



The **TD-3** Tether and Release Device

"By far the strongest Tether and Release Device EVER offered to the Rocketry Community!"

Features:

Offered in Two Variations:

Both Can stand WELL OVER 6000# initial shock load

Both Can release with over 4500# still attached!

Both Can work and release at extreme altitudes and in a complete vacuum!

Both are Precision Machined Construction

Both are about 14 oz

Both devices are actuated by dual e-matches and use

NO ADDITIONAL Pyro Powder for activation!

Both are Completely Exhaustless!

One is made almost entirely from Heat Treated 17-4 Stainless Steel

The other is a bit larger and is made from a combination of 17-4 SS and Aluminum

Recommended for rockets weighing from 55 lbs to 555 lbs or more!

Parts List:

Cap with Large Eyenut installed

Pyro Housing

Hardened SS Ring Pin

Dual Charge Cup

Push Piston/Seal

Hardened Ball Retainer

Hardened Ball Bearings (With extras)

Return Spring

Replacement Charge Cup O-rings

004 Sealing O-rings & Putty Sealant

Cotton Swabs & TR Assembly Lube



SS **TD-3 Tether and Release Device Kit**

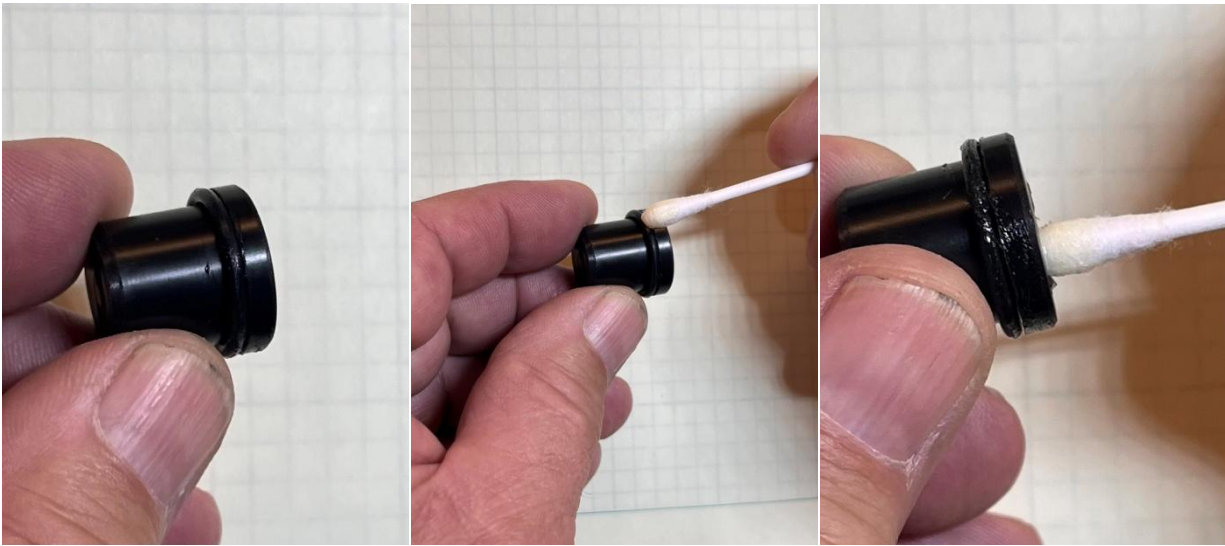
10-28-25 User Instructions

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!**

Step 1 - Prepare the Charge Cup, Push Piston & Ball Retainer

First, verify the o-ring is installed on the charge cup.

Using the supplied lube, thoroughly lube the Dual Charge Cup around the o-ring and inside the e-match cavities and set aside. (**Hint:** Don't be stingy with the lube and do not substitute other lubes!)

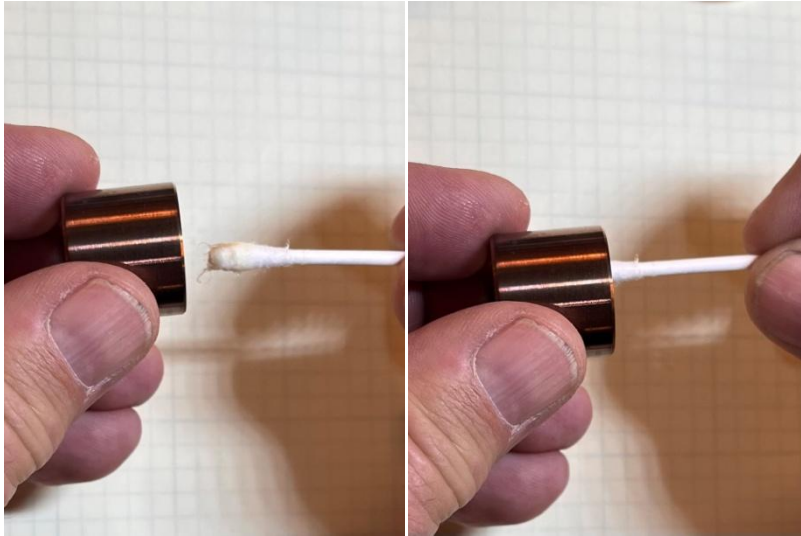


Next, verify the o-ring is installed on the **Push Piston**.

