



LOC PRECISION R.A.M. 1.9 Build Instructions

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R.A.M. 1.9" Build Instructions



Instructions

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R.A.M. 1.9 Build

Due to the high thrust motors that can be flown in this rocket, epoxy is recommended!

Before beginning construction, read over instructions to become familiar with the proper construction steps.

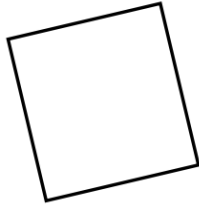
Check Parts List to make sure you have all the parts.

TEST FIT ALL PARTS! Light sanding may be necessary to obtain proper fit.

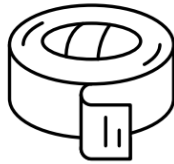
ITEMS YOU WILL NEED TO BUILD THIS KIT



*Glue
(Epoxy
Recommended)*



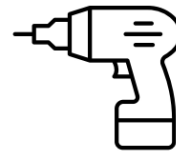
Sandpaper



Masking Tape



Pencil and Ruler



Drill



Paint

Parts List

Check your parts before you begin your build!

- Polypropylene Nose Cone
- Slotted Booster
- Payload Section
- 12" 29MM Motor Tube
- Centering Rings (4)
- 1/16" Tubular Nylon
- 21" Parachute
- 1/4" Launch Lug/Rail Guides
- Laser Cut Fins (8)
- Vinyl Decal

STEP 1 – Motor Tube Centering Rings Assembly



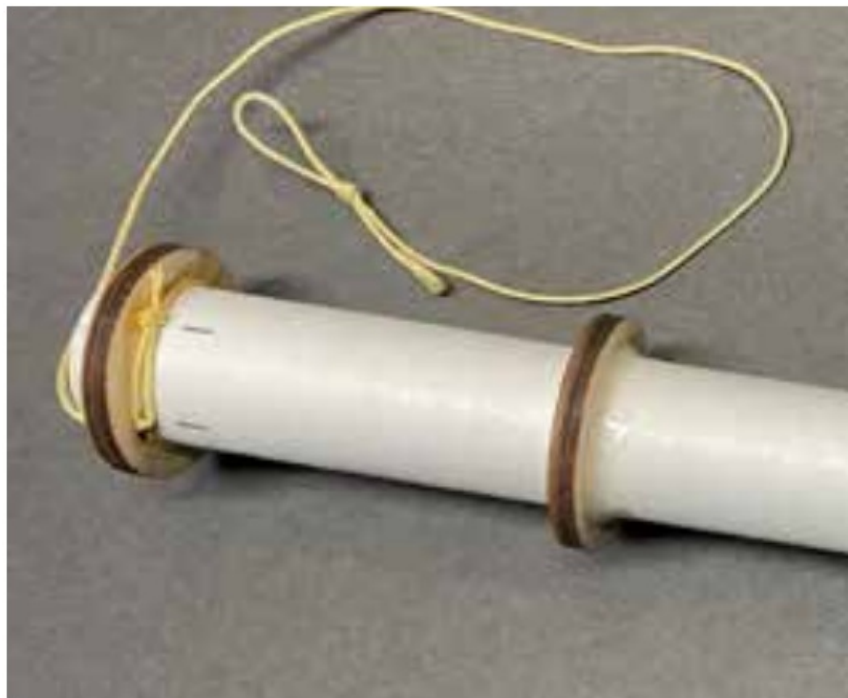
A. Rough sand the motor tube to ensure proper adhesion OR remove the outer glassine wrap. Identify the ring with notches (1) as this is the forward most ring.



B. With the motor tube flush with the aft end of the slotted booster, lay the motor tube next to the slotted booster, and mark off the position of the fin slots. Place all 4 rings onto the motor tube and space apart to allow the fin tabs to fit in between the rings. Use the fin tabs and slots as a measuring guide. Tack rings into place with epoxy, allow to cure.



C. Epoxy fillet both sides where the ring meets the motor tube. Be sure to keep epoxy clear of where the fin tabs will meet the motor tube. Allow to cure.



STEP 2 – Kevlar® / Nylon Shock Cord Assembly

Take the length of 2' Kevlar cord and at its center make a 1" long loop knot at one end and knot tight. Feed other end through one of the ring notches. Wrap cord around motor tube and double knot. Place a bead of epoxy on knot. Allow to cure.

