The Mighty D-Tuner - Installation

Read Me First (v1b-SCv1)

READ ME FIRST

GENERAL

Here are a few suggestions to assist in smooth installation, setup, and operation.

1. Before tampering with your MDT, please take the time to carefully read this sheet ... and then the installation instructions.

2. Your MDT package includes four items needed for installation: a bag of graphite, a toothpick (as graphite applicator), a tiny staple "gauge" and a tiny hex wrench. There is also an extra double-sided tape patch in the event your first attempt does not go well.

3. Here are a few "words of wisdom" from Coy Willis, the MDT inventor: "*No one is fond of assembly instructions. You may choose to fly blind, or follow the instructions, I highly recommend the latter. You will be proud of yourself in the end.*"

4. Finally, if you do not feel comfortable with the install or setup process, please consult a qualified luthier.

BANJO REQUIREMENTS

1. Certain banjo pegheads may not easily accommodate the MDT; for instance, a Prucha "Fall in Love" peghead may be too narrow, while a 60s Vega block-style peghead may be too wide.

2. Please note that MDT physics require that the banjo be a "regular" 5-string -- having roughly a 26-1/4" scale and tuned to the standard open "G" tuning. Having said this, however, I'll note that the MDT works great on my "pony" practice banjo with a 19-1/4" scale tuned to open "B".

NEXT PAGE PLEASE ===>

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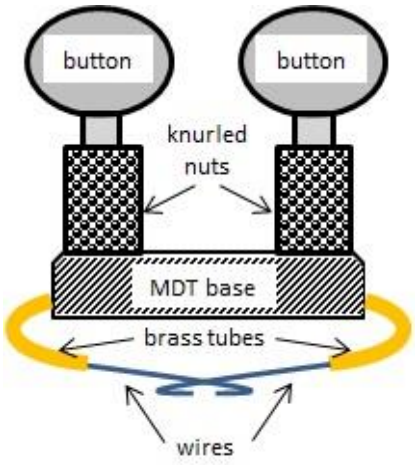
KNURLED NUTS, STOP PINS and TUNER BUTTONS



1. As placed in the MDT package, the tuner **buttons** were set – and secured -- in the "D" tuning (CW) position. **They should remain secured until instructions say to move them.** *Reason: inside the MDT is a tiny "stop pin" for each tuner ... the button in the "D" (CW) position helps to hold the stop pin in place.*

2. As placed in the MDT package, the **knurled nuts** were set close to their full clockwise (CW) position. **Do NOT turn the knurled nuts until instructions say to.** *Reason: this position helps to hold the stop pin ... and enables maximum string pitch adjustment when fine tuning.*

3. When instructions say to turn a **knurled nut**, be sure that the tuner **button** is in the "G" tuning (CCW) position ... being careful, however, to **turn the knurled nut no more than one half (1/2) turn ... and then rotate (or "snap") the tuner button back-and-forth.** *Reason: turning the nut more than 1/2 turn with **out** button back-and-forth could compromise the MDT operation.*

NOTE: The three items above will help prevent the "stop pin" from becoming misaligned ... important because if the pin gets misaligned, the knurled nut will no longer be able to adjust string pitch.

NOW, ON TO THE INSTALLATION!

INSTALLATION

Installation of The Mighty D-Tuner (aka, MDT) involves three main steps:

a) MOUNT - to peghead

b) SETUP - adjust tubes and wires (a one-time adjustment)

c) FINE TUNE - adjust the knurled nuts for the D-tuning.

Please read through the detailed steps below. If you feel comfortable performing these steps, then continue; if not, please consult with a qualified luthier.

MOUNT Mounting the MDT to your banjo is easy with the double-sided tape that is secured to the bottom of the MDT base. There are holes in the base for screws, but screws are not needed as the 3M VHB tape holds extremely well. However, if you prefer screws, see **Other Items, O4.**

M1 Lay your banjo on a suitable work surface face down with the back of peghead facing up.

a) Clean the surface of the peghead back.

b) Do not remove facing from tape.

c) Loosen brass tube set screws using the included allen wrench (see "set screws" in Illustration 1).

d) To get the brass tubes & wires around the peghead , you will need to turn one or both of the brass tubes to one side or other and perhaps pull the tubes out a bit ... gently, please!

e) Place the MDT between existing banjo tuners as shown in Illustration 1.

