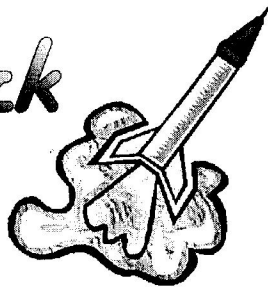


Aardvark Rockets



www.aardvarkrockets.com
aardvarkhobbies@home.com
5675 SW 163rd Avenue
Aloha, Oregon 97007
(503) 481-7254

BLACKHAWK R&D LINE
MINI MISSILES COLLECTION
AIM 4 FALCON
UNITED STATES AIR TO AIR MISSILE

RECOMMENDED MOTORS
ESTES A8.3 B6.4 C6.5
APOGEE C4.5 C10.7 D10.7
AEROTECH DI3.7

Please inspect the following parts carefully. Quality Control has checked each and every part to ensure that you get a complete kit, without any parts missing.

Parts List - Hints and Tips

QC	Check	Item
✓	✓	2 each - 20/50 Centering Rings - Motor Mount Centering Rings
✓	✓	1 each - 18mm Centering Ring - Engine Block
✓	✓	1 each - 18mm x 2.5" Tube - Motor Mount Tube
✓	✓	1 each - Large Body Tube - Main Airframe
✓	✓	18 inches - Kevlar Cord - Lower Shock Cord
✓	✓	18 Inches - 1/8" Elastic - Upper Shock Cord
✓	✓	50 Inches - Mylar Ribbon - Streamer for Recovery
✓	✓	2 each - Basswood Sheet - Fin Stock
✓	✓	2 each - 6" Balsa Square - Airframe details
✓	✓	2 each - Fin Templates for cutting your fins from the Basswood Sheeting
✓	✓	1 each - Tube wrap to mark the position of the fins
✓	✓	1 each - Custom Nose Cone with a 1/64" hole in the bottom
✓	✓	1 each - Small Eye Screw for the Mounting of your Shock Cord
✓	✓	2 each - Washer - for proper balance of the rocket

Carefully sand all the fin surfaces (see the next tip) before assembly and after you have cut them from the Basswood Sheeting. This will help the paint stick and you paint will be much smoother.

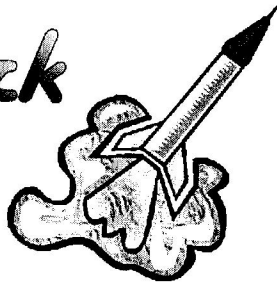
If you choose to round the edges of your fins, ensure that you do NOT round the fin roots or you will have some difficulty keeping them straight while they are curing.

Utilize a primer that is compatible with your paint. Use many light coats instead of one heavy coat. Sand each coat lightly before you spray a new coat. The primer will not only give you a good chance at a perfect finish, but will also help the paint to adhere properly.

Do not use White glue of any kind. It can dissolve in humidity or wet areas. You may want to consider using a thick CA. Not only will it cure rapidly, but will provide good strength.

For the ultimate fin strength and finished look to your rocket, consider adding a fillet the fin roots. They will look nice and will add a tremendous amount of strength.

Aardvark Rockets



www.aardvarkrockets.com
aardvarkhobbies@home.com
5675 SW 163rd Avenue
Aloha, Oregon 97007
(503) 481-7254

BLACKHAWK R&D LINE
MINI MISSILES COLLECTION
AIM 4 FALCON
UNITED STATES AIR TO AIR MISSILE

RECOMMENDED MOTORS

ESTES A8.3 B6.4 C6.5
APOGEE C4.5 C10.7 D10.7
AEROTECH D13.7

You will need the following supplies to complete this kit:

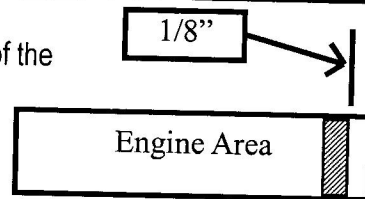
- ✂ Hobby Knife
- ✂ Pencil or Pen for marking
- ✂ Masking Tape
- ✂ Carpenter Glue or CA (DO NOT use white glue)
- ✂ Ruler or Micrometer
- ✂ Paint if desired

NOTE

Prior to beginning assembly on this kit, please read the entire set of assembly instruction so that you understand the process. Pay close attention to how the completed step will be used in the following step. Take your time and pay close attention to detail. Your kit will fly better, look better, and you will be more proud of it.