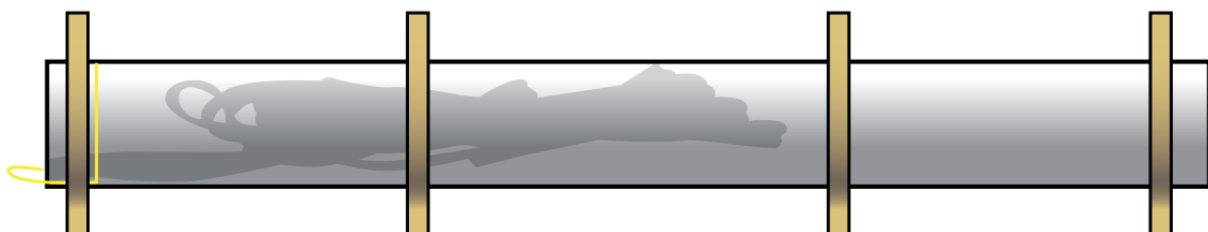
STEP 2 – Kevlar® / Nylon Shock Cord Assembly (continued)



Feed one end of tubular nylon shock cord through the Kevlar loop. Then through other tubular nylon ends loop. Pull tight.

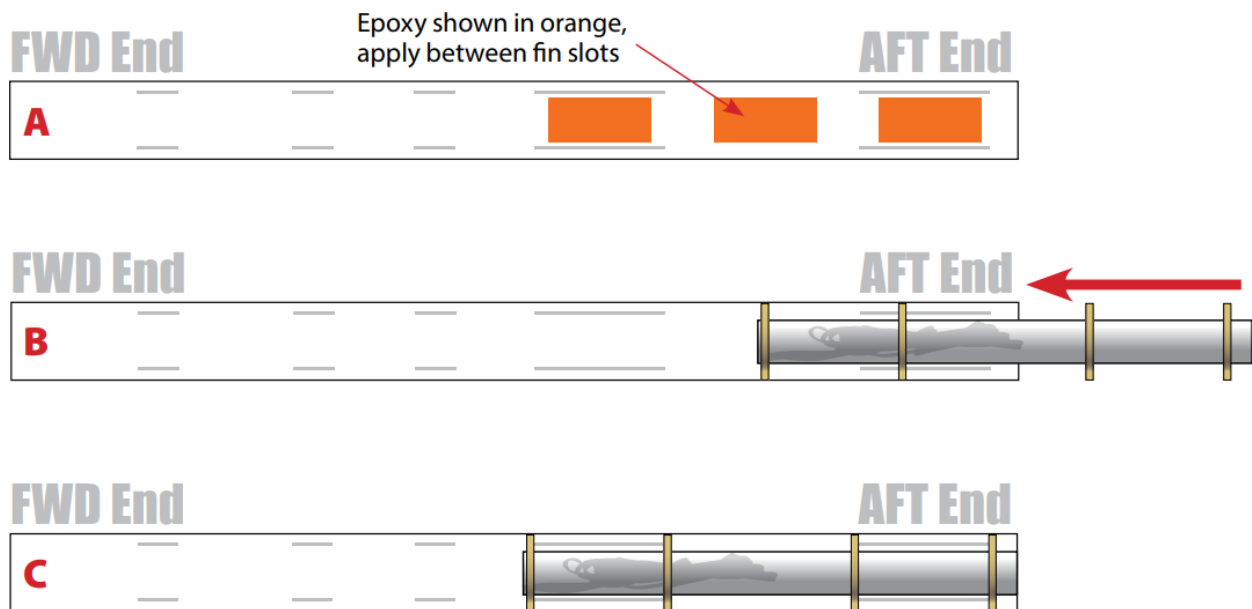
Shock cord end of motor tube is the Forward (FWD) end of the motor tube.

