TD-2

Tether and Release Device

"The tether & release device that makes all other tether & release devices OBSOLETE!"

Features:

Can stand over 2000# initial shock load
Can release with over 1500# still attached!
Can work at extreme altitudes!
Precision Machined Construction!
Compact size: 3.75" OAL x 1.06 max width
About 100 grams
Completely Exhaustless!

Parts List:

Housings & Cap with threaded pin
SS Ring Pin
Dual Charge Cup (With o-rings & Putty Sealant)
Push Piston/Seal
Ball Retainer
Ball Bearings (With extras)
Return Spring
Replacement O-rings
Small Screwdriver, Cotton Swabs & TR Assembly Lube

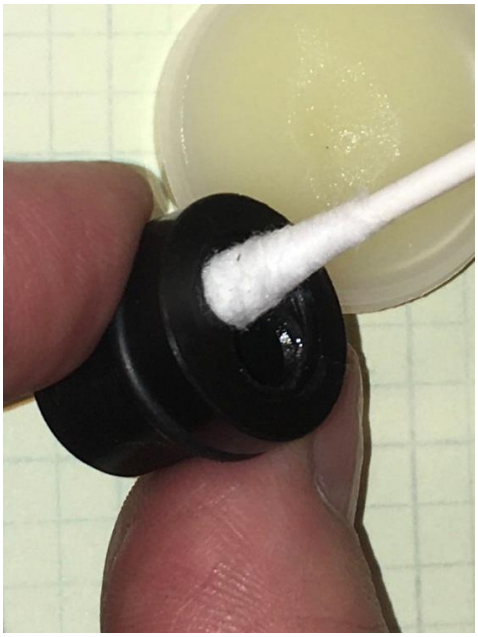
TD-2 Tether and Release Device Kit

10-24-25 Updated User Instructions

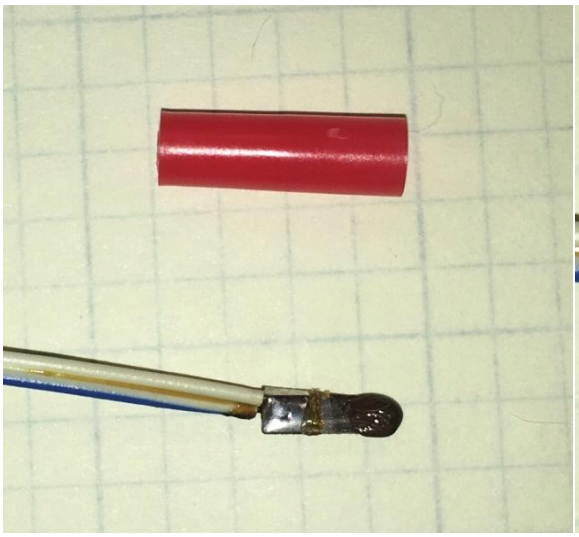
Note: These instructions are written for "rocketry folks" and it is assumed that all directions will be closely followed. If you are not a "rocket" guy or gal or you do not feel that you can follow these directions exactly, **please do not use this device!**

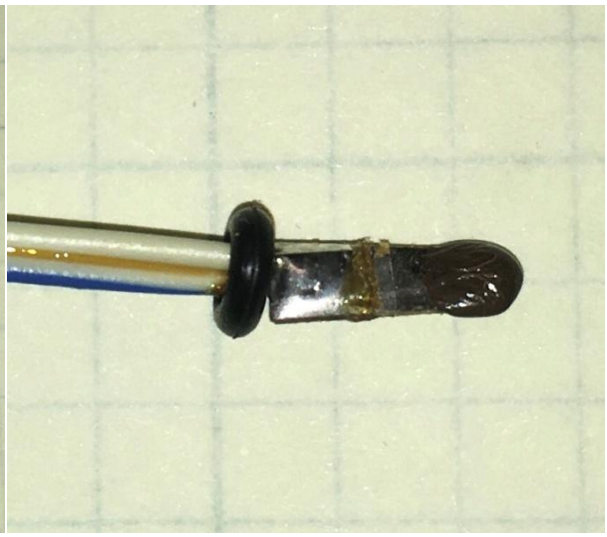
Step 1 - Prepare the E-match& Charge Cup

Using the supplied lube, thoroughly lube the Dual Charge Cup.
(**Hint:** Don't be stingy with the lube and do not substitute other lubes!)



