

Bomarc

Specifications

Length: 27.25" Diameter 1.6"
Weight: 10.5oz Recovery: 18" Chute
Motor: 24mm Fins: 1/8" Bass Wood
CG: 13.5" from nose tip
Recommended Motors: D12-3 E9-4



K-189



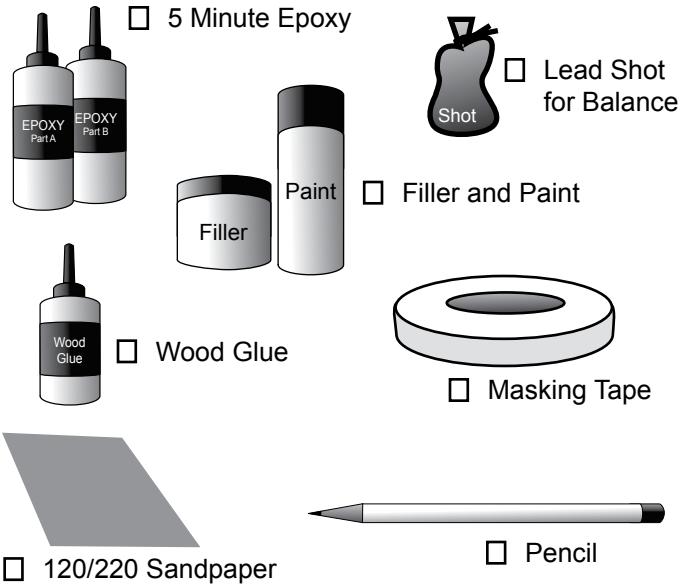
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Parts List

- (1) Fiberglass Nose Cone
- (1) Body Tube (22" Long)
- (2) Ram Jet Nose Cones
- (2) Pod Tubes (6.5" Long)
- (1) Laser Cut Bass Wood Sheet
- (2) Centering rings
- (1) Motor tube (4" Long)
- (1) Thrust Ring (1/4" Long)
- (1) Motor Clip
- (1) Motor Spacer (1" Long)
- (1) Nylon Shock Cord Section
- (1) Kevlar Shock Cord Section
- (2) Launch Lugs
- (1) Decal Sheet
- (1) 18" Nylon chute
- (1) 6"x6" Chute Protector
- (3) 1/8" x 1/4" x 24" Balsa Strips

You'll need these items to complete this kit

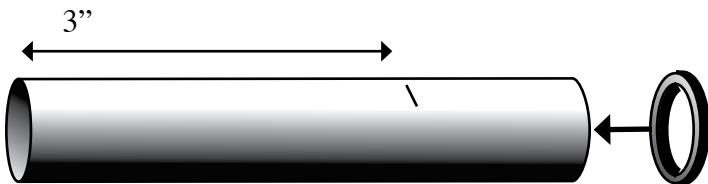


Please make sure you read all directions and understand how to assemble your model before you start construction. It is also a good idea to test fit each part before assembly – some manufacturing tolerances may require light sanding before final assembly.

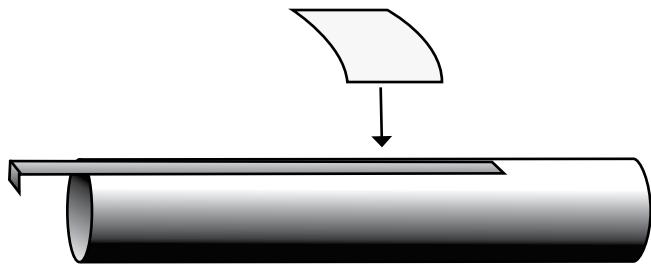
Laser cut parts will exhibit varying amounts of charring on the edges depending on the density of the plywood. The charred edges do not interfere with bonding and do not need to be cleaned before assembly. In most cases the charring will be cleaned up during sanding for finishing and painting.