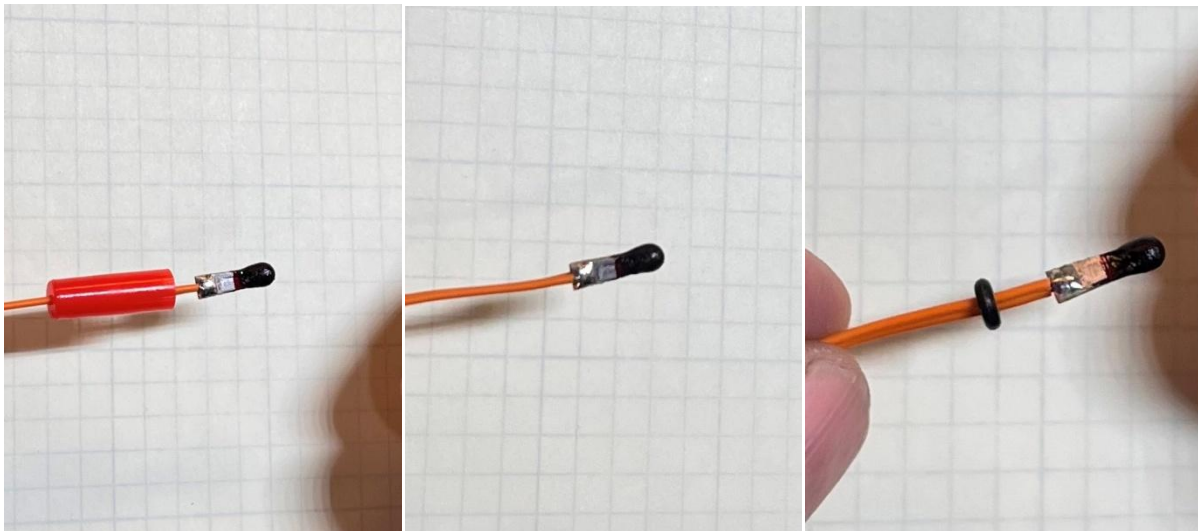
Using the supplied lube, thoroughly lube the Push Piston around the o-ring and on the bottom surface and set aside.



Lightly lube the inside of the Ball Retainer and set aside.



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.



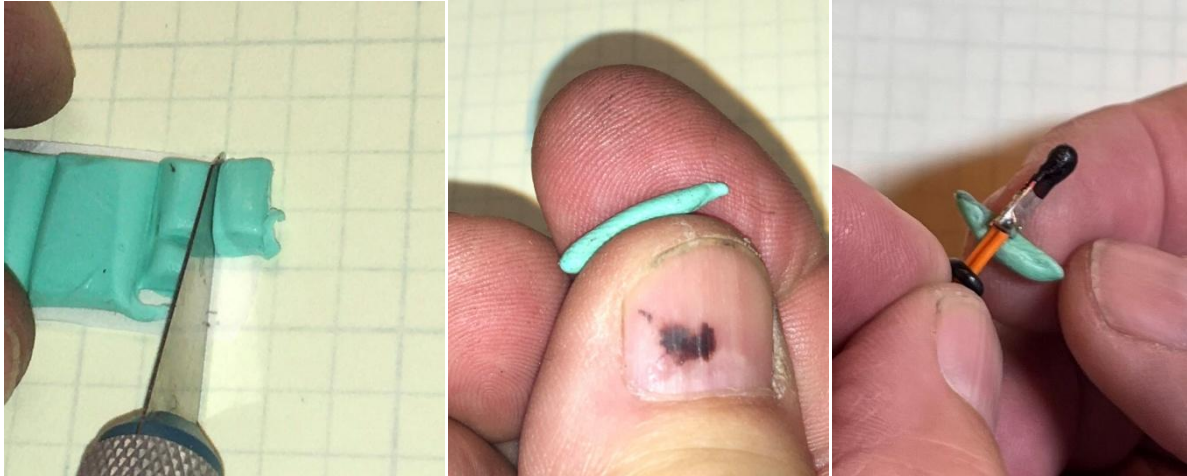
Step 2 - Sealing the E-Match

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!!**

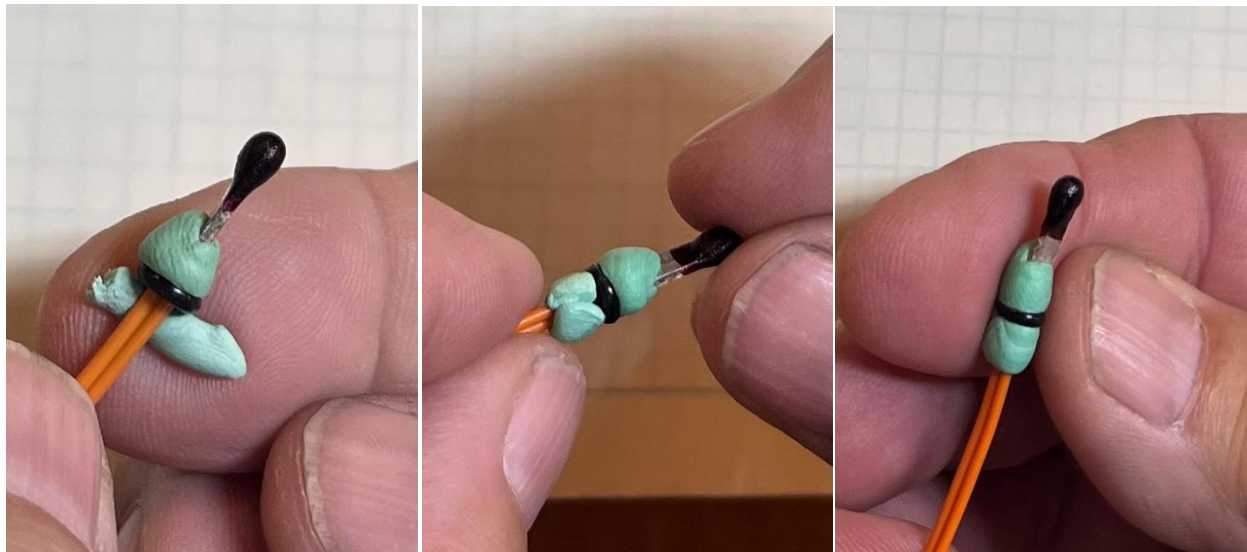
Sealing the E-Match using Poster Putty/Mounting Putty