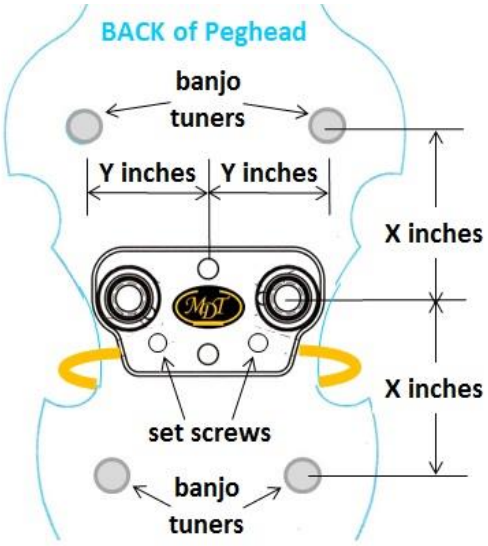


Illustration 1 – Double-Cut
(Fiddle or Stelling? See Other Items, O1)

M2 Adjust position of the MDT so that,

a) The MDT buttons are an equal distance (X inches and Y inches) from the other tuner buttons.

b) The MDT is centered and square with the banjo peghead; see Illustration 1.

M3 Mark the location on the peghead with masking tape or other spacing technique so that, when you do step M4, you can put the MDT back in the same location.

M4 Tilt the long side of the MDT (nearest top of peghead) up slightly ... just enough to peel off the thin facing material from the double-sided tape on the bottom of the MDT base.

M5 Tilt the MDT back in exactly the same location as it was in step M2. The tape won't give you a second chance, so do this carefully!

M6 Press the MDT down on peghead (no need to press hard). The 3M VHB tape will hold the MDT securely right away, but will bond to full strength in about 72 hours.

Your MDT is mounted! If this mounting did not go well and you'd like to start over, see **Other Items, O3**.

SETUP From this point on, there will be instructions involving clockwise" and "counter-clockwise" ... see Illustration 2 to confirm understanding of these terms. And let's abbreviate them as CW (clockwise) and CCW (counter-clockwise). Please note that CW and CCW apply here as you look at the BACK of the peghead.

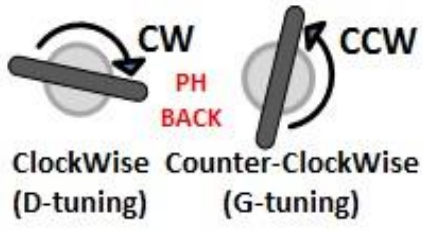


Illustration 2

The following steps explain how to connect the hooked ends of the tuner wires to the banjo strings ... and configure the MDT to "fit" your particular banjo. Enclosed with the MDT is a staple (if you lose it, you can use one from a staple gun in your tool box). The purpose of the staple is to control separation of the 2nd and 3rd strings as they are tightened up to pitch. Finally, please leave the MDT buttons secured until instructed to move them.

S1 Loosen the 2nd and 3rd strings and slide them out of the banjo nut slots. Dip enclosed toothpick into plastic bag of graphite and apply to slots; replace strings into slots, and tighten just a bit.

S2 Slide the brass tubes gently into the MDT as far as they will go and lean them gently toward the nut and (if possible) resting on the peghead. At the same time, guide the wires from each brass tube so that they go under the 2nd and 3rd strings.

S3 Place the enclosed staple over the loose (2nd and 3rd) strings near the brass tubes and wires ... then tighten the strings just enough to keep the staple from falling off. Note that the staple should be near the center of the strings between the nut and the string tuning peg; see **Illustration 3**.

S4 Ensure that each MDT wire is under the string nearest that wire's brass tube and then connect the hooked end over the farthest string; the hooked end of each MDT wire should be pointing down toward the peghead.

S5 Tighten the 2nd string a little ... then the 3rd string a little ... then back to 2nd string, etc. Note that the staple and strings will move back and forth as you alternate tightening the strings.