Motor Mount Assembly

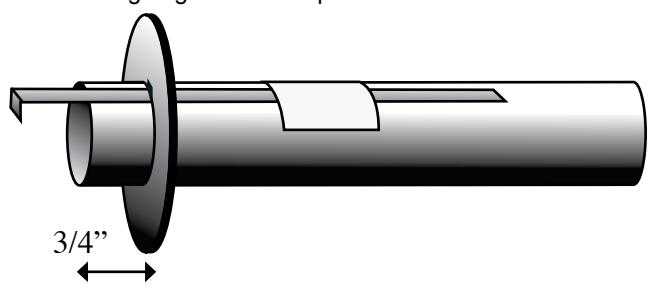
- Step 1 - Sand the glassine coating off of the motor tube. Glue will not stick very well to the glassine and roughing the tube will help the glue stick.
- Step 2 - Test fit the centering rings over the motor mount tube and sand if necessary. The ring should slide snug over the motor tube without deforming it. Also test fit the centering rings in the body tube and sand if necessary.
- Step 3 - Cut a 1/4" wide slot 3" from the aft end of the motor tube. Apply some wood glue to the thrust ring (1/4" long ring that fits inside the motor tube) and insert the thrust ring from the forward end of the motor tube until it is flush with the slot cut earlier. Be careful not to push the ring past the slot or you will not be able to put the motor clip in next.



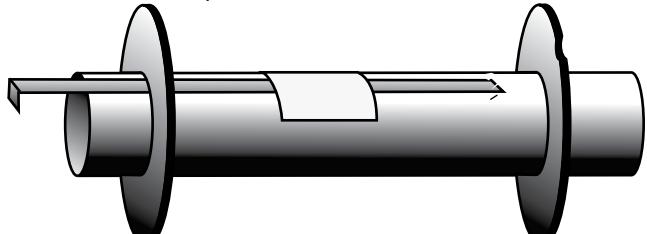
- Step 4 - Insert one end of the motor clip into the slot cut earlier. Use a piece of masking tape to hold the clip in place.



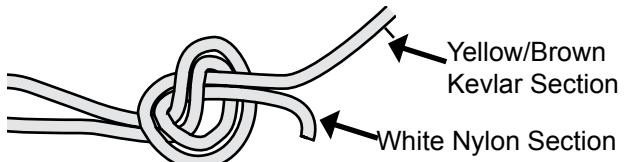
- Step 5 - Line up the slot on one of the centering rings over the motor clip and slide the ring over the aft end of the motor tube until there is 3/4" exposed. Apply wood glue around the centering ring to hold it in place



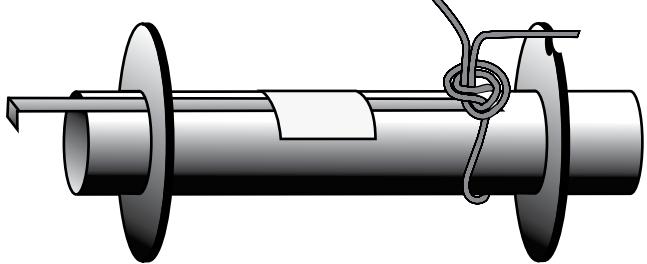
- Step 6 - Glue the remaining centering ring with the outside notch close to the forward edge of the motor tube with about 3/4" of motor tube exposed.



- Step 7 - The shock cord in this kit consists of a shorter section of Kevlar and a longer section of nylon cording. The two sections should be tied together using a single overhand, ring bend or double fisherman's knot. The Kevlar section will be attached to the motor mount and the nylon section will be attached to the nose cone.

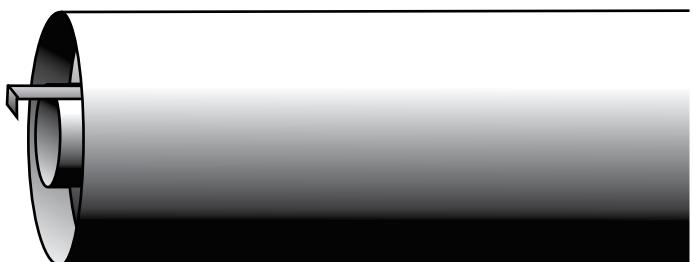


- Step 8 - Wrap the kevlar section of the shock cord around the motor tube and tie an overhand knot to secure in place. You can use wood glue or CA glue to secure the knot in the shock cord so it doesn't come loose later.