AKA: Putty Sealing Method

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



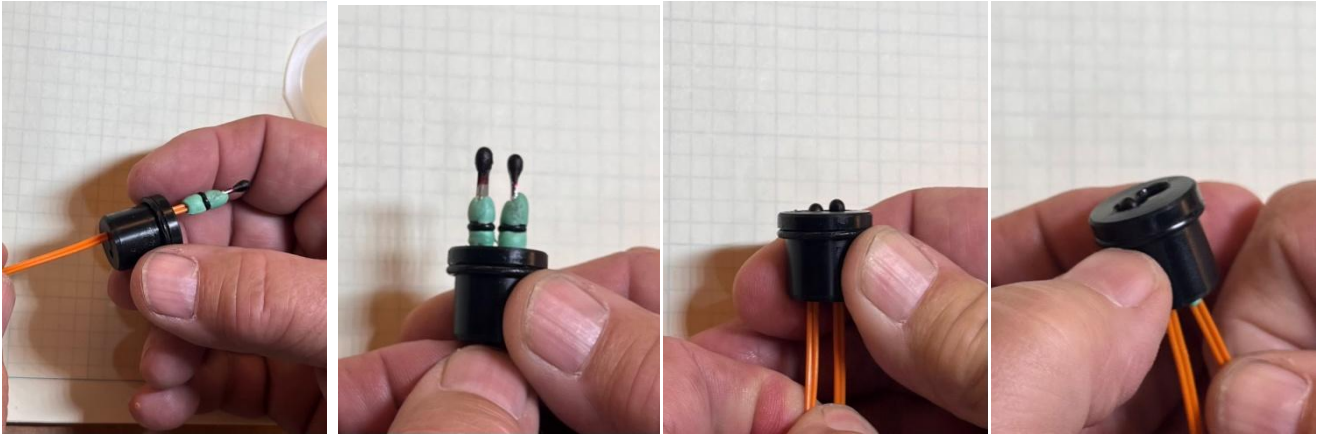
"Roll" the putty covered wire/o-ring in your fingers, then slide the o-ring up closer to the e-match head.
Cut another one of those 1/4 sections, roll it in your fingers and apply it to the bottom side of the o-ring



Roll the whole thing in your fingers so that you have putty completely encircling the wire on both sides
of the o-ring.

Insert the putty prepared e-matches into the lubed Charge Cup

Gently pull the e-match wire until the e-match head is about flush with the mouth of the cap
Note: You may have to tug on and wiggle the wire while tugging to get it seated properly, this is ok.
You may also very likely see the putty ooze through the wire hole along with the wire, this too is ok.



The Putty Method of sealing the e-match has been tested at room temp, at about 0 F and over 140 F and it has been found to seal very well every time!

Because of the excellent sealing, easy setup, fast disassembly and cleaning, the Putty Sealing Method is the ONLY method of sealing/potting the e-match that is recommended by Tinder Rocketry for sealing e-matches in ALL Tinder Rocketry devices!

This poster/mounting putty can be found on Amazon or at your local hardware store.

Note: I have tried various different poster putties, they all have worked, but I seem to like the putty made by "Holotap" the best. It seems "stickier" than the others I have tried.
(A small amount is now included in all Tinder Rocketry kits!)

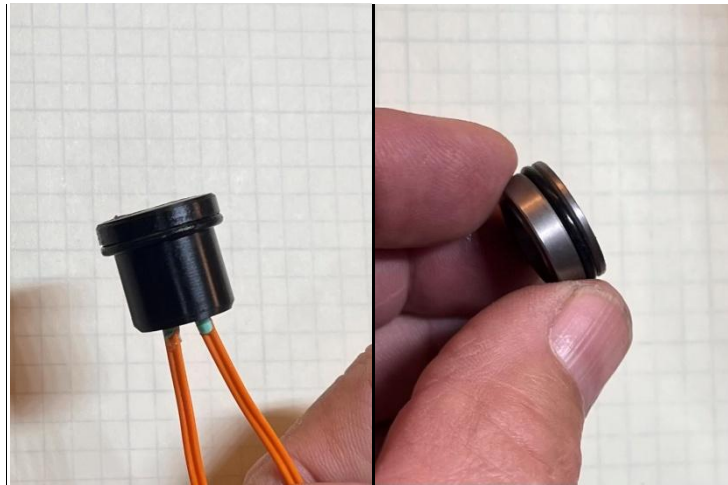
VERY IMPORTANT Note:

Do not use ANY additional pyro powder in this device!