Continue this alternate tightening until the strings are roughly at the D-tuning pitch (2nd at A and 3rd at F#); the staple -- along with 2nd and 3rd strings -- should now be centered on the peghead; see **Illustration 3**.

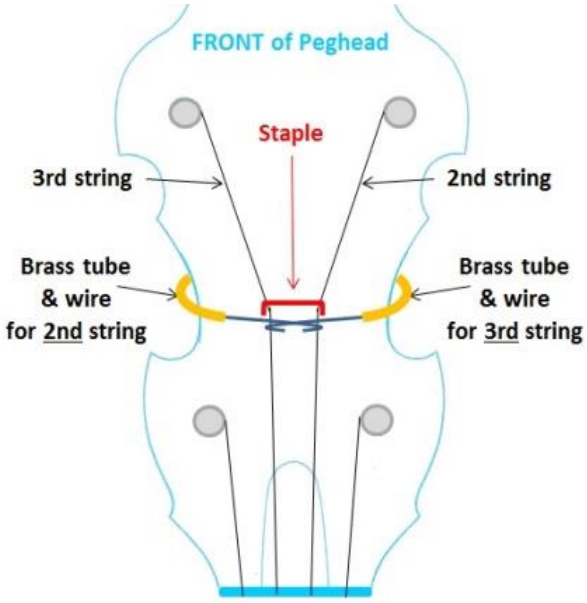


Illustration 3 – Double-Cut
(Fiddle or Stelling? See Other Items, O1)

The following steps explain how to position the brass tubes and tighten the set screws.

S6 Remove toothpicks securing buttons and turn both buttons to the full CCW (G-tuning) position. Do NOT turn the knurled nuts.

S7 Pull one brass tube (easy does it) out of the base until all slack in the MDT wire is taken up; pull firmly, but be careful that the staple doesn't fall out. It's ok to rest the brass tubes on the peghead face.

S8 Using the included 1/16" allen wrench, gently tighten the set screw holding the brass tube (see Illustration 1 for location of set screw). Do not crank it hard ... it needs only to hold the brass tube firmly in position.

S9 Repeat steps S6 and S7 with the other brass tube.

S10 Remove the staple (needle nose pliers work well) and check the strings: the "target" is for the strings to fit inside the staple (approx 3/8") and then have no more than a half inch separation when the staple is removed.

If you notice a lot of movement of the 2nd or 3rd strings outward when the staple is removed, you may not have pulled all the slack out of the brass tube wires; this may require repositioning of the brass tubes.

If you think this is so, then loosen the strings(s) and set screw(s) and repeat steps S1 – S10.

S11 Now turn both buttons to the full CCW (G-tuning) position and tune all strings to the standard G-tuning. Setup is done!

FINE TUNE The following instructions could get a little confusing at first because there will be **two** MDT items to turn: the buttons, and the knurled nuts (located between the buttons and the peghead) ... and each may have to be turned clockwise (CW), or counter-clockwise (CCW); please review Illustration 2. Be sure that:

a) The MDT buttons are turned to the full CCW (G-tuning) position.

b) The banjo is tuned to the standard G-tuning and all strings are in tune.

Given this, turning the buttons CW should already approximate the "D-tuning" (3rd string at F# and 2nd string at A); what remains is to "fine tune" the MDT so that the F# and A are right "on". Fine-tuning is accomplished using the knurled nuts.

Turning the nuts CW raises the D-tuning string pitch, while turning the nuts CCW lowers the D-tuning string pitch. The nuts should be adjusted only when the buttons are rotated fully CCW (G-tuning) position;

BUT, do NOT turn a knurled nut more than one half (1/2) turn without also turning the button back and forth from stop to stop.

F1 Turn the MDT buttons CW (the "D tuning" position) ... pluck each string to hear their pitch. The pitch of each string should be close to the F# and A, but may be high or low.

At this point, if the pitch of one of the strings is too low, then the brass tube for that string probably needs to be pushed "IN" a tiny bit. To re-adjust the brass tube(s), loosen string(s), loosen tube set screw(s), and go back to Setup, steps S1 – S11.