The opposite end of the motor tube is the Aft (AFT) end



Bunch up shock cord and feed down through motor tube for next step

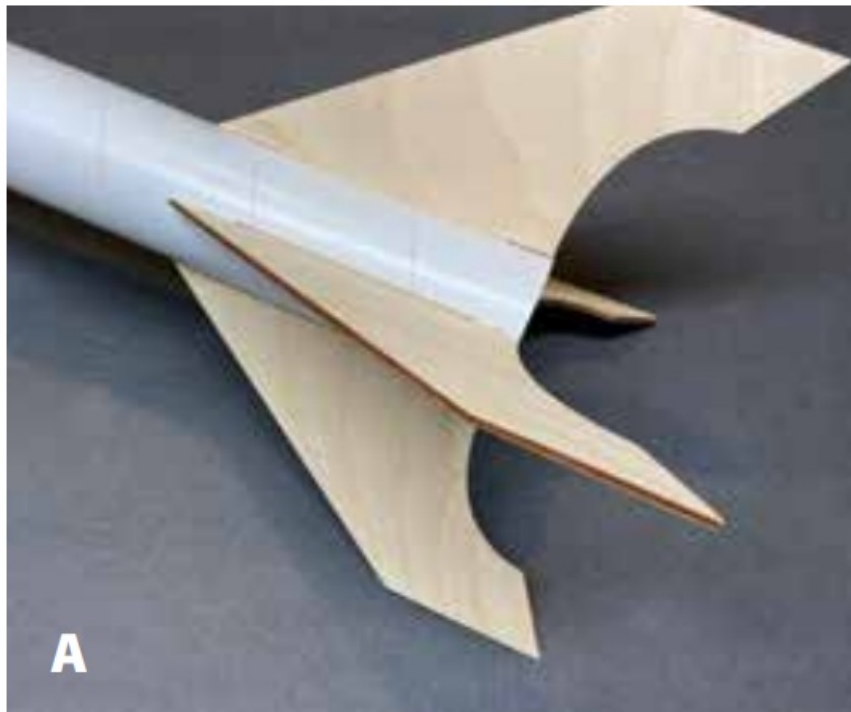
STEP 3 – Motor Tube / Airframe Assembly



- A. Slather epoxy in the AFT of the airframe between each fin slot.
 - B. Insert motor mount assembly up the airframe. (shock cord mount end FWD).
 - C. Slide all the way up the airframe until the MMT is flush or slightly recessed with the AFT of the airframe. DO NOT get epoxy inside motor tube or on shock-cord!
- Stand Airframe vertical, AFT end at bottom.
 Allow epoxy to cure.
 Once cured, apply a small epoxy layer to the AFT of the AFT ring. Allow to cure.

STEP 4 – Fin to Airframe Assembly

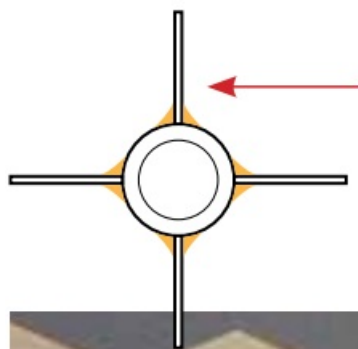
Poor fin alignment will result in misdirected flights. Be sure to have each fin perpendicular to the airframe. Proper addition of glue fillets to the fins and launch lug will help durability.



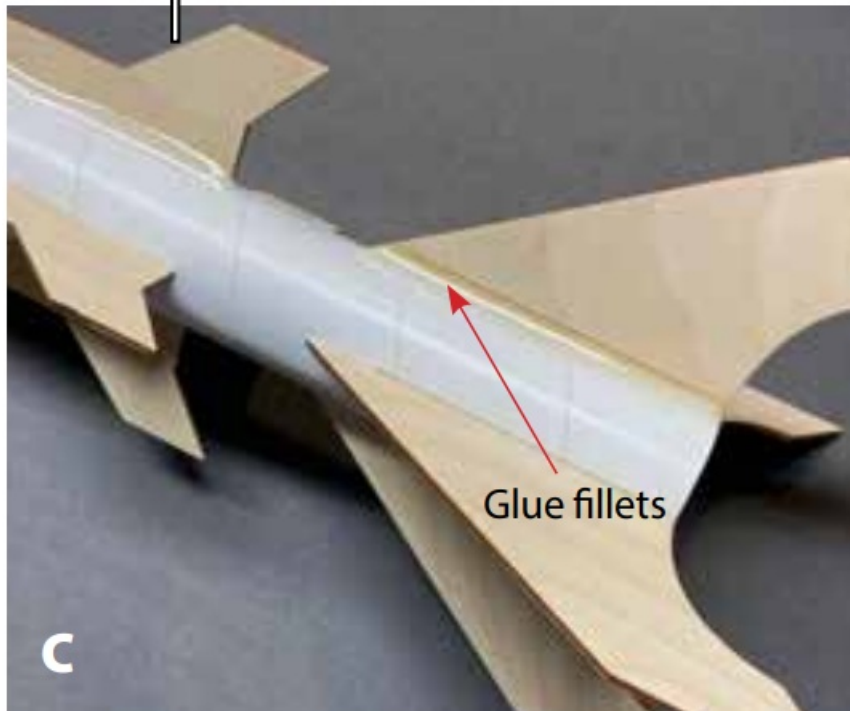
lightly sand the airframe exterior on each side of the fin slots. This will remove the shiny glassine layer of the airframe and assist in the epoxy bonding the fin to the airframe while creating good adhesion.