The pyrogen that is on the e-matches is all of the pyrogen that is needed to activate this device!!

Step 3 - Prepare the Ball Retainer Assembly

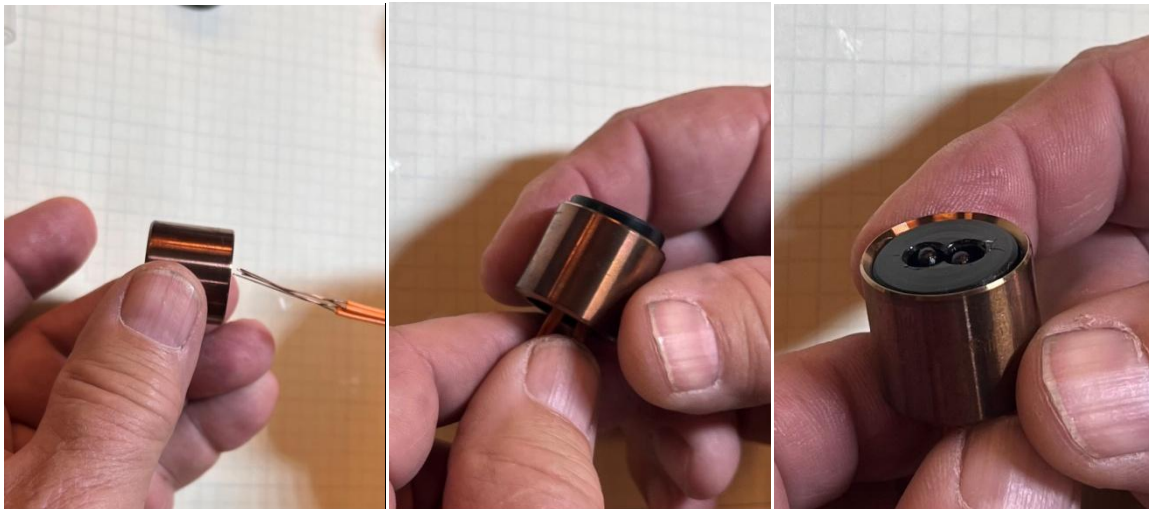
Once again, **verify that there is an o-ring on both the Charge Cup and the Push Piston and that they are lubed!**



Insert the wires from the prepared Charge Cup assembly through the large opening of the Ball Retainer.

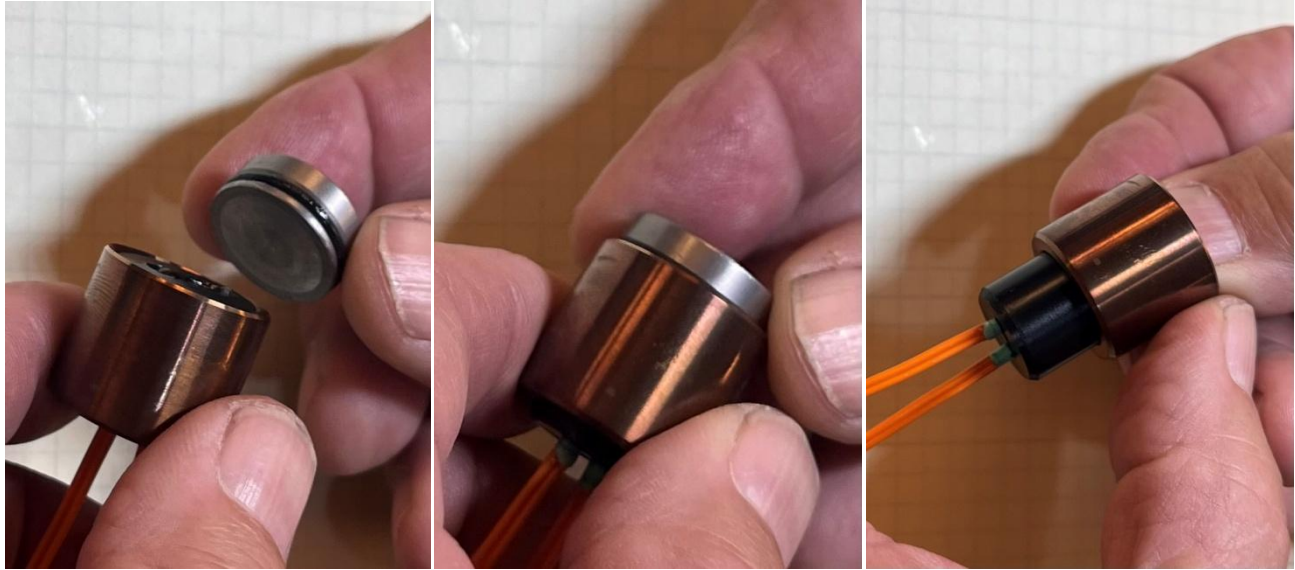
With your thumb, press the Charge Cup into the Ball Retainer just enough so that the bottom of the Charge Cup is even with the bottom of the Ball Retainer.