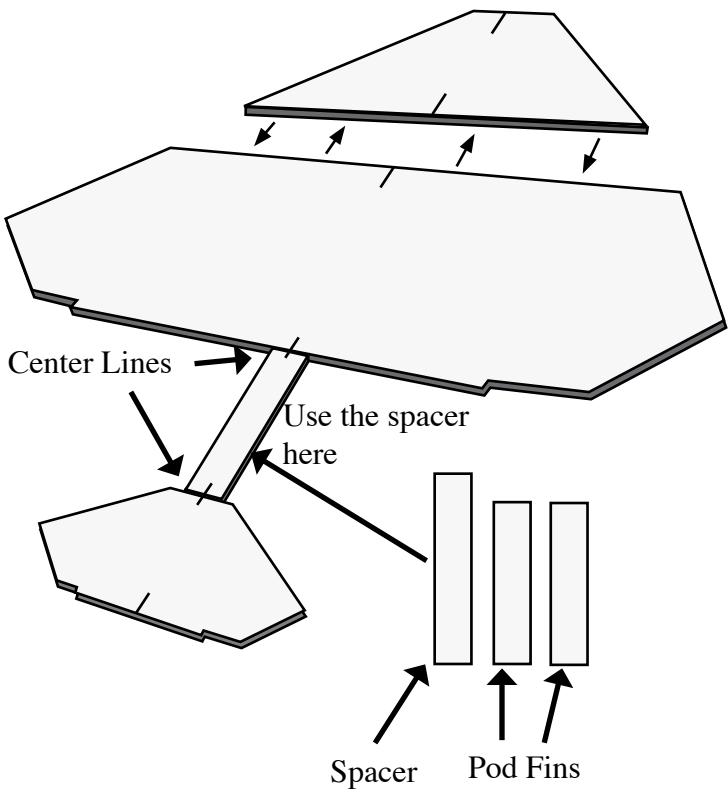
- Step 9 - Wrap the shock chord into a small bundle and stuff it inside the motor tube for this next step. Test fit the motor tube assembly into the aft end of the body tube to ensure a snug fit. Sand the centering rings if necessary.

- Step 10 - When you are satisfied with the fit, spread some wood glue on the inside of the body tube about 2" from the aft end and slide the forward centering ring of the motor assembly into the body tube. **Make sure you have the motor assembly facing the right way - the centering ring with the outside notch should slide in first!** **IMPORTANT:** make sure the shock cord passes through the notch between the centering ring and body tube. Keep going by spreading some more glue on the inside of the body tube near the aft edge before sliding the aft centering ring into the body tube. Continue sliding the assembly inside the body tube until the aft end of the motor tube is lined up with the aft end of the body tube.

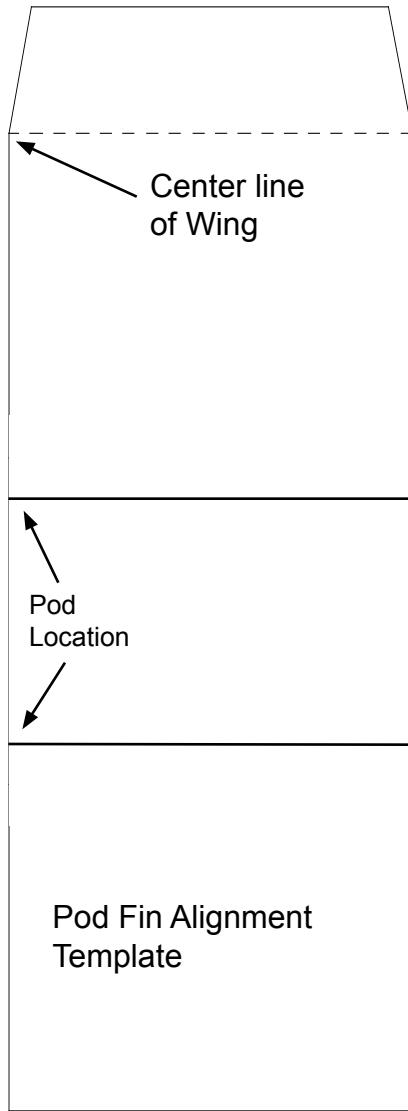


Fin Assembly

- Step 11 - Mark the center of the front and rear of the two wing pieces, the horizontal stabilizer and the spacer. Note that the spacer is the longer of the 3 bass wood rectangles. The shorter rectangles are the pod fins used later.