Step 1

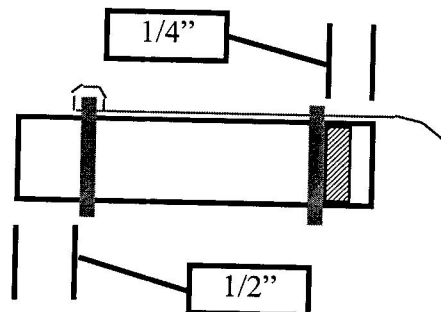
Insert engine block into motor mount tube 1/8" from one end of the motor mount tube. Secure with CA or Carpenters Glue. Be careful not to get any glue in the engine area.



Step 2

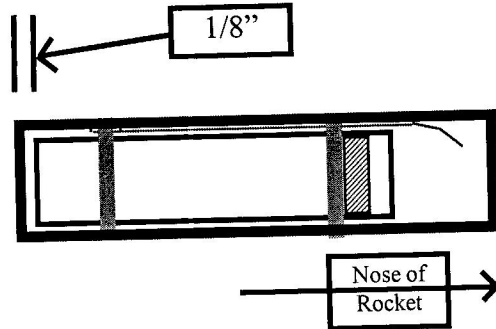
Tie one end of the kevlar thread to the aft centering ring. Make a mark 1/2" from the unblocked end of the motor tube and secure the aft centering ring to the motor tube. Put a small drop of glue on the knot. Ensure that there is no glue on the outer surface of the centering ring or it will not fit into the body tube. Put a small band of glue at the 1/2" mark and slide the aft centering ring until the bottom aligns with the mark. The thread should be toward the front of the rocket as shown.

Make a mark 1/4" from the other end of the motor tube, slip the forward centering ring over the free end of the cord and then over the motor tube to the 1/4" mark you have made. Let all parts dry completely before continuing. Feed the shock cord back through the motor mount tube to keep it out of the way in the next step.



Step 3

Spread a generous amount of glue on the inside of the body tube and slide the motor mount engine block end first into the body tube until there is 1/8" between the lip of the body tube and the lip of the motor tube. Be careful not to get any glue on the shock cord forward of the motor mount.



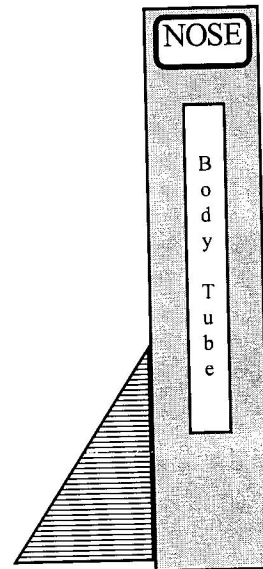
Step 4

Cut out the fins using the provided fin templates. Utilize all of the space available on the balsa sheet. You might cut a complete set out of paper and practice the layout before you begin cutting. Also, cut 8 each 1 5/16" pieces from the balsa to use as fin supports in a future step.

You want to be sure that as much grain as possible will be going toward the root edge of the rocket. Pay close attention when using a sharp razor knife. Take your time and utilize adult supervision.

Before proceeding to the next step, lightly sand all surface areas of the fins. Put all the fins together and facing the same direction. Sand all the edges until all the fins are the same shape and size.

DO NOT SAND THE FIN ROOTS TO ANY SHAPE. THEY SHOULD BE FLAT AND STRAIGHT.



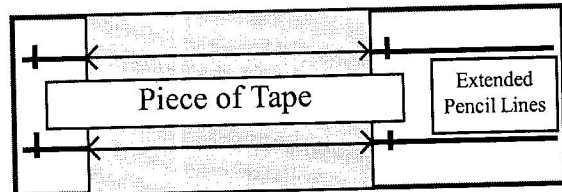
Step 5

Using the fin marking guide provided, mark lines up and down the airframe to align the fins in the next step.

Wrap the fin marking guide around the body tube. Make sure to use the tabs and arrows to get the guide straight.

Place a small piece of tape on the guide to hold it together. Mark the fin alignments at the end of each arrow. Remove the guide. Extend the lines the length of the airframe. Mark the seam as a centering aid in alignment of the launch lug. Extend this line as well.