A. Apply a generous bead of epoxy to the root edge of one lower fin and insert into the fin slot. Make sure the fin is at a right angle (90°) to the airframe. Allow the epoxy to cure before moving on to the next fin. Repeat the procedure for the remaining lower fins.



Proper alignment has each fin perpendicular to the airframe



B. Then epoxy upper fins in place using wood strips and clamps to keep all fins aligned.

C. When all fins are in place, apply an external fillet to each fin-to-airframe joint.

LOC PRO Build Tip! Making Fillets is Easy!

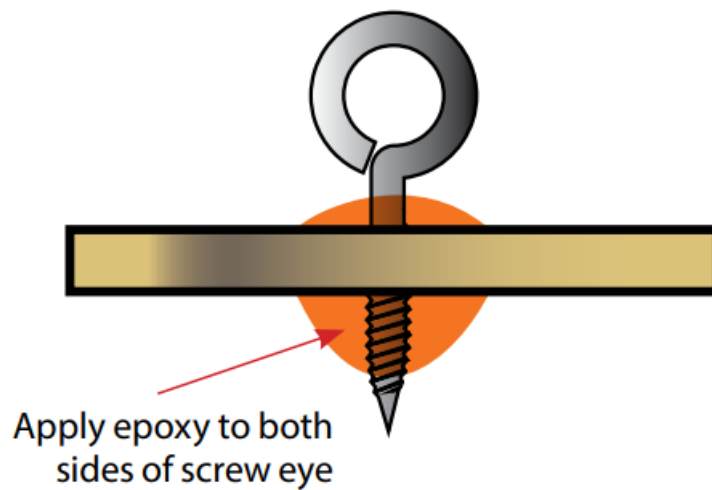
Easy fin fillets are a simple 4 step process that will give professional results every time.



1. Mark off 1/8" rules along the fin and airframe.
2. Apply tape along the rules.
3. Apply glue fillets as shown.
4. Remove tape while glue is still wet for straight clean fillets!

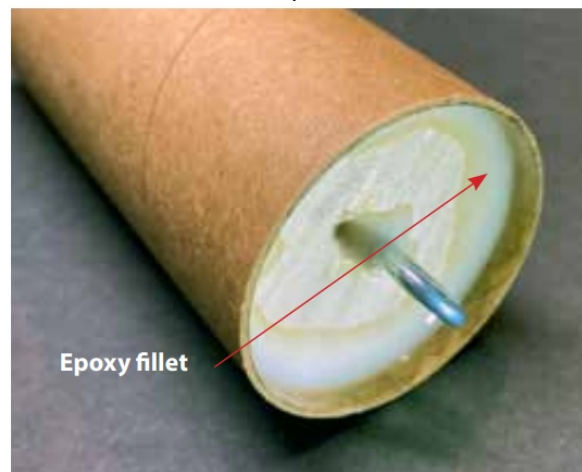
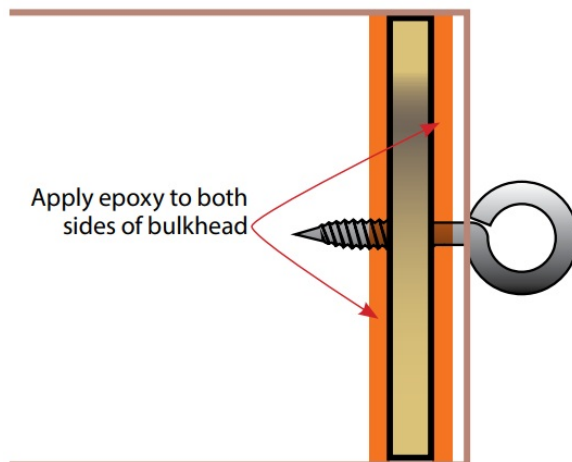
STEP 5 – Bulkhead Assembly