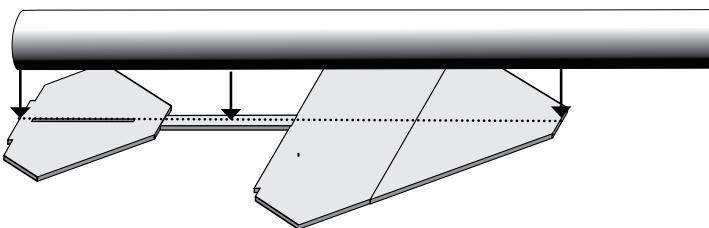


- Step 15 - Assemble the pod fin alignment template and wrap it around the body tube in front of the wing. Align the center line mark on the template with the center line of the wing. Mark the 2 pod fin locations on the body tube.

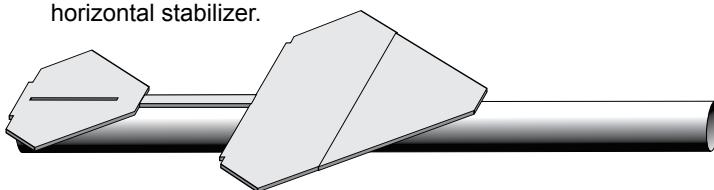


- Step 12 - Using a flat surface and a straight edge, use wood glue to join the 4 bass wood pieces as shown in the drawing. Make sure the center lines of each of the pieces are lined up with each other and they are aligned along a straight line using the straight edge.

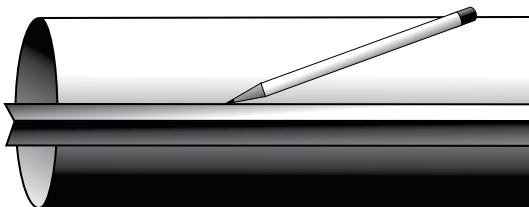
- Step 13 - Mix some epoxy and spread it along the fin assembly shown by the dotted line in the drawing below. Make sure you don't allow any epoxy to go into the slot in the horizontal stabilizer because it will be difficult to clear later. Press the body tube into the epoxy ensuring the tube is aligned to the center marks drawn earlier. **IMPORTANT:** Make sure the aft end of the body tube is aligned with the aft end of the horizontal stabilizer. **Also make sure the motor is at the aft end.**



- Step 14 - Apply fillets between the body tube and wing and horizontal stabilizer.

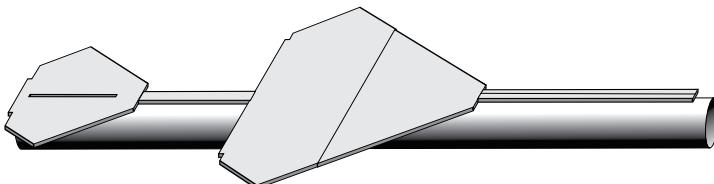


- Step 16 - Using a door jam or small section of angle stock, pencil a line on the pod fin alignment marks that extends from the front to the aft of the wing.

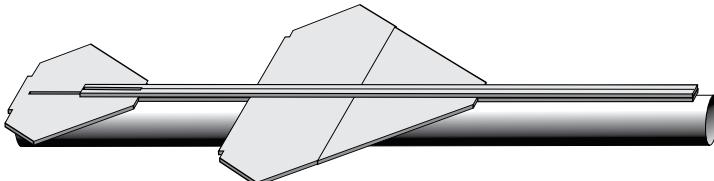


- Step 17 - Similarly pencil a single line on each of the pod body tubes that extends from the front to the middle of the tube length. This will be used later to align the pod fins.

- Step 18 - Cut two 8" pieces of the 1/8" x 1/4" balsa stock and glue these side by side to form a 1/8" x 1/2" section in front of the wing. Use a straight edge to make sure these new pieces form a straight line with the existing wing and stabilizer.

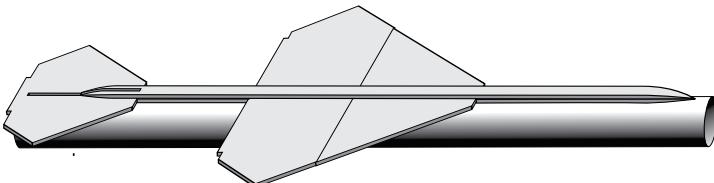


- Step 19 - Using the remaining 1/8" x 1/4" balsa stock, glue another layer of balsa on top as shown below forming a 1/4" high by 1/2" wide square conduit strip. The strips should extend from 2" behind the leading edge of the horizontal stabilizer to the front of the piece glued in the previous step.