At this point, **DO NOT COMPLETELY SEAT THE CHARGE CUP!**



Place the **flat side of the Push piston flat against the Charge Cup** and press both until **completely seated** in the Ball Retainer.

Important: The Charge Cup and the Push Piston **MUST** slide together so that there is not an air space between them when they are being seated.



Find the Ball Retainer Spring and slide it onto the e-match wires.

While using your thumb to hold the Push Piston from moving, wriggle the spring onto the base of the Charge cup. There might be some resistance.
Set aside the entire Ball Retainer Assembly.



Step 4 - Assemble the device

Lightly lube the inside of the Housing
Lightly lube the end with the smaller hole as well
Insert the Ring Pin all the way into the housing.
Momentarily set this aside.



Count EXACTLY 9 Ball Bearings. Your kit comes with 2 extras.

Easy way to do this is set aside two of the bearings that are in the container,
THEN hold the bearing container sideways in your hand and count them.

Once you have verified that there are 9 bearings and only 9 bearings,
hold the Housing that has the Ring/Pin still inserted so that the housing faces up while not allowing the
Ring/Pin to fall out.

Carefully dump the bearings into the Housing. Lightly tap the Housing to seat the bearings.

You will note that there appears to be room for more bearings,

DO NOT ADD ANY MORE THAN THE 9 BEARINGS!

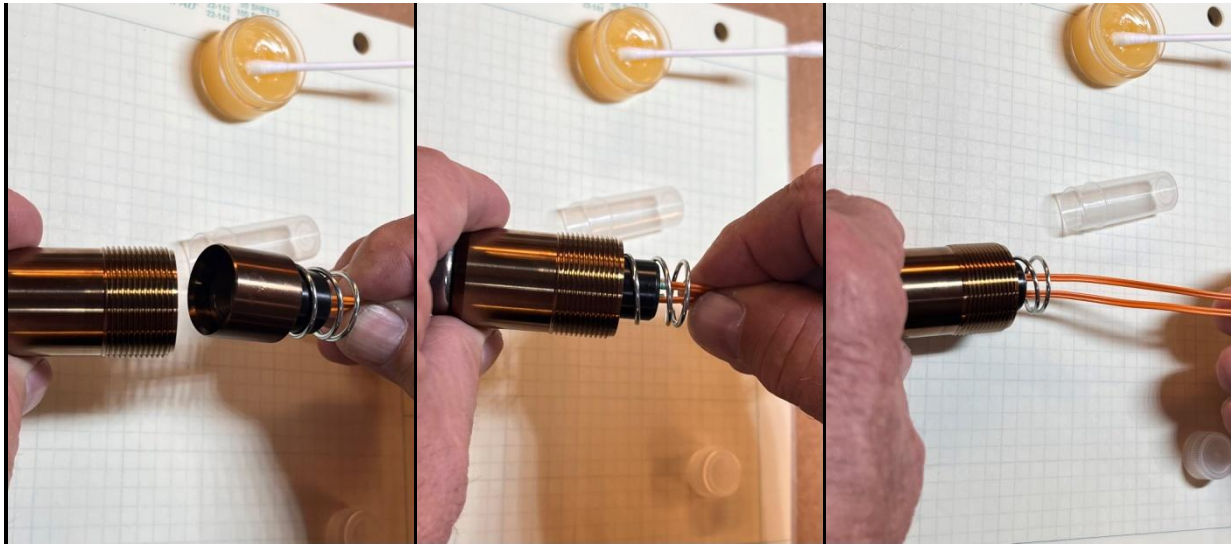


Re-acquire the assembled Ball Retainer Assembly.

Hold the e-match wire up close to the spring and slide the assembly into the Housing.

Hold the Housing so that the bearings and Ring/Pin cannot fall out.

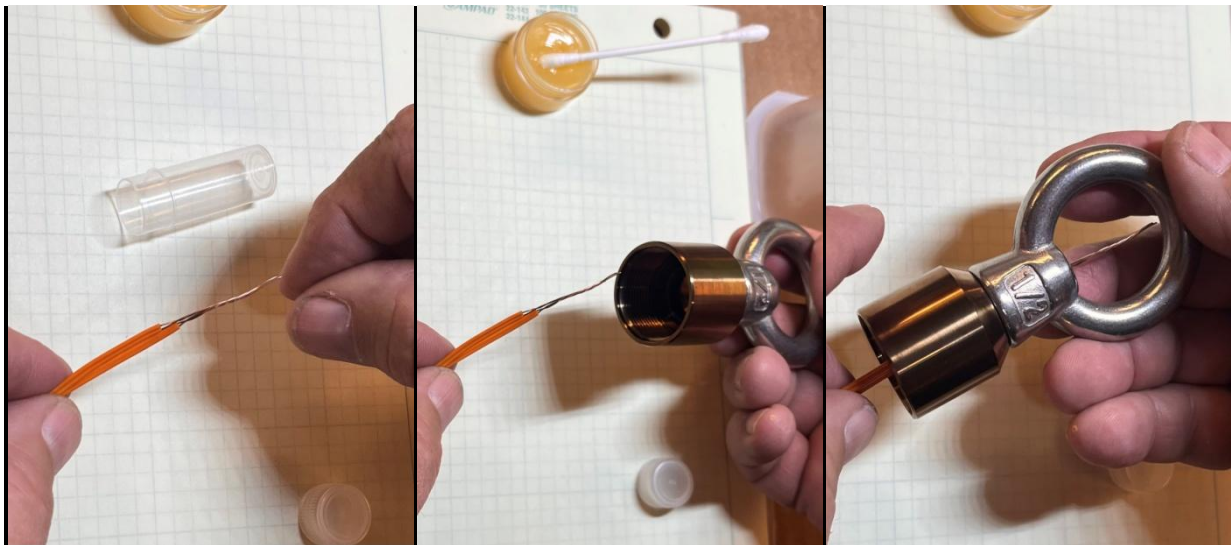
Once the Ball retainer assembly is fully inserted into the Housing, carefully set it on its side.



