The Mako

Para-Cord Cutter

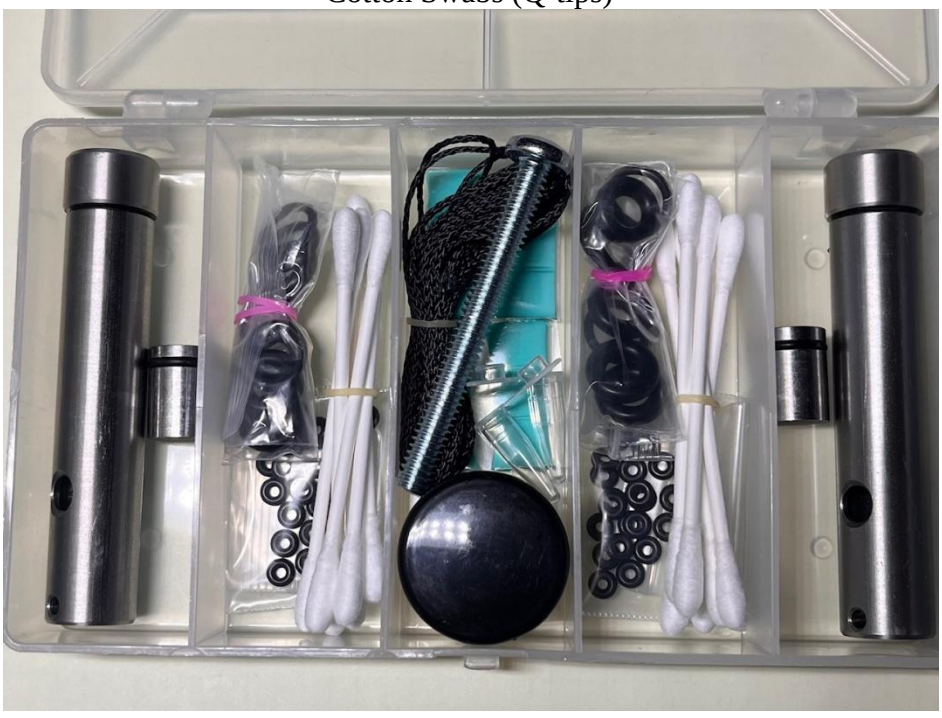
"The most Powerful Cord Cutter EVER Offered to the Rocketry Community"

Features:

Precision Machined all Stainless Steel Construction
Sealed Cutter is VERY Powerful, Exhaustless and QUIET!
Works in Extreme Cold and in the Vacuum of Space!
Compact size- 5/8"x 3-1/4"
Lightweight at about 2-3/4 oz
Custom Dual E-Match Stainless Steel Cap
Uses a Specially Designed Cord Cutting Piston as the Powder Measure!

Parts List:

Stainless Steel Housing
Stainless Steel Cutter/Powder Measure
Custom Stainless Steel Dual E-match Cap
Replacement O-rings
1/4"-20 screw for disassembly
Assembly Lube (Works better than anything I have found)
5 feet of Kevlar Lanyard Cord
Sealing O-rings and Putty
Powder Measure Vials
Cotton Swabs (Q-tips)



Dual Mako Kit

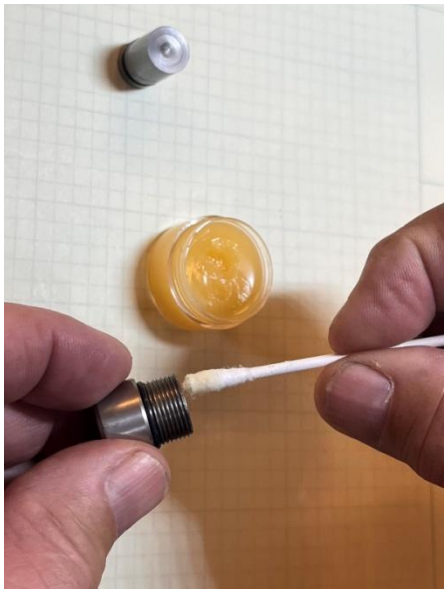
10-30-25 User Instructions

Note: These instructions are written for "rocketry folks" and it is assumed that all directions will be closely followed. If you are not a "rocket" guy or gal or you do not feel that you can follow these directions exactly, **please do not use this device!**