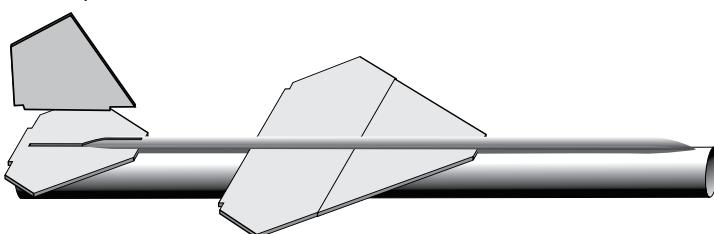


- Step 20 - Cut a 1/8" slot in the aft end of the strips just glued to clear the slot in the horizontal stabilizer. Continue this slot to the front of the horizontal stabilizer so the vertical fin can sit flush against the horizontal stabilizer.

- Step 21 - Round the front and aft of the balsa strip assembly to start forming the rounded front and aft of the conduit. The rounded section should extend about 1 1/2" into the front and aft of the conduit as shown.



- Step 22 - Round the sides of the conduit to form a half circle.



- Step 23 - Insert the vertical fin into the slot and secure with wood glue. Make sure the fin root is flush with and the fin itself is 90 degrees to the horizontal stabilizer. When the glue is dry, apply fillets to both sides of the vertical fin joint.

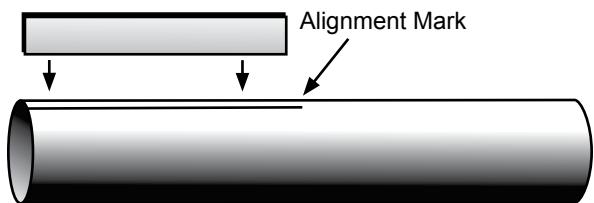
Launch Lug Assembly

- Step 24 - Glue a launch lug near the aft end of the rocket in the corner between the body tube and below the horizontal stabilizer. Glue another launch lug near the forward end of the wing in the corner between the body tube and under the wing. Site down the 2 launch lugs to make sure they are in alignment before the glue sets.

Ramjet Pod Assembly

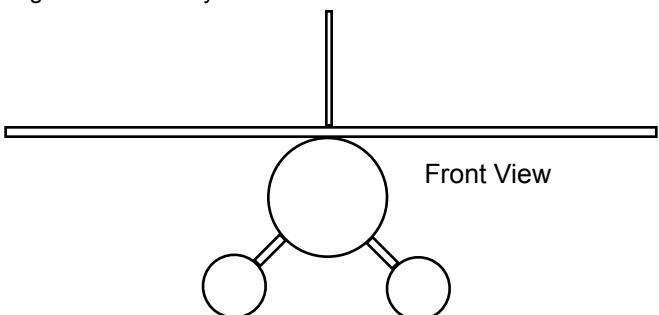
- Step 25 - Attach one of the pod fins to a pod tube along the alignment line drawn earlier. The pod fin should be flush with the front of the pod tube and 90 degrees from the tube.

- Step 26 - Apply fillets to both sides of the pod fin / pod tube joint. Repeat for the other pod.



- Step 27 - Make a mark 10 1/2" from the front of the body tube along both pod alignment marks on the main body tube.

- Step 28 - Attach the pods along the alignment marks on the body tube with the front of the pod fin lined up with the mark made in the previous step. Make sure the pods are 90 degrees to the body tube.



- Step 29 - Apply fillets to both sides of each pod fin / body tube joint.

- Step 30 - Attach the pod nose cones to the front of each pod.

Nose Cone Assembly

- Step 31 - Pack the chute and assemble the rocket. Insert the largest motor that you intend to fly (or simulate the weight with an appropriate substitute) and ensure that the CG (where the rocket balances front to back) is at or a little in front of the point defined in the specifications on the first page. The CG should be measured from the tip of the nose cone. If the CG is behind the specified point, pour lead shot or BB's into the nose cone and secure with epoxy. A good place to start is about 3 1/2 to 4 oz of ballast.