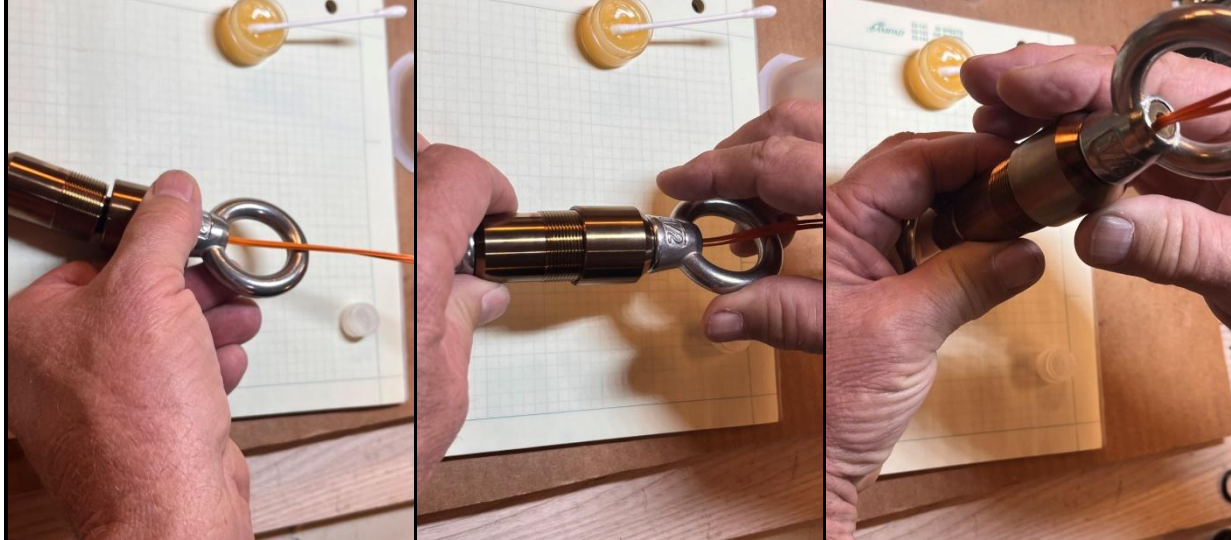
If you have not already done so, twist all 4 e-match wires together.

Insert twisted e-match wires into the hole that goes through the Cap and eye-nut.

Remember: The Housing that contains the bearing and the Ring/Pin is still sitting on its side.



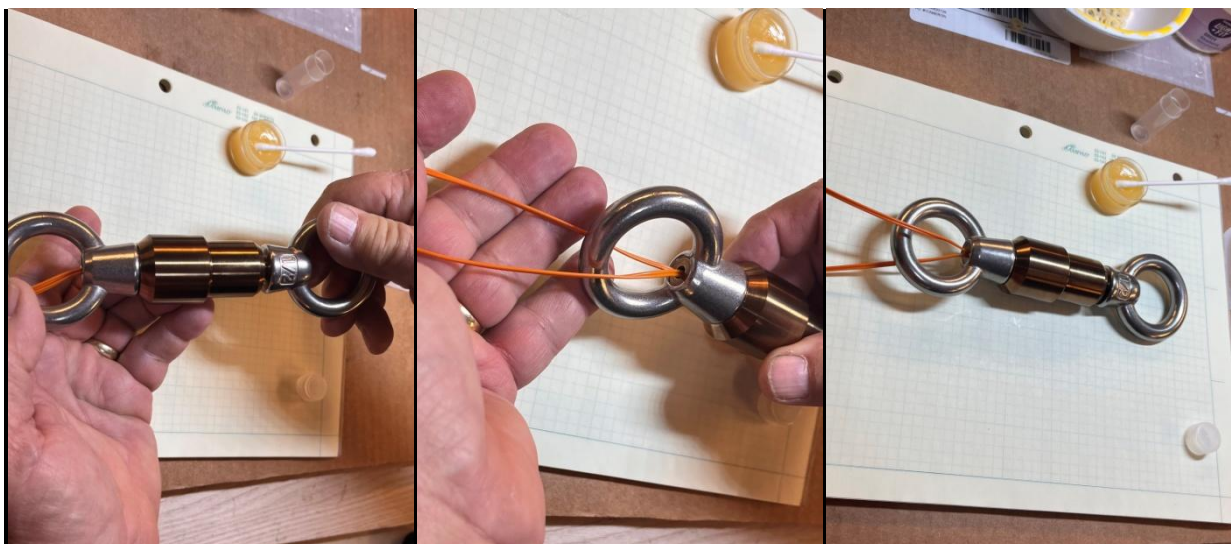
Gently pull on the e-match wires until the Mounting Cap is close to the Housing.
Carefully pick up the Housing while being certain that the Ring/Pin does not fall out of the Housing.
Begin to screw the Mounting Cap onto the Housing.
Once you get this started, you might find it easier to position the device resting on the Ring/Pin and twisting only the Mounting Cap.
Be sure to allow the eye-nut to turn around the wires. Do not allow the wires to be twisted when the Cap is installed!