Remove the protective plastic cover from the e-match
Slide one of the small black o-rings over the wire and up to the e-match head



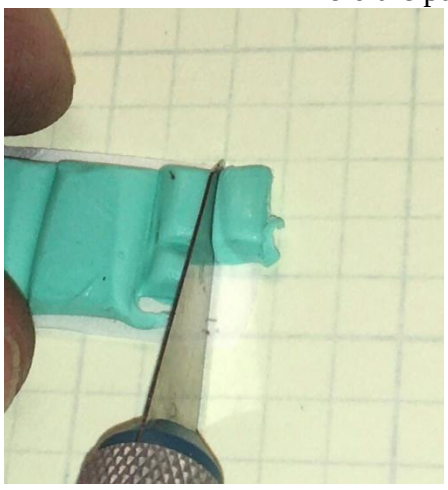


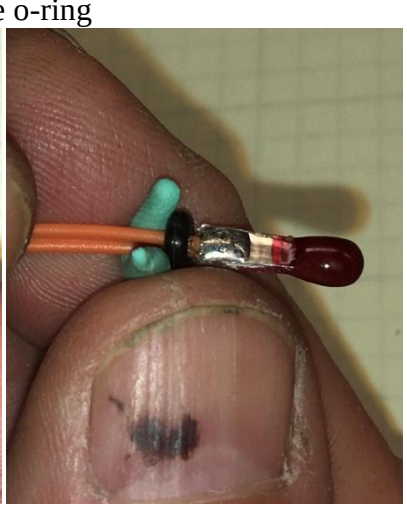
Step 2 - Sealing the E-Match

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, is much faster and cleanup is a breeze, so now using epoxy to seal e-matches is specifically NOT recommended in any Tinder Rocketry device!!

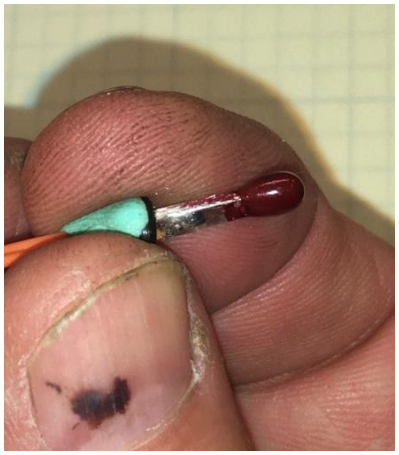
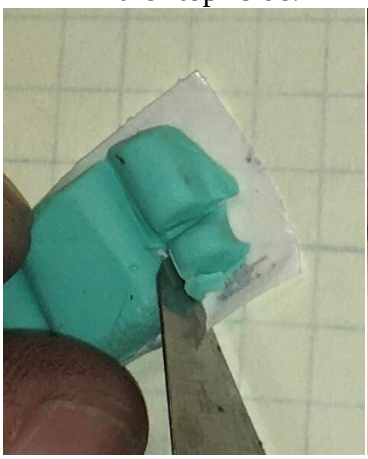
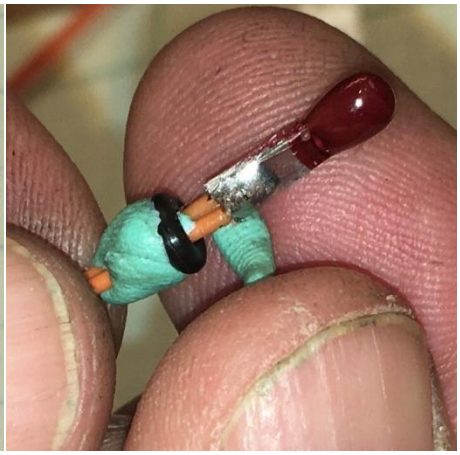
Sealing the E-Match using Poster Putty/Mounting Putty
AKA: Putty Sealing Method