F2 Assuming MDT buttons are turned CW and a D-tuning note is too high ... turn button full CCW (G-tuning) and then turn the knurled nut a little bit CCW.

If note is now too low ... turn button full CCW and then turn the knurled nut a little bit CW. Then, turn the button back and forth ... and check string pitch again.

Turn a knurled nut only when its button is in full CCW (G-tuning) position.

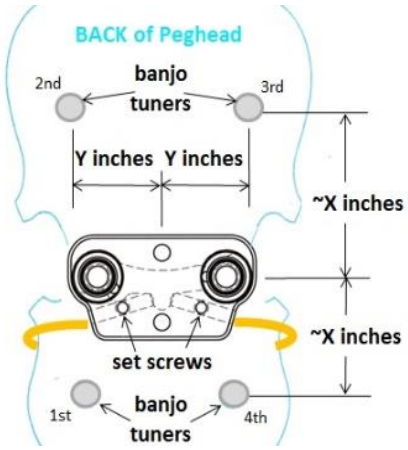
Repeat a few times to get a "feel" for how the adjustment works. Perform this process until you reach the correct pitch on each string for the D-tuning. Of course, turning the buttons fully CCW should bring you back to the G-tuning ... with both strings in perfect pitch!

Finally, please realize that sometimes conditions change and one or both of the D-tuning notes might be “off” a bit ... no problem, do step F2 to fine tune again (making sure -- first -- that the banjo is tuned properly in the G-tuning).

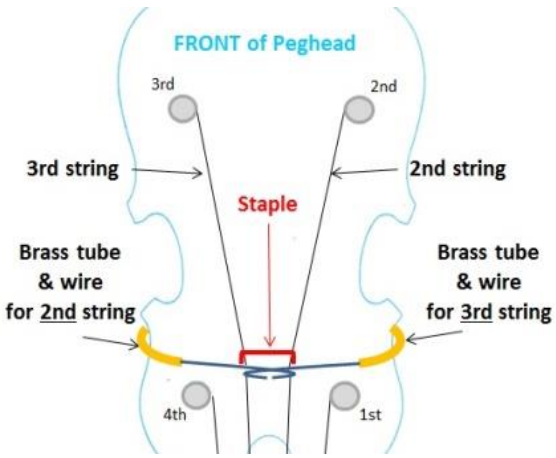
Your MDT is now tuned and ready to go. If you have questions or need assistance, please don't hesitate to contact me ... enjoy and improvise at will!

OTHER ITEMS Here are a few items you may find interesting or useful.

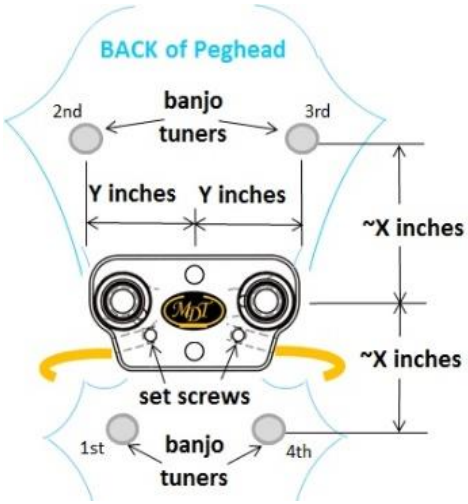
O1 Mounting on Fiddle and Stelling (for steps M1, M2, S3, S5, S7).



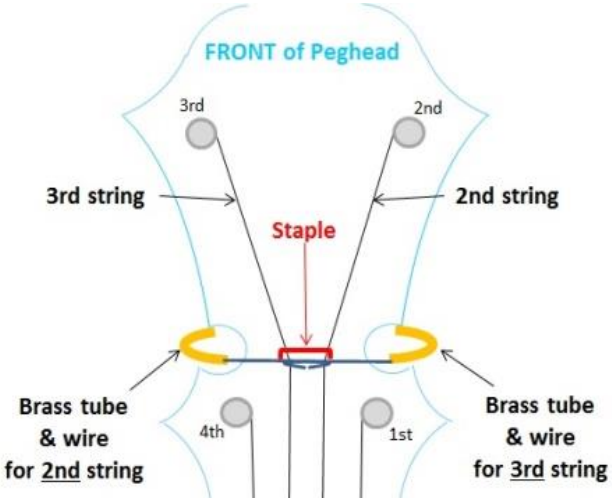
Fiddle: Illustration 1



Fiddle: Illustration 3



Stelling: Illustration 1



Stelling: Illustration 3

O2 Changing Banjo Strings.