Make a small mark on all lines at 0.457" from the bottom. Make another set of marks at 1.616" from the bottom. These marks will be used to locate the fins in the next step, so measure and mark carefully.



Building Tip!

Make a small mark on the tube at each arrow tip. Make sure that you can see them. Carefully remove the fin marking guide. Connect and extend the lines with a straight edge or by placing the tube in a door jamb and marking the lines.

Step 6

Refer to the fin placement diagram to the right. Attach the aft fins 0.457" from the aft (bottom) end of the airframe one at a time until all aft fins are in place. Repeat for the mid fins at 1.616". The forward fins are placed with the top aligned at 1/2" (0.5") from the forward end of the airframe.

Bevel the end of each fin support on one side. Measure 1/4" (0.25") from the outer edge of each aft fin and attach. Make sure each fin support is equally spaced across aft and mid fins.

Step 7

Measure 7 1/2" (7.5") from the tip of the nosecone and make a small line between two sets on fins. Install the launch lug with the top of the launch lug at the line. Make sure it is completely straight.

Step 8

Screw the eye screw in the pilot hole in the base of the nose cone. Remove the eye screw. Place a small drop of glue on the tip of the eye screw and the pilot hole. Place the washers over the eye screw and secure it into the pilot hole. Make sure that the washers are tight and flush with the base of the nose cone.

The washers are mandatory to the stability of the rocket!

Step 9

Tie one end of the elastic shock cord to the free end of the Kevlar cord. Make sure that this is a secure knot! Fold the streamer at 20" from one end. Take the folded end and make another 1/4" (0.25") fold in the streamer. This will now be four layers thick. Poke a small hole in the center of the folded over tab. Make the hole as round as possible and do not rip or tear the streamer.

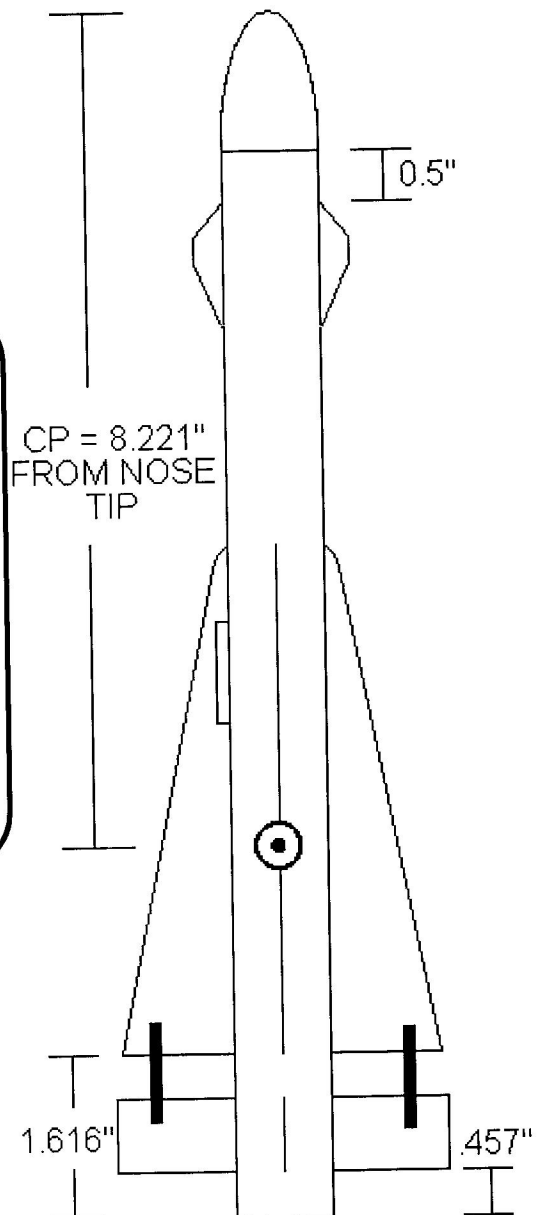
Insert the shock cord into the hole and pull 6-8" of shock cord through the hole. Tie a knot around the fold to hold the streamer in place. Tie the short end to the nose cone eye and the other to the cord attached to the centering ring. Secure both knots with a spot of glue.

Step 10

Paint the model as shown on the next page and add the decals if provided. Or create your own paint scheme or decals as you wish.