- Step 32 - When you are satisfied with the balance of your model, tie some knots in the end of the nylon section of the shock cord and lay the shock cord onto the inside of the nose cone. Cover the shock cord with epoxy to secure it to the inside, side of the nose cone.

Final Assembly

- Step 33 - Attach the parachute to the shock cord 2/3 of the way between the body tube and the nose cone. You can also attach the chute protector to the shock cord just below that. When packing your chute, wrap the chute protector around the chute with the opening in the chute protector facing forward. Always make sure your chute is well protected as the hot ejection motor gasses will melt the nylon chute.
- Step 34 - Your model is now ready to paint and apply the decals.

At this point your model is ready to fly.

Now go have some fun!

Flying Your Model

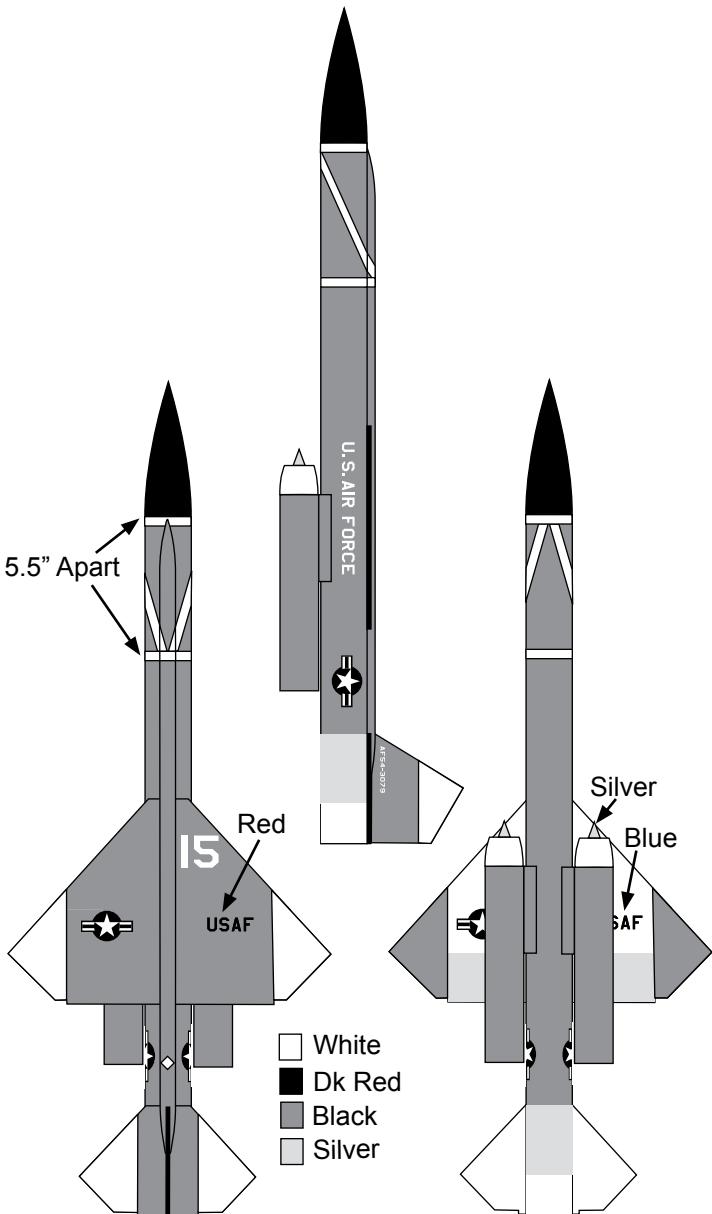
IMPORTANT: always use positive motor retention to secure the motor. Failure to use motor retention will cause the motor to be ejected instead of the parachute making for a dangerous ballistic reentry.

IMPORTANT: always remember to check your balance point and ensure your CG is forward of the specified CG point.

IMPORTANT: Always follow the NAR safety code and remember that rockets are not toys and can be dangerous if not prepared and used properly. If you are a beginner, it is a good idea to fly with a club or other group of experienced rocketeers until you have gained some experience.

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IMPORTANT: Please contact us via phone or email if you have any questions about constructing or flying your model.



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