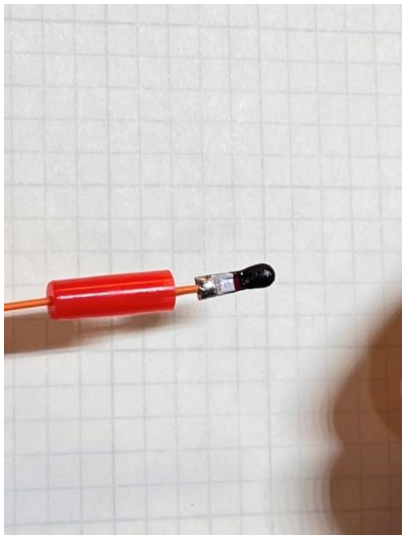
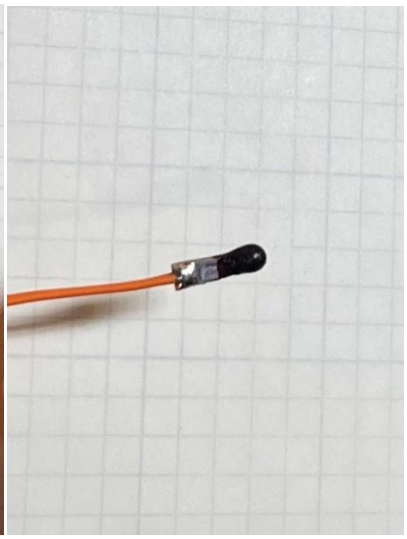
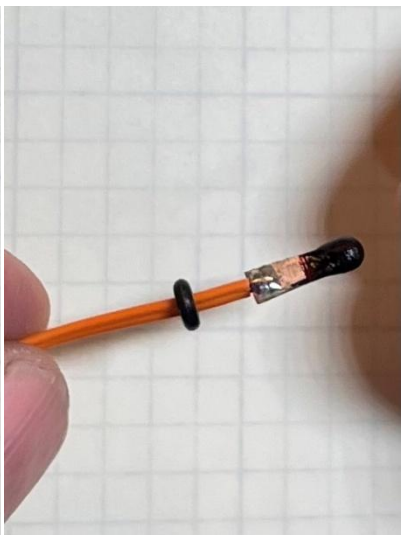
Instructions for use

Step 1 - Prepare the Dual E-match/Cap

Using the supplied lube, thoroughly lube the two e-match cavities of the Custom Cap
(**Hint:** Don't be stingy with the lube and don't substitute other lubes!)




Remove the protective plastic cover from an e-match
Slide one of the small black o-rings over the wire up to about 1/4" of the e-match head.
Do this again with the other e-match (You will be using two)
Set these prepped e-matches aside.