Install screw eye in bulkhead. Epoxy both sides where the screw eye meets the bulkhead. Allow to cure.



STEP 6 – Bulkhead / Coupler Assembly

Insert bulkhead into coupler. Epoxy fillet both sides where the bulkhead meets coupler. Allow to cure.



STEP 7 – Coupler / Payload Assembly

Slather epoxy in one end of payload section. Insert coupler 50% (2.5") in payload and allow to cure.

Optional Coupler Payload Assembly You may retain the coupler with screws or plastic rivets. This will leave the possibility of adding an electronics bay in the future.

[Click for Nylon Rivets](#)

[Click for Electronic Bays](#)





STEP 8 – Shock Cord Attachment

Shake or push shock cord from motor tube out the FWD end of booster.

Insert shock cord 2' through screw eye.

Make a knot.

At the end of the shock cord, insert parachute shroud lines. Then pass parachute canopy back through shroud line loops, pull tight.



Screw eye knot

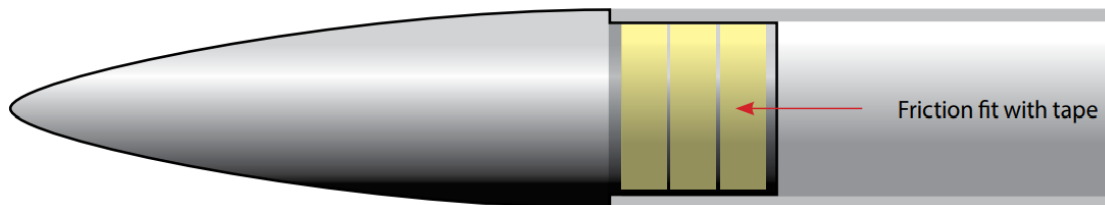


Parachute / Shock Cord knot

STEP 9 – Nose Cone Assembly

Friction fit the nose cone to FWD end of payload using masking tape. You may also use plastic push rivets or screws.

Make sure the cone will NOT come off during ejection or decent.



STEP 10 – Rail Guides / Launch Lugs

Identify launch system to be utilized. Some choose to install guides on one side and rails on the opposite, 180°. Your choice!

Launch Lugs

- Cut the launch lug in half at an angle, making them aerodynamic.
- Find the high point of the air-frame between fins. Mark a straight perpendicular line up 15" from the AFT of the airframe.
- Epoxy one lug 2" up from the AFT of the airframe.
- Epoxy another at least 15" FWD. Allow to cure.

Rail Guides

- Install the rail guides into the booster with provided screws. Drill a hole smaller than the screw so the screw threads into it ½" forward of aft ring centered between fin set.
- Drop a small amount of epoxy in drilled hole, thread the rail guide and screw in the hole, rotate rocket 180 degrees & let cure.
- Repeat for the forward rail guide ½" aft of the forward ring.

Some choose to use a wood screw & drill/tighten into the aft & forward rings.

Your choice!



STEP 11 – Paint / Finish

- Spray rocket with primer, sand and repeat until smooth finish is obtained
- Spray rocket with paint of choice, let dry.
- Apply protective clear coat
- Apply vinyl decals to your liking
- Repeat with clear coat.

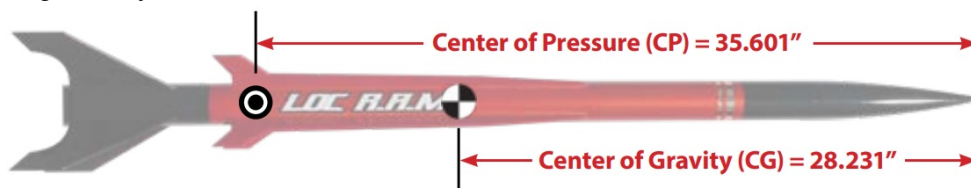
PREFLIGHT

Sim Your Rocket!