Prepare the e-matches with o-rings and lube the Charge Cup as outlined in **Step 1 on page two.**
With a hobby knife cut one of the "squares" into quarter sections
Remove one of those quarter sections and roll it in your fingers
Fold the putty around the wire below the o-ring





"Roll" the putty covered wire/o-ring in your fingers
Cut one of those quarter sections in half, roll in your fingers and apply it to the top side of the o-ring
Note: To achieve the best seal, first slide the o-ring "down" about 1/8" or so before adding the putty to the "top" side.

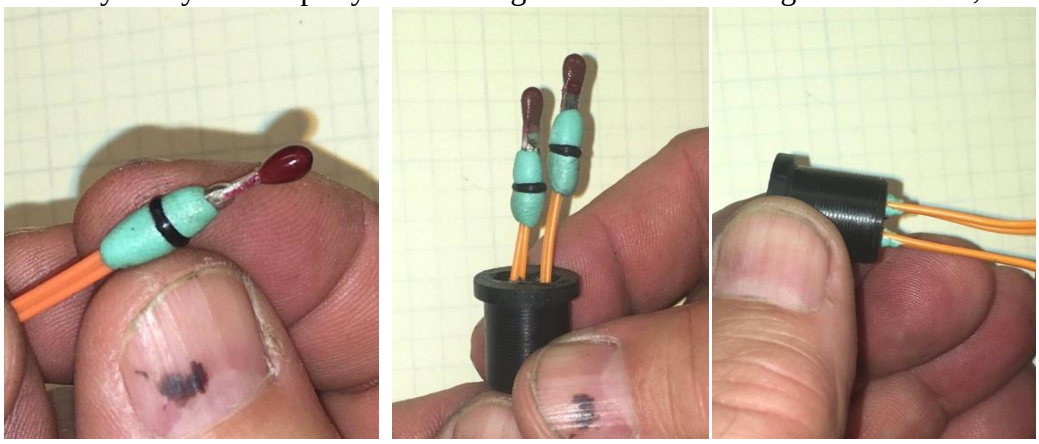
Roll the whole thing in your fingers so that you have putty completely encircling the wire on both sides of the o-ring.

Insert the putty prepared e-matches into the 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 in this device!

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.

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:

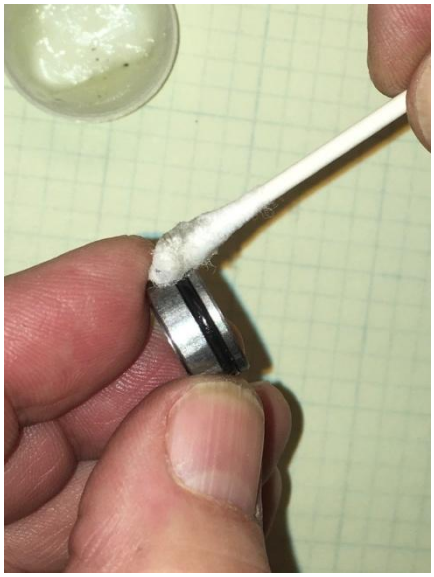
Do not use ANY additional pyro powder in this device!

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

Wipe a bit of the supplied lube into the Ball Retainer with Q-tip or your finger. Make sure the entire inside perimeter is covered with this lube.
Make sure that there is a thin o-ring on the outside of the Charge Cup and lube it.
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!

Lube the Push Piston o-ring with Q-tip or finger.
Place the **flat side of the Push piston flat against the Charge Cup** and press both until **completely seated** in the Ball Retainer.
Set aside the entire Ball Retainer Assembly.