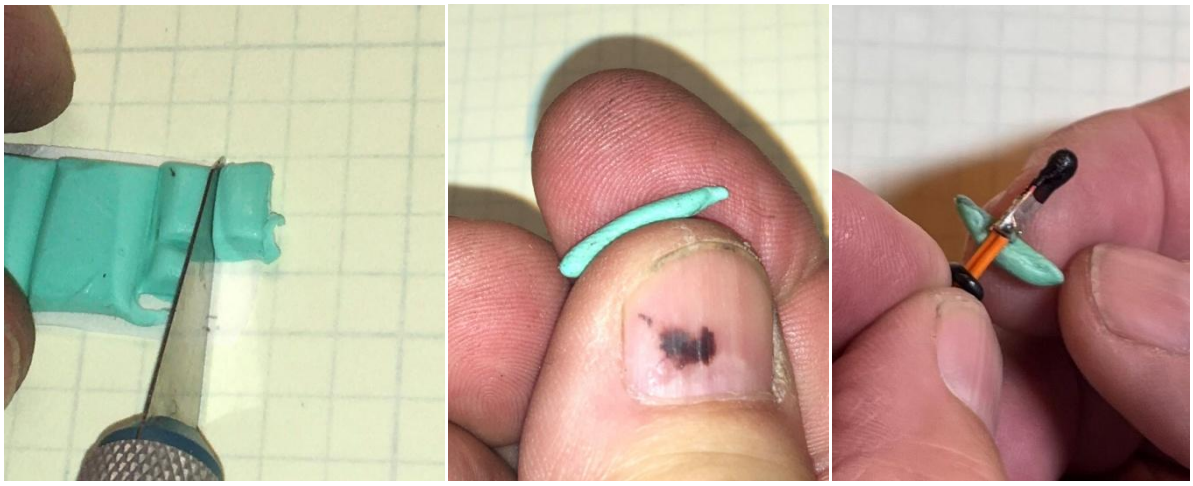




Step 2 - Sealing the E-Match

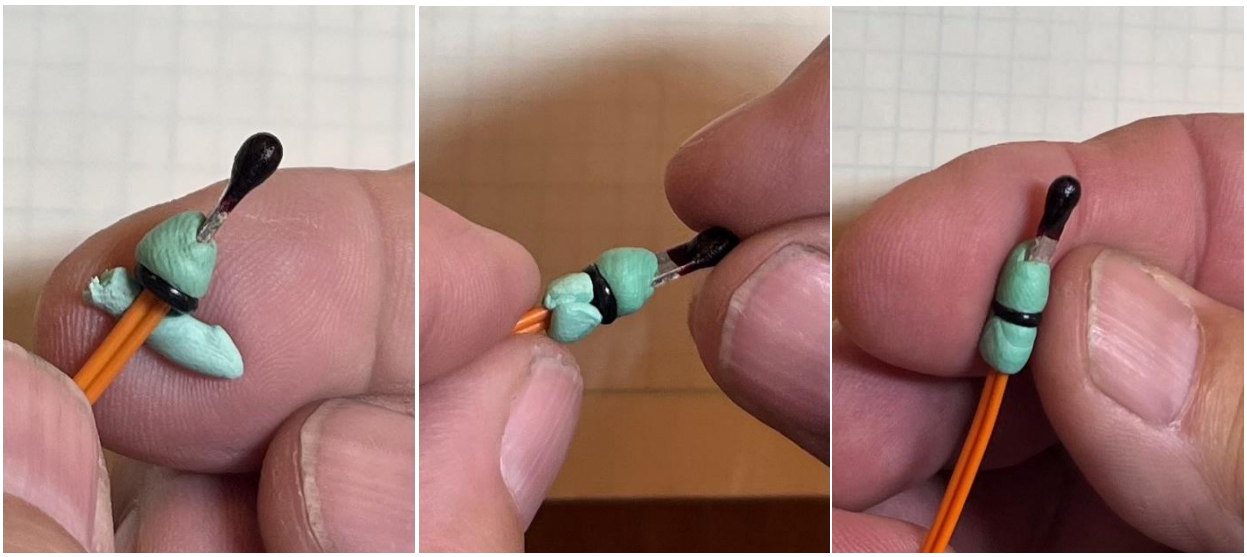
Sealing the gasses in every Tinder Rocketry device **is very important**. Traditionally e-matches have been "potted" or sealed using epoxy. The epoxy method of sealing the e-matches mostly worked. However, a significantly better method has been developed and thoroughly tested that seals more reliably, it's much faster to use and cleanup is a breeze! So, now, **using epoxy to seal e-matches is specifically NOT recommended in any Tinder Rocketry device!!**

Sealing the E-Match using Poster Putty/Mounting Putty

Using a hobby knife cut one of the putty "squares" into 1/4 sections
Remove one of those quarter sections and roll it in your fingers.
Fold the putty around the wire above the o-ring