Hold the device in both hands.
Gently pull on the Ring/Pin.
You will hear and feel the device "click" if it is not already seated. The Ring/Pin is now locked in place it will freely swivel but it cannot be removed without firing or disassembling the device.

Your TD-3 is ready for use!

You may choose to test it now or fly it a month from now, it does not matter as the e-matches are sealed from the outside air.



A word about e-matches...

I have THOROUGHLY tested this device to be certain it will function using a SINGLE standard e-match as well as the much less powerful and non-regulated "Firewire" initiator, **knowing that you the user of this device, will NEVER fly this thing using any less than two e-matches.** If you have read the instructions up to this point, (You are rocket guys and gals, so I know you have) you know that this device uses ONLY the pyrogen that is on the e-matches for activation and nothing more. The pyrogen that is contained on a single e-match is all of the pyrogen that is needed to reliably activate this device!

This said, the pyrogen on the second e-match adds an additional margin of pressure and a bit of redundancy. Because of the Charge Cup design, if either e-match goes off, the other will go off as well.

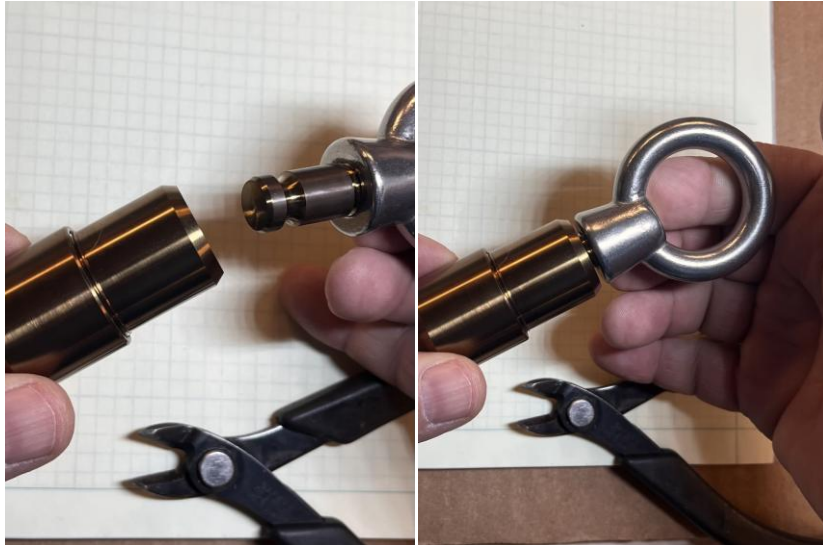
After use Disassembly & Cleaning

Disassembly of this device is largely the reverse of the assembly, however, the first time you disassemble the device, you are strongly encouraged to follow these steps...

Disassemble the device

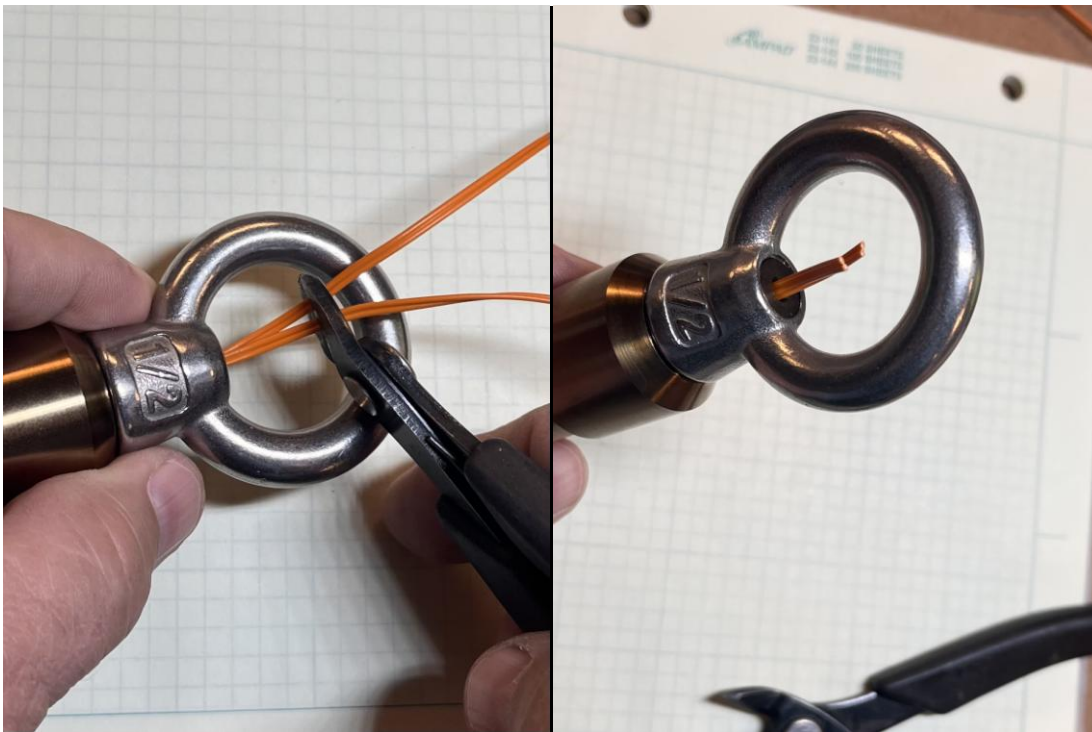
IMPORTANT: Before you attempt to disassemble this device, retrieve the Ring/Pin and re-insert it into the device!