Change banjo strings in the usual manner ... except before tightening the 2nd and 3rd strings to pitch, make sure that the MDT wires are located and hooked as described in S5 above: each MDT wire should be under the nearest string and the hooked end over the farthest string. The hooked end of each MDT wire should be pointing down toward the peghead.

O3 Removing the Tape-Mounted MDT.

If you wish to remove the MDT from your banjo -- to start over with a new tape patch (an extra patch is provided) ... or some other reason -- stand your banjo upright on the floor with tuner buttons facing you. With your fingers holding the peghead, use thumbs to push UP (toward top of peghead) on the MDT buttons; sitting in a chair while doing this is good. Your push should be firm and steady, but no violence!. The MDT will gradually "tip" over and can be carefully pulled off. Portions of the tape may tear and remain on the peghead ... use fingernails to carefully pull it up and peal it off. The 3M VHB tape should leave no residue.

O4 Mounting the MDT with Screws.

This can be done; however, it may be best to contact me for pointers before attempting.

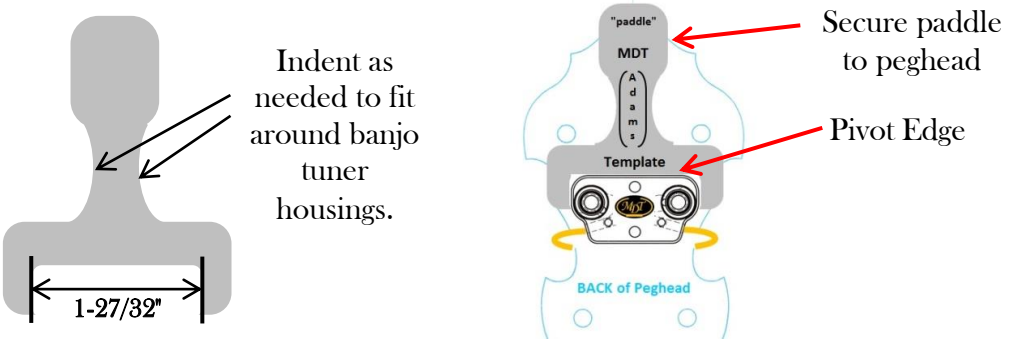
The Mighty D-Tuner (MDT)

The Adams Template (v2e-SCv1)

The Adams Template was invented by a long-time friend and outstanding banjo man, Bill Adams. Bill wanted a technique to ensure an exact peghead location for the Mighty D-Tuner; the result is a very clever template. The following shows how to make and use the template.

Template Purpose: Ensure Exact MDT Mounting Location

You can use the illustration below to make an MDT Adams Template. It is best to use a material that has a thickness of at least 1/16" so that the MDT "pivot" edge will not slip when tilting the MDT; e.g., a piece of cereal box might be ok, but a regular piece of paper is not; flat rubber faucet gasket material is great! Cut a template in roughly the shape shown. The dimension 1-27/32" is important so that the template "holds" the MDT securely, but other aspects of the shape are not as important.



These instructions assume that you are following the detailed mounting instructions found in the MDT Installation document, M1 through M5. The instructions on this page replace M3 only.

M3 a) Position the MDT as specified in M1 and M2 and then fit the MDT Adams Template around it (Illustration 1a).

M3 b) Secure the "paddle" of the MDT Adams Template to the peghead with masking tape or a C-clamp. If using a C-clamp, be sure the pressure points have suitable soft coverings so as not to damage the peghead. Also, tighten the C-clamp only enough so that the template does not move!

M3 c) The "upper edge" of the MDT is the "pivot" edge to hold down against the template as you tilt the MDT in step M4 of the MDT Installation document.

M3 d) Continue with steps M4 through M6 in the MDT Installation document.