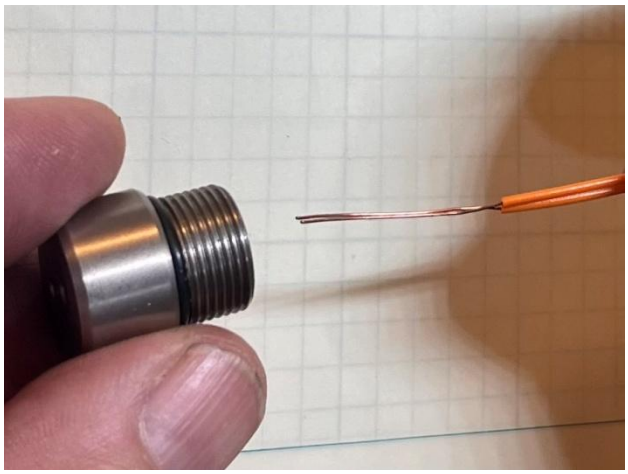
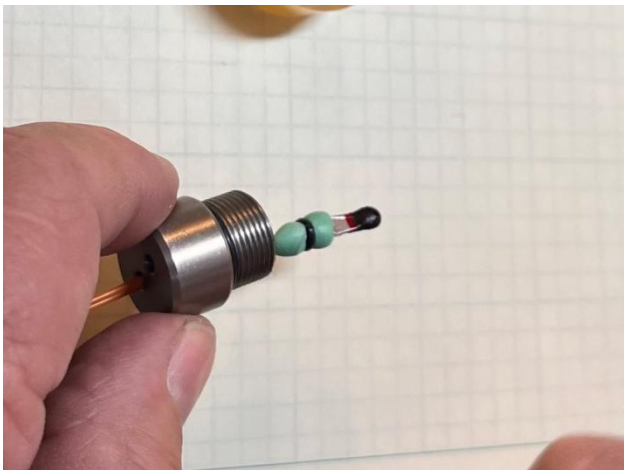
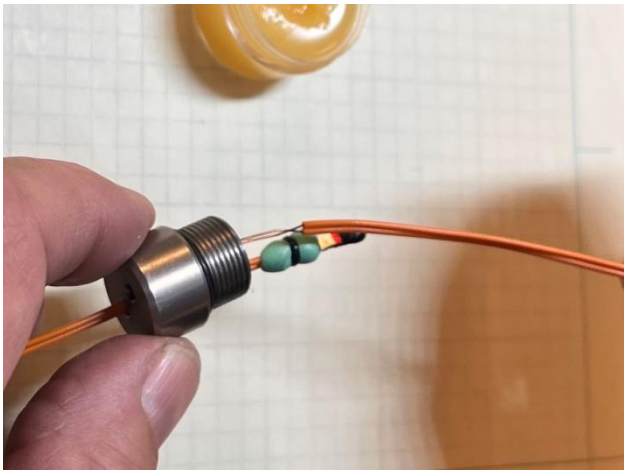


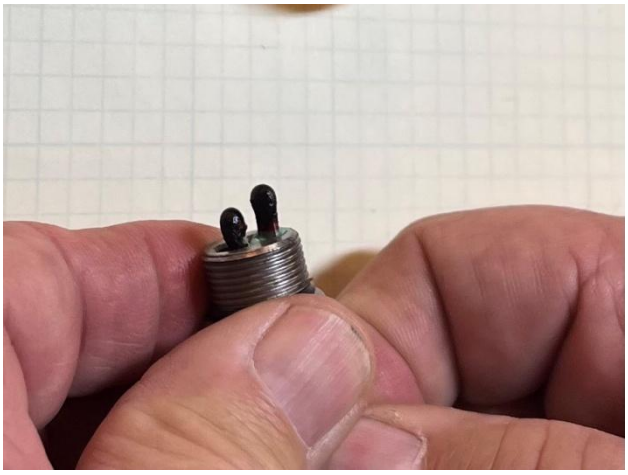
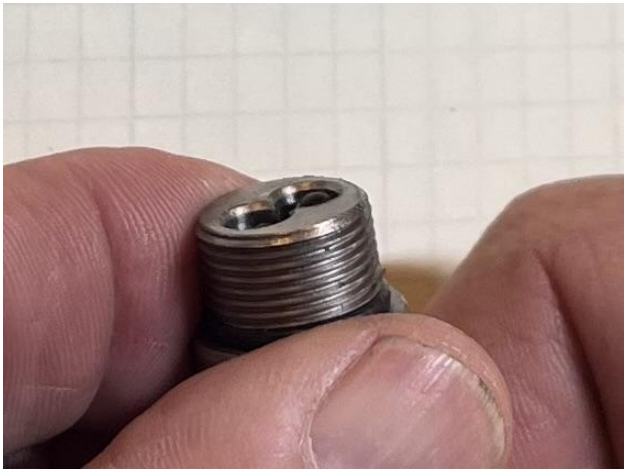
"Roll" the putty covered wire/o-ring in your fingers, then slide the o-ring up closer to the e-match head.
Cut another one of those 1/4 sections, roll it in your fingers and apply it to the bottom side of the o-ring



Roll the whole thing in your fingers so that you have putty completely encircling the wire on both sides of the o-ring. The idea here is to help the putty thoroughly stick to the e-match wires.