Step 3 - Assemble the device

Lightly lube the inside of the Housing
Insert the Ring Pin <u>all the way</u> into the housing. (Expect a somewhat snug fit)
The Ring Pin will be sticking up on the inside of the Housing.

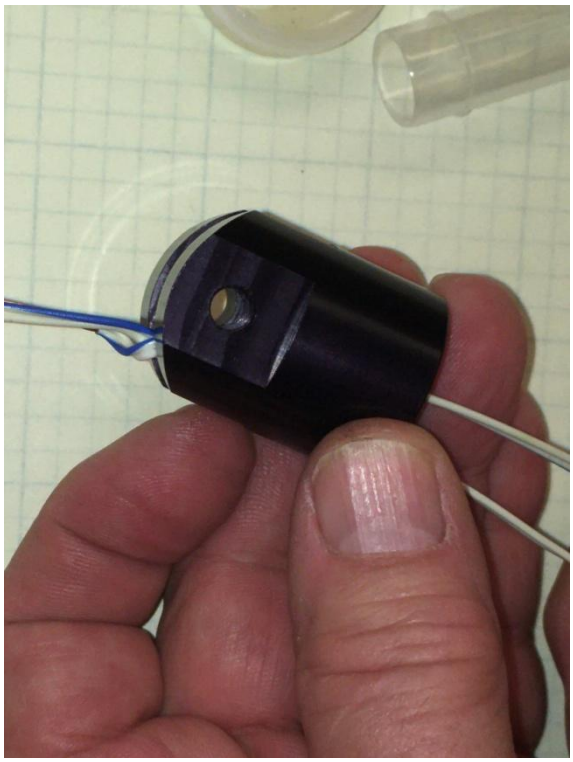


<u>Count EXACTLY 7 Ball Bearings</u>. Your kit comes with extras.
Easy way to do this is to hold the bearing container sideways in your hand.
Make sure there are **7 and only 7** bearings in the container then dump them into the Housing with the Ring Pin held in place.

View inside the housing while holding the Ring Pin in place.
Gently tap on the housing until the ball bearings are seated around the perimeter of the Ring Pin.
NOTE: Even though it seems like there is room for more ball bearings, <u>DO NOT ADD MORE!</u>
While holding the Ring Pin, insert the prepped Ball Retainer assembly.

Push the Ball Retainer assembly until it stops.
Slip the spring over the wires and down on to the Ball Retainer assembly.


Remove the Cross Pin from the Cap and thread the e-match wires through the opening and slot. While still holding the Ring Pin and Housing, slide the Cap to the Housing and screw the cap on just a little more than snug. Note: There is no need to over tighten as it will not work loose during flight!




Hold the device in both hands.
Gently pull on the ring.
You will hear and feel the device "click". The Ring Pin is now locked in place and cannot be removed without firing or disassembling the device.
Your TD-2 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.

NOTE: If you choose to take the device apart without firing it, you MUST hold the wires facing UP and you must hold the ring/pin in the device while you unscrew the wire cap.
Then, hold onto the wires and remove the entire Ball Retainer Assembly WHILE MAKING SURE THE RING/PIN REMAINS IN THE HOUSING! If you do not follow these instructions, you will DUMP the bearing on the ground!
All of this is shown with pictures on the next page below...

A word about e-matches...

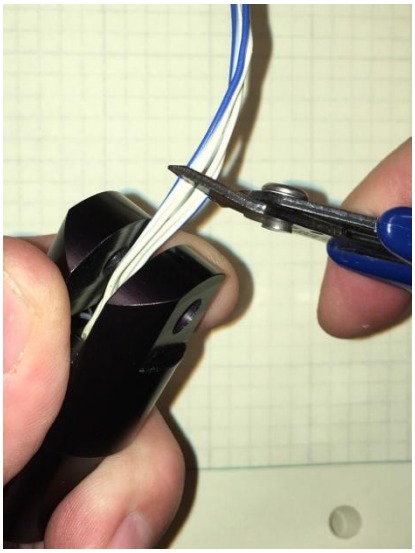
I have THOROUGHLY tested this device to be certain it will function using a SINGLE standard e-match, knowing that you the user of this device, will **NEVER** fly this thing using any less that two e-matches. If you have read the instructions up to this point, (You are rocket guys and gals so I know you 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 standard e-match is all of the pyrogen that is needed to reliably activate this device! This said, the second e-match acts as redundancy. Because of the Charge Cup design, if either e-match goes off, the other will go off as well.