This rocket is recommended for high power rocket motors F through H impulse. Depending on your flying field and finished weight, this is a very versatile kit. The Rocksim® file is available on the 1.9" RAM product page on our website.

Always check stability to ensure stable flight; the Center of Gravity (CG) must be forward of the Center of Pressure (CP) in flight ready condition.



R.A.M. Specs

Height: 43.00"
Diameter: 1.9"

Motor Suggestions

Motor	Number of Motors	Altitude in Feet
E16-4	1	525
E23-4	1	565
F20-7	1	1285
F25-7	1	1500



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Model Rocket Safety Code

Materials – I will use only lightweight, non-metal parts for the nose, body, and fins of my rocket.

Motors – I will use only certified, commercially made model rocket motors, and will not tamper with these motors or use them for any purposes except those recommended by the manufacturer.

Ignition System – I will launch my rockets with an electrical launch system and electrical motor igniters. My launch system will have a safety interlock in series with the launch switch, and will use a launch switch that returns to the "off" position when released.

Misfires – If my rocket does not launch when I press the button of my electrical launch system, I will remove the launcher's safety interlock or disconnect its battery, and will wait 60 seconds after the last launch attempt before allowing anyone to approach the rocket.

Launch Safety – I will use a countdown before launch, and will ensure that everyone is paying attention and is a safe distance of at least 15 feet away when I launch rockets with D motors or smaller, and 30 feet when I launch larger rockets. If I am uncertain about the safety or stability of an untested rocket, I will check the stability before flight and will fly it only after warning spectators and clearing them away to a safe distance. When conducting a simultaneous launch of more than ten rockets, I will observe a safe distance of 1.5 times the maximum expected altitude of any launched rocket.

Launcher – I will launch my rocket from a launch rod, tower, or rail that is pointed to within 30 degrees of the vertical to ensure that the rocket flies nearly straight up, and I will use a blast deflector to prevent the motor's exhaust from hitting the ground. To

prevent accidental eye injury, I will place launchers so that the end of the launch rod is above eye level or will cap the end of the rod when it is not in use.

Size – My model rocket will not weigh more than 1,500 grams (53 ounces) at liftoff and will not contain more than 125 grams (4.4 ounces) of propellant or 320 N-sec (71.9 pound-seconds) of total impulse.

Flight Safety – I will not launch my rocket at targets, into clouds, or near airplanes, and will not put any flammable or explosive payload in my rocket.

Launch Site – I will launch my rocket outdoors, in an open area at least as large as shown in the accompanying table, and in safe weather conditions with wind speeds no greater than 20 miles per hour. I will ensure that there is no dry grass close to the launch pad, and that the launch site does not present risk of grass fires.

Recovery System – I will use a recovery system such as a streamer or parachute in my rocket so that it returns safely and undamaged and can be flown again, and I will use only flame-resistant or fireproof recovery system wadding in my rocket.

Recovery Safety – I will not attempt to recover my rocket from power lines, tall trees, or other dangerous places.

Launch Site Dimensions

Installed Total Impulse (N-sec)	Equivalent Motor Type	Minimum Site Dimensions (Ft.)
0.00 – 1.25	1/4A, 1/2A	50'
1.26 – 2.50	A	100'
2.51 – 5.00	B	200'
5.01 – 10.00	C	400'
10.01 – 20.00	D	500'
20.01 – 40.00	E	1,000'
40.01 – 80.00	F	1,000'
80.01 – 160.00	G	1,000'
160.01 – 320.00	Two G's	1,500'

Schools, Clubs and Other Groups

Loc Precision Multi-Packs are available for this and other Loc Precision Rocket kits.

Call or email us for multi-pack pricing.



E-MAIL: info@locprecision.com

PHONE: 920.892.0557

1979/RAM 1.9/12-24-21

Documents / Resources



[LOC PRECISION R.A.M. 1.9 Build](#) [pdf] Instructions

R.A.M. 1.9 Build, R.A.M. 1.9, Build

[Manuals+](#).