Insert the putty prepared e-matches into the lubed Charge Cup
Gently pull on each of the e-match wires individually, until the e-match heads are just below flush with the mouth of the cap
Note: You may have to tug on and wiggle the wires while tugging to get them properly seated, this is ok. You may also see the putty ooze through the wire hole along with the wire, this too is ok.

Step 2 - Prepare the Body
With the lube provided, lightly lube the threads and the entire inside of your Mako cutter
Set the Mako Body aside



Before we talk about loading this device, let's talk about pyro powder...

VERY IMPORTANT Note:
Do not ever use smokeless powder in this cutter! (Or any Tinder Rocketry device) **Use black powder or black powder substitutes such as Triple Seven or Pyrodex P ONLY!** The powder from a "disassembled bullet" is NOT black powder! The powder from a "disassembled fire cracker" is NOT black powder! (I tell you this because a few customers have used these with bad results!)

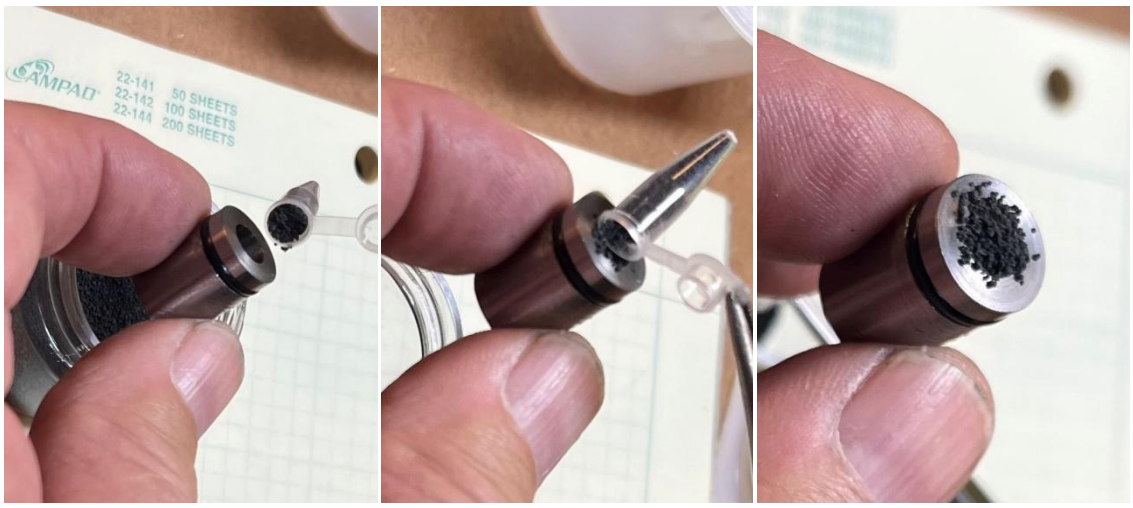
Plain talk about Pyro Powder

Black Powder (BP) or BP substitutes in the 3F (FFFg) or "pistol" granulation (Also 4F) are to be used in the Mako Cutter.
As BP becomes more difficult to find, be assured that BP substitutes such as Triple Seven (Made for BP pistols) or Pyrodex P (Made for BP pistols), work very well in the Mako cutter. Please note that since the amount of pyro powder is determined by the precisely machined cavity in the cutter/piston, no weighing of this small amount of pyro is needed. And also note that BP or the BP substitutes are all measured by volume, not by weight. (They do have different weights for a given volume)
Under no circumstance should you ever use smokeless powder in this cutter!
Do not use smokeless powder in any Tinder Rocketry device for that matter!
Use black powder or black powder substitutes such as Triple Seven or Pyrodex P ONLY!
The powder from a "disassembled bullet" is NOT black powder!
The powder from a "disassembled fire cracker" is NOT black powder.
Much to my surprise, I have found that a few people have used these other pyro powders with bad results. **Please do not use any pyro powder other than BP or the BP substitutes listed above!**

