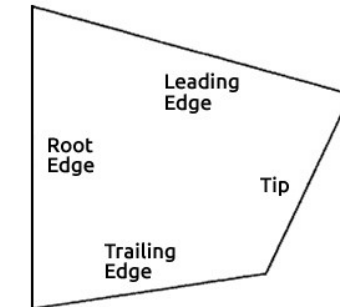
You should have approximately 1" of Coupler Tube protruding. Set aside to dry. (If you have more than 1" protruding – the coupler will block the exhaust hole)

3. Fins

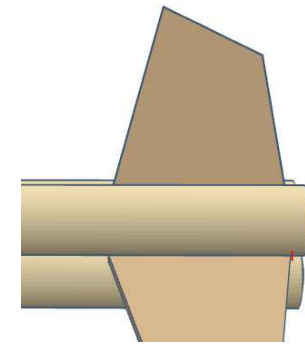
Mark a distance of 1/4" from the bottom, in each "valley" between Motor Tubes. This will be the mark from where you will attach the fin.



Sand your Fins by rounding (or tapering to a sharp edge) the leading and trailing edges. Bevel the root edge 1/8" on both sides of each fin.



Once ready, glue one Fin at a time between the Motor Tubes, ensuring it is straight (running an imaginary chord line from the Fin through the center of the bottom Motor Tube).



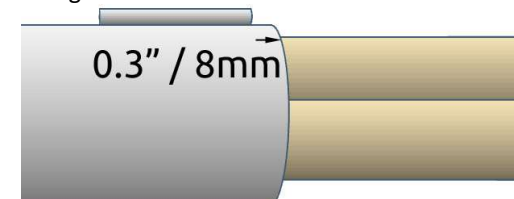
Continue, with the remaining two Fins.

4. Launch Lug Attachment

Make a mark at 0.3" forward from the end of the tube. Position the launch lug at the mark, making sure it is not in line with the fin.

Mark the position of the lug on the tube with the pencil. Remove the lug and lightly sand the tube surface under the lug to remove the glassine layer.

Glue the Launch Lug to the airframe at the mark, ensure that it is straight.



5. Painting

Lightly sand the entire model and wipe all dust. Seal all fins (optional) and sand. Please follow manufacturer's instructions for spray painting and always spray in a well-ventilated area.

Spray a uniform base coat of primer. You may wish to sand your model and repeat the primer coat. Allow to dry overnight.

Insert the Nose Cone in the Payload Section. Separate the Payload Section from the Main Airframe. Apply a coat of Testors™ Competition Orange or similar color to the Main Assembly with fins.

Apply a coat of Black paint to the Payload Section and the Nose Cone. Make sure the Coupler is not painted. Use masking tape to seal it off.

Allow to dry overnight.

Obviously, you can use any other paint/colors you see fit.

6. Decals (Optional)

There is one decal that can be applied over the tip edge of one of the fins. Apply it to the fin on the opposite side of the launch lug.

Attach a wider strip at the base of the sustainer tube and the narrow strip at about 3" forward of the edge of the tube.



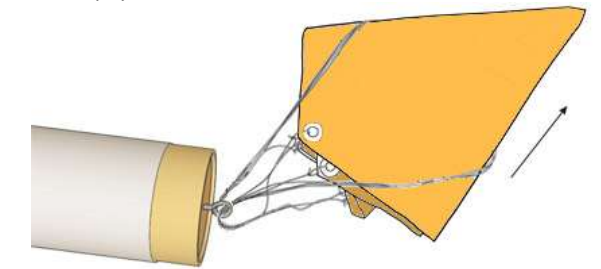
To apply - use a sharp knife to cut out the images as close as possible to the image and place it in lukewarm water for approximately 40 seconds. When the decal begins to slide on the backing material, or you feel the printed image starting to slide off the backing then remove from water.

Slide the decal into place on the surface where you wish to place it. Blot lightly with a soft cloth or paper towel. Wipe off excess water and remove any air bubbles.

If you wish to apply clear coat after the decals are attached, be sure to start with a light coat. Allow sufficient drying time between coats. Applying too much clear coat at once, especially at first, can cause the decal to lift from the model rocket.

7. Final Assembly

Feed the parachute shroud lines through the screw eye, insert the parachute through the string loop, and then pull the parachute to tie it to the payload section.



Tie the open end of white shock cord to the same screw eye.

RECOMMENDED MOTORS & LAUNCH PREPARATION

This rocket must be launched from 1/8" launch rod.

Insert the wadding in the sustainer and push it all the way down. Next, pack the parachute and feed the shock cord into the airframe. Insert the folded parachute. Parachute should not be packed too tightly, or it may not eject. Insert the Payload Section into the main airframe. Put the payload (if any) in the Payload Section and then insert the nose cone into the Payload Section.

When flying this model rocket, always use three identical rocket motors. Do not mix different motors for a single flight.

The following motors are recommended for this rocket:
Estes® 1/4A3-3T, 1/2A3-4T, A3-4T

Read the motor manufacturers instructions as to the specific use of their motors.

Since there are no motor clips, you need to friction-fit the engines into the mount. Wrap masking tape around each engine once and push into the mount.

Insert 3 rocket motors into the motor mount, making sure all of them are locked securely in place.

Add masking tape if an engine is not held securely or remove some if it would not go into the mount without breaking it.

The 1/2A3-4T motors are recommended to verify the correct operation of the rocket.



When flying a cluster of rocket motors, having enough battery power and/or appropriate igniters is important. Do not attempt to launch this rocket using AA, 9V or smaller battery-operated launch controller using Estes Igniters provided with engines.

We recommend using electric match called "BP Rocket Starters" available at <https://electricmatch.com/rocketry>

In Canada, these igniters are available as "MJG Firewire Mini" at: <https://www.allrockets.ca/Igniters>

You can connect these igniters in Series or in Parallel and use a standard Launch Controller.