

# AMRAAM 4

## Assembly instructions

Please read and understand all instructions before continuing!

### Stuff you will need:

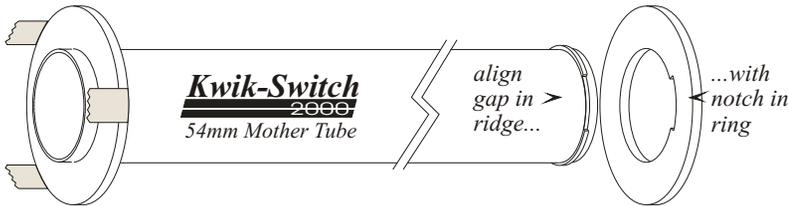
- One set of each 5 and 15 minute epoxy
- One sheet of each fine and medium sand paper
- Ruler and pencil
- Masking tape
- Cellophane tape

### Step 1

#### NOTE:

Be sure to scuff all parts to be bonded using medium sand paper.

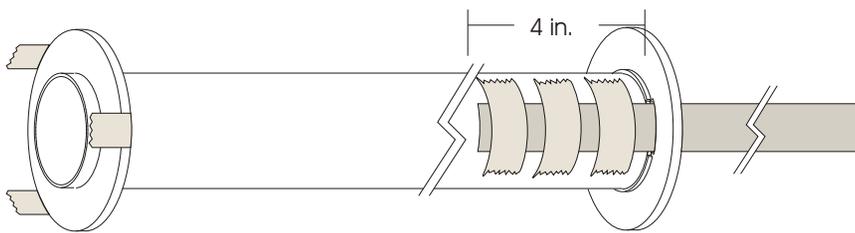
Refer to the "Kwik-Switch 2000" instruction sheet when assembling the "Kwik-Switch 2000"



A) Assemble the "Kwik-Switch 2000" mother tube.  
B) Slide the standard centering ring over the Kwik-Switch Mother Tube until 1/2" of the Mother Tube is protruding through the tailcone. Make 3 or 4 tabs using cellophane tape as shown above to aid in removing this ring later. Do not use any glue at this time, this centering ring will be removed in a subsequent step.

C) Epoxy the notched (top) centering ring over the exposed shoulder of the mother tube screw adapter. Make sure the notch in the centering ring is aligned with the gap in the ridge of the mother tube screw adapter to allow piston strap to pass through as in the following step.

### Step 2



Slip one end of the piston strap (the 3/4" wide one) through the notch in the centering ring. Epoxy about 4" of this strap to the side of the motor tube. Hold the strap in place against the tube with masking tape until the epoxy cures. Stuff the free end of the strap into the motor tube to keep it out of the way for the next step.

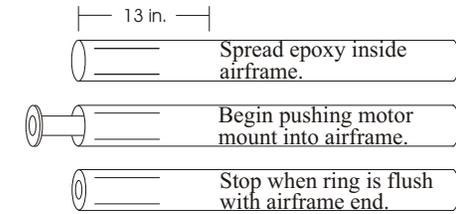
### Step 3

A) Using a stick, apply a ring of epoxy inside the airframe 13" from the bottom end.

B) Push the motor mount assembly all the way into the airframe until the taped, bottom centering ring is flush with the end of the airframe. Make sure the motor mount tube is flush with the bottom centering ring as shown. **Do not epoxy the bottom centering ring in place at this time!**

C) Stand the airframe upright until the epoxy cures.

If you prefer not to be rushed through this step or have little experience with this type of procedure, use a slow setting epoxy (15 min. epoxy is ok, bond will be

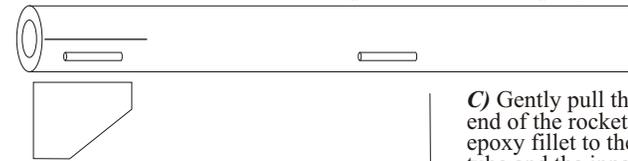


#### NOTE:

Be sure the strap is not in line with the fin slots otherwise the fins may not fit properly.

### Step 4

A) Apply a bead of epoxy to the root edge of a fin. Push the fin through the slot in the airframe and against the motor mount tube. Make sure that the fin is perpendicular to the airframe. Use tape to hold the fin in position while the epoxy cures. Repeat this process for all fins.