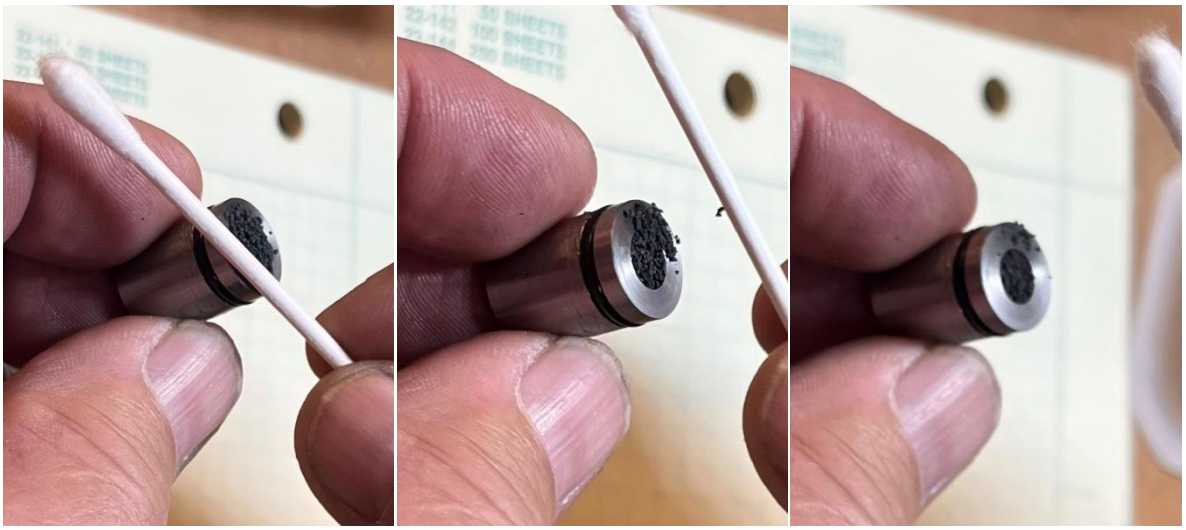
Step 3 - The Cutter/Piston/Powder Measure

Inspect the Cutter/Piston o-ring for damage
This kit comes with extra o-rings for the cutter/piston. Only replace this o-ring if the installed o-ring becomes severely damaged
Use hemostats to remove damaged o-ring and replace with new.

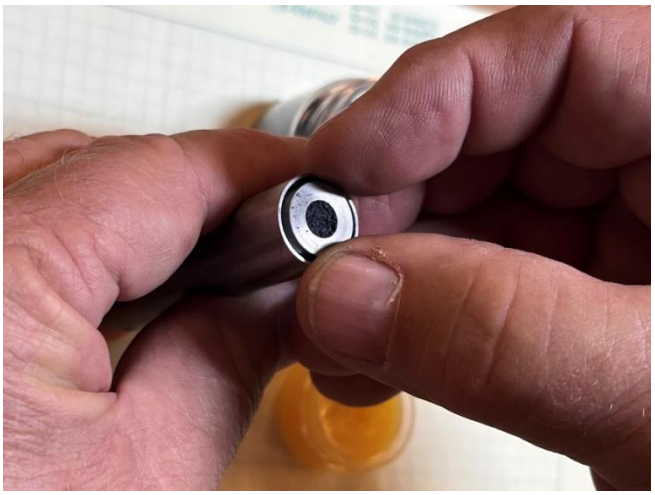
Notice that the Cutter/Piston has a larger cavity machined into one end.
Completely fill this cavity with 3F or 4F black powder or BP substitute in the 3F "pistol" granulation.
Lightly tap the Cutter/Piston to settle the pyro powder, then carefully remove the excess powder.



"Tamp" the powder down a bit then remove the excess.



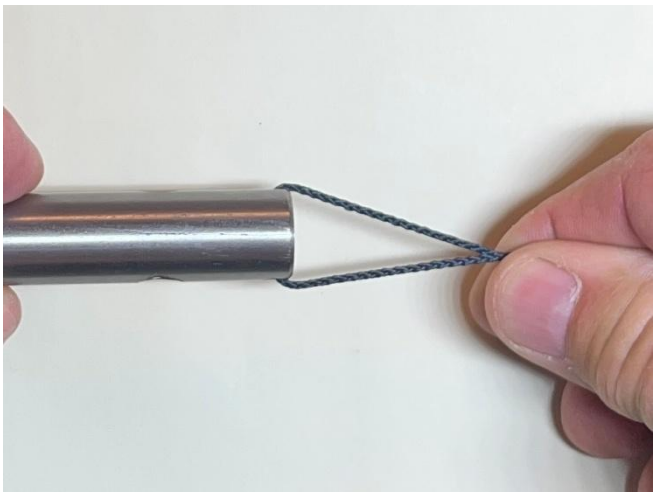
Drop the powder filled cutter into the Cutter body and carefully press into the cutter body mouth about 3/8". Try to avoid getting any powder in the threads! If you do, final assembly will be more difficult. Do not add extra powder.