Step 11

Mark the Center of Pressure (CP) as shown in the diagram to the right. Make sure your model balances at least 1" in front of the CP for stable flight.



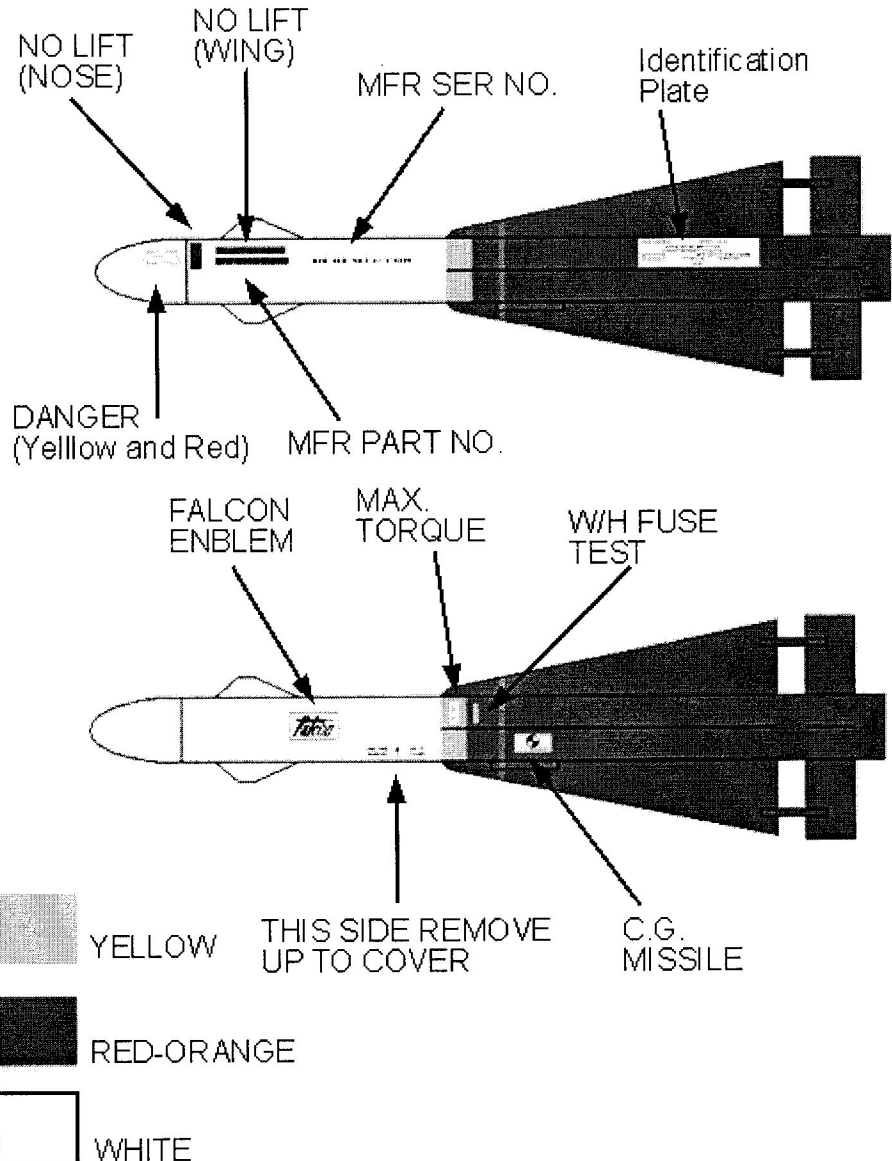
Flight Prep.

Friction fit the motor into the motor tube. If it is loose, place a layer of masking tape as necessary to ensure a snug fit.

Place several pieces of wadding in the airframe from the top. Use a pencil to lightly push them one at a time to the top of the motor. **DO NOT USE FLAMMABLE MATERIALS!** (Like paper towels or napkins!)

Roll the mylar streamer loosely around a pencil or similar. Do not wrap the shock cord around the streamer! Loosely stuff the shock cord then the streamer into the body tube and place the nose cone on the rocket.

Follow the manufacturer's instruction to complete the motor preparation



Copyright 2001 Aardvark Rockets and Hobbies

Color Scheme drawings are copyright
Saturn Press.

Used with permission.