After use Disassembly & Cleaning

Step 1 Disassemble the device

Before you attempt to disassemble this device it is STRONGLY recommended that you retrieve the Ring Pin and re-insert it into the device! If you fail to do this, your risk of dumping the bearings on the ground increases tremendously! Please do yourself a favor and re-insert the ring pin into the device!

Hold the device in a way that you can hold the Ring Pin and the device in the same hand at the same time.
Clip the wires somewhere near the bottom of the device.



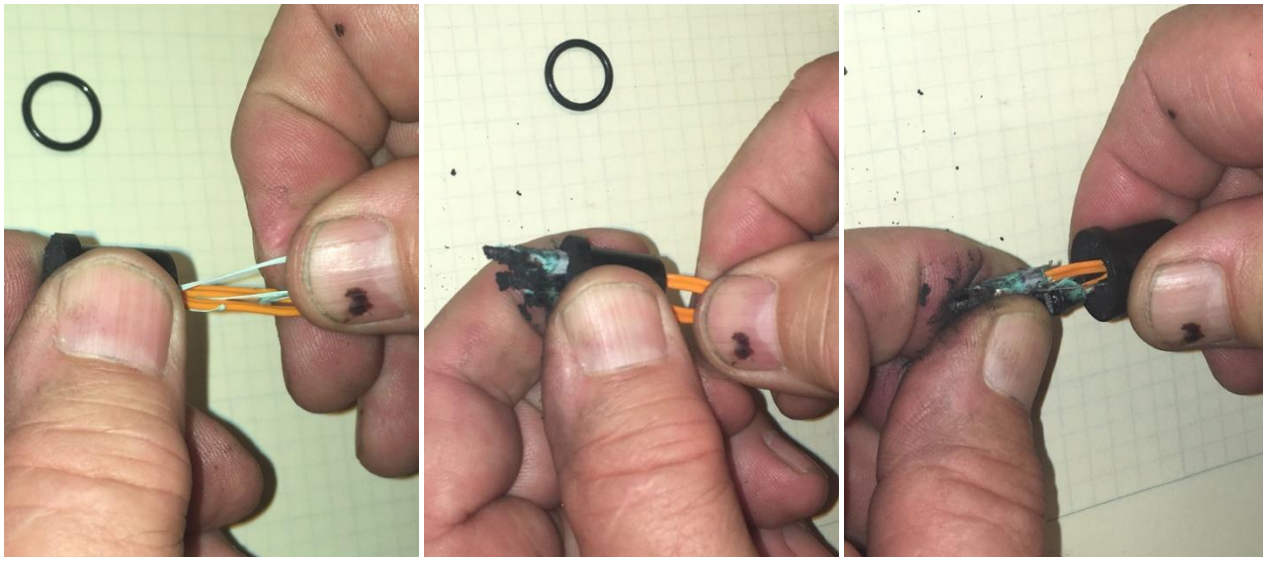
Unscrew and remove the Cap.
Grab the clipped wires and remove the Ball Retainer Assembly from the housing.


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.


After use Disassembly & Cleaning

Step 1-P Disassemble/Remove Spent E-match

Remove the Charge Cup from the Ball Retainer **without** further clipping the wires.
With your fingers, peel back and remove any putty that is on the wires.
Grab the wire with your finger and push it out
Pull the remaining wire out with pliers, hemostats or even your fingers.



FWIW, this "Putty" method of sealing is the only method I ever use any more. Turn-around time is less that 10min from firing to the next firing and for me, because I am testing these things, this 10 minute turnaround time INCLUDES setting up to take video of the device firing!