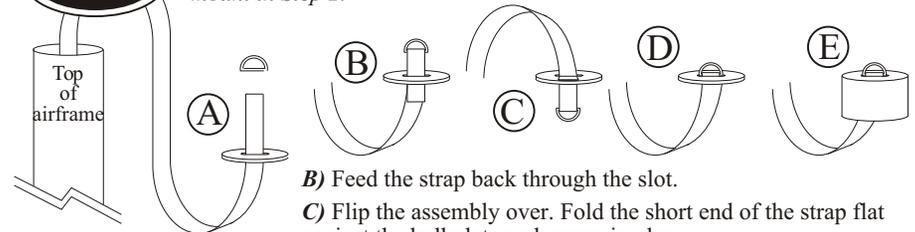
C) Gently pull the centering ring off the end of the rocket. Using a stick, apply an epoxy fillet to the fins at the motor mount tube and the inner airframe wall. **Now you can epoxy the centering ring in place.**

B) Apply an epoxy fillet to both sides of each fin. Carefully smooth the epoxy with your finger before it begins to gel. Allow the epoxy to set-up before rotating the rocket to do the next set of fins. Once the epoxy has fully cured, you should sand the fillet smooth with fine sandpaper. Sanding will help the primer hold better to the epoxy.

D) Epoxy one launch lug in place 2" from the bottom of the rocket and the other 18" from the bottom. Be sure the lugs are perfectly in line with each other, parallel to the airframe and not in line with a fin.

### Step 5

The strap referred to in this step is the strap you installed on the motor mount in Step 2.



A) Pull the free end of the strap through the slot in the piston bulk plate. Slip the metal "D" ring over the strap.

B) Feed the strap back through the slot.

C) Flip the assembly over. Fold the short end of the strap flat against the bulkplate and epoxy in place.

D) When the epoxy has cured, pull the strap until the "D" ring is wedged at the slot. Apply epoxy to the strap at the "D" ring.

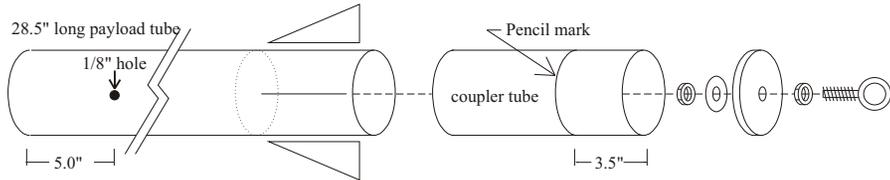
E) Epoxy the bulkplate inside the piston body 1/8" from the top. Apply an epoxy fillet to both sides of the bulkplate.

**Step 6**

A) Screw a nut onto the eye bolt. Thread the eye bolt through the hole in the coupler bulkplate. Place the washer over the eye bolt threads protruding through the bulkplate. Tighten the other nut against the washer. Apply a drop of CA to the threads of the eyebolt to keep the nuts from loosening.

Epoxy the bulkplate assembly inside the coupler tube about 1/8" from the end. Apply an epoxy fillet to both sides of the bulkplate.

Draw a pencil mark around the coupler 3.5" from the *same end* as the bulkplate. Spread some epoxy inside the slotted end of the payload section to a depth of about 7.0". Push the coupler into the payload section using a slow twisting motion up to the pencil mark. **Immediately clear the slots of any epoxy before it begins to set-up.**

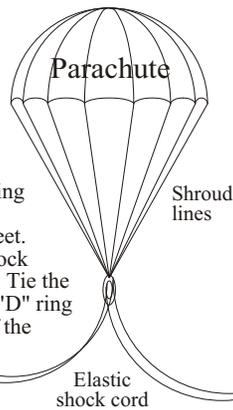


B) Apply a bead of epoxy to the root edge of an upper fin. Set the fin into the resulting "dado" slot. Make sure that the fin is perpendicular to the airframe. Use tape to hold the fin in position while the epoxy cures. Repeat this process for all 4 upper fins. Apply an epoxy fillet to both sides of each fin as in step 4B.

C) Drill a 1/8" hole in the payload section 5" from the top to bleed off air pressure build-up during flight.

**Step 7**

Measure off the mid point of each parachute shroud line and mark it with a pen. Gather all the shroud lines making sure they are not twisted or tangled. Keep all the marks on the shroud lines together. Tie the lines together using a simple overhand knot leaving a small loop where all the marks meet. Tie the parachute to the elastic shock cord 1/3 of the way from one end. Tie the long end of the shock cord to the "D" ring on the piston. Tie the short end of the shock cord to the eyebolt on the payload section.