If you fail to do this, the odds of you DUMPING the bearings ground is very high!
Do yourself a favor and re-insert the Ring/Pin!



Clip the spent e-match wires in the middle of the eye-nut.

Hold the device so that the Ring/Pin is down and ideally resting against a solid surface, so the Ring/Pin can NOT fall out.



Unscrew and remove the Cap.

Grab the clipped wires and remove the Ball Retainer Assembly from the housing.

Locate a small container for safely dumping the Ball Bearings.

(If you have young children or grandchildren, you are probably familiar with "Snack-Pack" pudding.

Empty Snack-Pack pudding containers are handy for this)

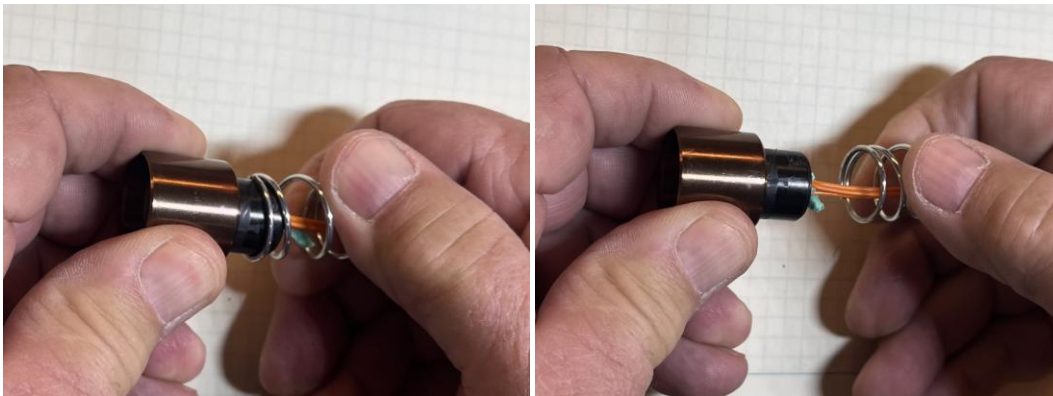
Dump the bearing into the container and set aside.

Verify that all the bearings were indeed dumped into the container

Remove the Ring/Pin and set aside



Remove the spring from the Charge Cup



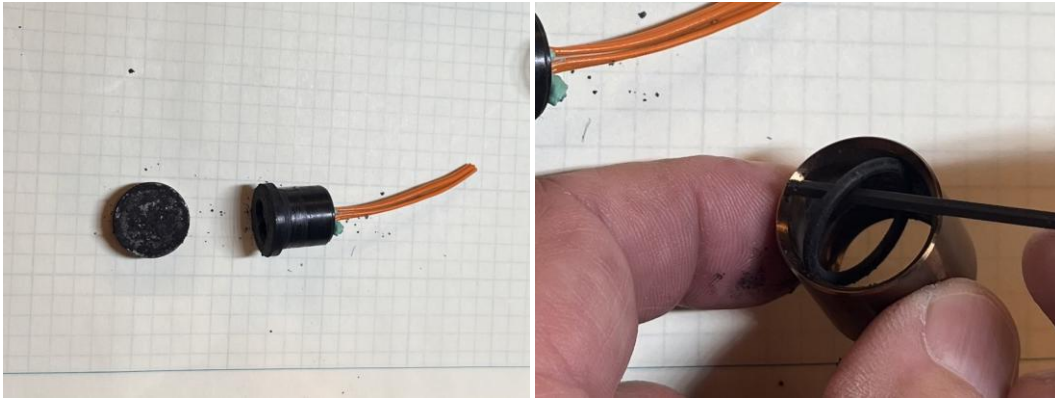
You may need to place the Charge Cup on a solid surface and press with your thumbs to get movement
Grab the Ball Retainer with one hand and push on the Charge Cup with the other.



The Push Piston will be the first out, set it aside.
Keep pushing until the Charge Cup is free from the Ball Retainer.



Almost always the Charge Cup o-ring will stay inside the Ball Retainer, remove it now.



Remove as much of the putty on the bottom of the Charge Cup as reasonably possible



Hold the Charge Cup in one hand while pushing on the wire with the other



Once the spent e-matches protrude a little, grab them with hemostats or needle nosed pliers and remove them



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!



Thoroughly dry these parts with a paper towel



I like to finish drying the Charge Cup and the Push Piston with a cotton swab

Be sure to wash and dry the Charge Cup o-ring as well.

This is a really good time to lube and re-install the o-ring on the Charge Cup!

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 and scrub with a toothbrush and that's it!

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

Your TD-3 can either be put back into the kit box or re-loaded now, for the next time!

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 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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