Step 3 Cleaning

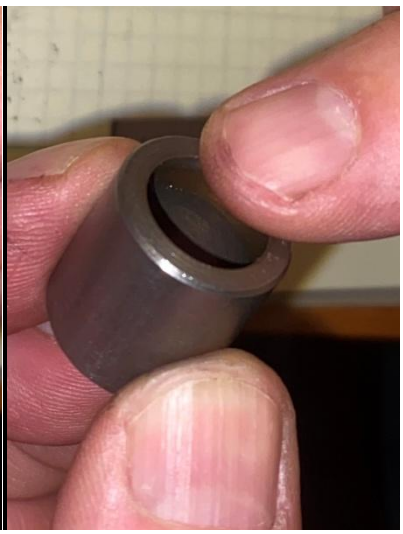
Note about cleaning: Please do not over clean this device and if you do, you MUST re-apply the lube as instructed below to all of the inner steel parts or you risk the possibility of RUST! The supplied lube is very persistent and is hard to totally remove and as a result the inner steel parts will not rust if these cleaning instructions are followed!

Scrape the bottom of the Push Piston Seal, wipe clean & wipe with a thin layer of lube inside & out. You may choose to use soapy HOT water to remove the burned pyro residue. Make certain that you dry with paper towel then re-lube to prevent rust!

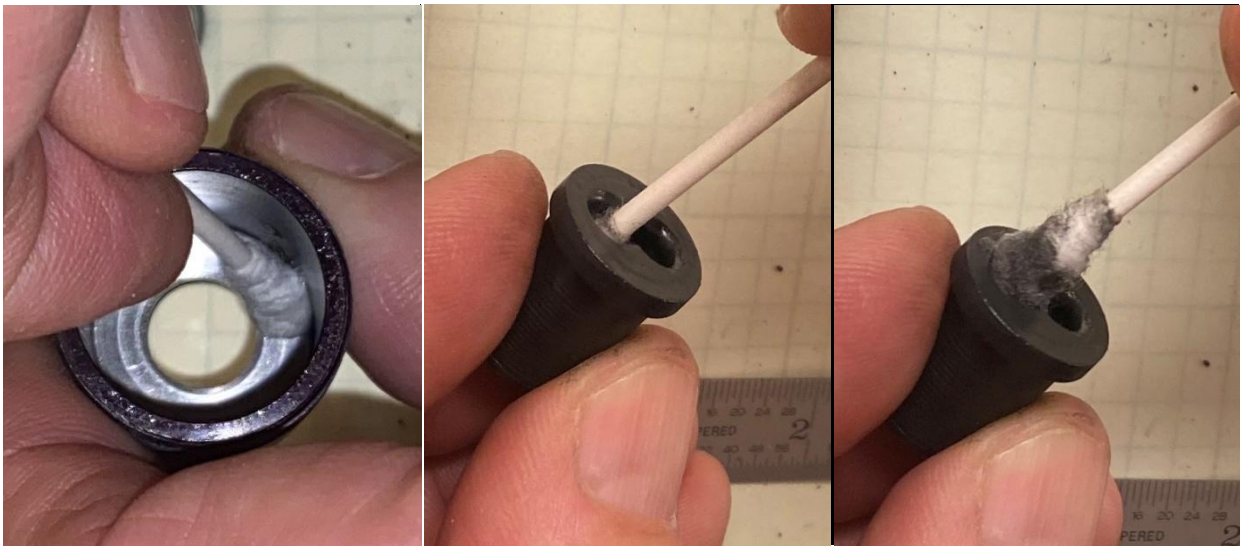


Add lube to Q-tip to twice wipe the inside of the Bearing Retainer.
Use Q-tip or finger to wipe lube on the outside of the Bearing Retainer.





With Q-tip, wipe lube on the inside of the Housing to include the very bottom.
Use lubed Q-tip to twice clean the Charge Cup. The 1st time the Q-tip will be dirty.



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!

Your TD-2 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 little device! If this device is used 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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