Tie the short end of the shock cord to the eye bolt on the payload section.

Pack the chute as directed in the parachute instructions.

**Step 8**

Slide the piston into the rocket followed by the shock cord and parachute. Place the payload section atop the rocket. It should fit just tight enough to allow you to lift the rocket without it slipping off. Wrap masking tape around the shoulder of the payload section for a tighter fit if necessary. Now install the nosecone atop the rocket and secure it in place using small screws or rivets.

Tie the long end of the shock cord to the "D" ring on the piston.

**NOTE:** When tying the shock cord to the parachute and the "D" ring, loop the shock cord through twice then tie a double overhand knot. Pull the knot tight and leave 2-3 inches of excess cord after the knot.

Now it's time to paint and detail your rocket!

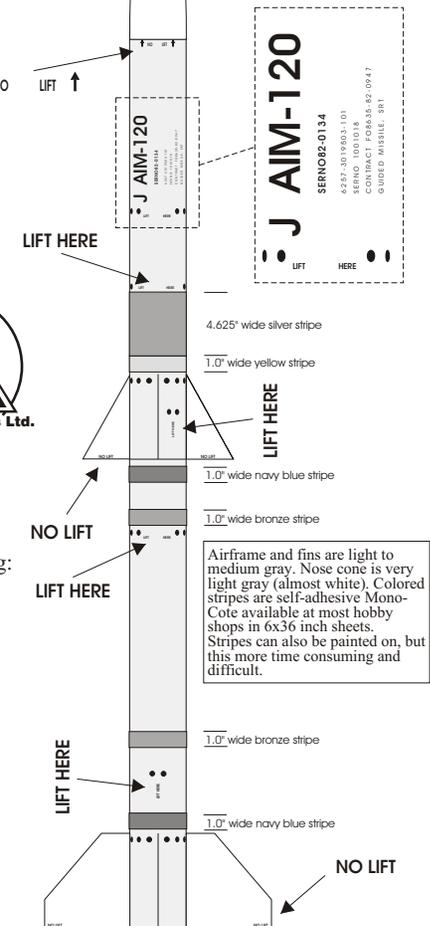
Copyright 1996

# AMRAAM 4

## High Power Rocket Kit

The AMRAAM 4 kit contains all the parts necessary\* to build a flying high power rocket:

- 1) Pre-slotted 32.5" main airframe
- 1) Pre-slotted payload section kit including:
  - 1) 28.5" long, pre-slotted payload tube
  - 1) 11" long coupler tube
  - 1) bulk plate
  - 1) eyebolt
  - 2) machine nuts
  - 1) washer
- 1) Nose cone
- 4) Main fins
- 4) Canard fins
- 1) Piston ejection kit including:
  - 1) Piston body
  - 1) Piston strap
  - 1) Slotted bulk plate
  - 1) Metal "D" ring
- 1) Parachute
- 1) "Kwik-Switch 2000" motor mount kit including:
  - 1) 54mm Mother tube
  - 1) 38mm Adapter tube
  - 1) 29mm Adapter tube
  - 1) Mother tube screw mount
  - 2) Adapter tube screw mounts
  - 1) 38mm Centering ring
  - 1) 29mm Centering ring
- 1) Standard centering ring
- 1) Notched centering ring
- 1) Elastic shock cord
- 2) 1/2" launch lugs
- 1) Decal sheet
- 1) Decal detail sheet
- 1) Instruction sheet (this one!)



Airframe and fins are light to medium gray. Nose cone is very light gray (almost white). Colored stripes are self-adhesive Mono-Cote available at most hobby shops in 6x36 inch sheets. Stripes can also be painted on, but this more time consuming and difficult.

\*Epoxy, paint, and motor not included.

The center of pressure (CP) of this rocket is 60 inches from nose tip. After finishing your rocket, permanently mark the center of pressure on the airframe. CP Calculations were made using RockSim 4.0 program for subsonic flights. After loading the rocket with a motor, make sure that the center of gravity (balancing point) is at least 4.0" forward of the center of pressure mark. The center of gravity can be moved forward by adding weight to the nose cone. The average finished weight of this model is 78 ozs. It is impossible to test every rocket with every motor configuration therefore, if you are unsure about motor selection for any rocket consult the motor manufacturer.