While holding the Mako Body so that the pyro powder does not get into the threads, screw the prepared Cap into the body. Make the cap snug but NOT tight!
The o-ring on the cap does a nice job of sealing the device so please do not over tighten the Cap!


The Cutter Piston is held in place by the sealing o-ring and will not move until the device is activated

Note that the Mako Body has a small hole just below the larger cutting port.
This is for securing some sort of lanyard.
Thread a length of the supplied Kevlar lanyard cord through the body and secure as you see fit.

The cutter is now ready to use or can be stored as the e-matches and pyro powder are sealed

So what can you, should you cut with the Mako Cutter?

The Mako Cutter was designed to cut as much Nylon cord as you can stuff through the 1/4" cutting ports! It will cut the larger Nylon zip-ties and it will even cut copper wire up to and including 12ga! While the Mako cutter has been tested with and will easily cut Kevlar, it is NOT recommended for you to feed your Mako a diet of Kevlar as it will dull and even damage the cutter VERY quickly! STEEL CABLE of any sort is Never RECOMMENDED as it will destroy the cutter!

Let's talk about initiators as they relate to your Mako Cutter

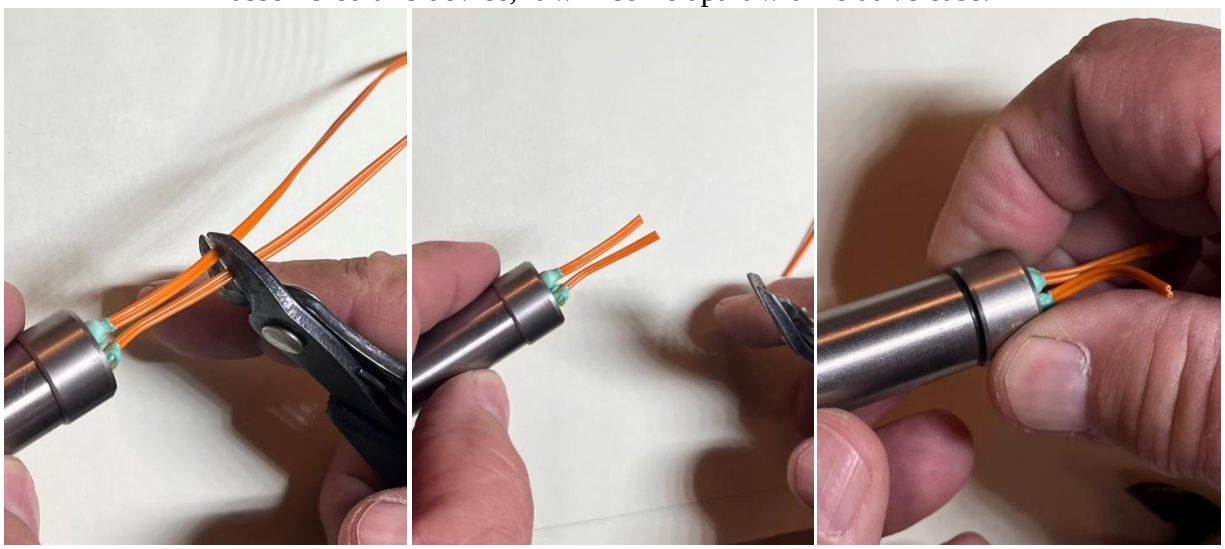
The Mako Cutter was designed to work with the genuine J-Tek e-matches, the non-regulated FireWire as well as the Chinese knock-off e-matches. And, for those of you that make your own e-matches, they will work as well. All this said, ALWAYS use two e-matches for redundancy! If either e-match fires the device will work!

After use Disassembly & Cleaning

Step 1 - Disassemble Cutter

Clip e-match wires about an inch from the Cap

Remove the Cap by unscrewing. There will be resistance, but if you did not over-tighten when you assembled this device, it will come apart with relative ease.



NEW in November of 2025...

After doing more testing with this awesome cutter, I could not help but notice that sometimes this thing was VERY difficult to get the cutting piston out by pushing it with the supplied Allen wrench.
I decided to experiment... I drilled and tapped the bottom of the Mako Cutter that I was testing and used a 1/4"-20 bolt to push the cutter piston out. OH WHAT AN IMPROVEMENT!
Long story made short, I took all the Mako Cutter bodies that I had in stock and drilled and tapped them for 1/4-20 bolt removal.

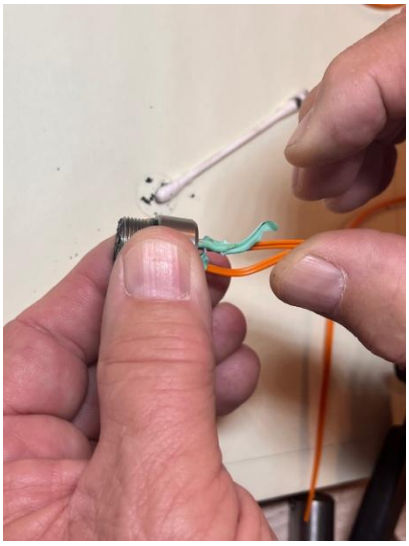
To remove the Cutter/Piston, first run HOT water into the cutter body and add just a bit of liquid soap. This will tend to break up and liquefy the dried pyro powder. The first time that you use the supplied 1/4"-20 bolt to remove the cutter/piston, dip the end of the bolt in the supplied lube then by hand insert it into the cutter body and twist it until you feel significant resistance.

Once you have twisted the 1/4-20 bolt by hand until resistance is felt, you may wish to continue screwing the bolt in by hand...
or, you might decide that using a #2 Phillips screw driver is easier and faster...


...or, You might decide to put a #2 Philips insert in you electric drill and make this really fast and really easy!


Once the 1/4-20 screw is fully inserted into the cutter body, the cutter/piston will be protruding out of the mouth of the cutter enough to grab with your fingers!


Now, back to the Cap...
Remove as much of the Putty on the outside of the Cap as reasonably possible.
Removing the putty will make pushing the spent e-match wires fairly easy.
Push the e-match wire until they stick out just a bit



Then grab the ends of the e-match wires with hemostats or needle nosed pliers and pull them free



Wash all parts with HOT water and dish soap
I find that an old toothbrush works well

(Note: For best results, try not to use your wife's toothbrush!)

Swab the inside of Mako body with cotton swab or rolled up paper towel while still wet
Swab again to dry and remove remaining residue



I like to dry the dual e-match Cap and the Cutter/Piston with a paper towel then finish drying with a cotton swab.
Remember that while replacement o-rings are provided in case of loss, they do not wear out and should be re-used virtually indefinitely!

A word about cleaning: There is no need to over clean this device. Clean with soapy HOT water, scrub with a toothbrush then thoroughly dry before re-lubing and that's it!

NEVER use a solvent of any sort to clean this or any Tinder Rocketry device!

Step 4 - Re-assemble for later use

Make sure all parts are dry before re-assembly

Important: While it is unlikely, it is possible that one of the two HARD o-rings located inside the cutter body may fall out during cleaning, especially if you use compresses air to blow dry the device. (Using compressed air to blow out the device is NOT RECOMMENDED!) If this happens, re-install it using the eraser end of a #2 pencil or dowel to push it home! Replacement o-rings are provided. Do not intentionally remove these o-rings!

VERY IMPORTANT: Should one of these small fat o-rings fall out and you lose it, you MUST use one of the provided replacement HARD o-rings! The o-rings that you find at your local hardware store are too soft and will allow your cutter to become damaged when it is re-used!

The Mako Cutter

Final note:

This device has been specially designed and manufactured to the highest standards to do a job and do it well. I have gone to great effort to explain how to use this most excellent little device! If this device is assembled exactly as described, you can expect it to work 100% of the time, 100% as expected!

Contact me if you see or feel that there have been omissions or if you still have questions.

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