



Music Thing Modular Spring Reverb Mkii EXPANDER

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DOCUMENT WITHOUT PERMISSION FROM THONK**

For the most recent version of this
document please visit –
<https://thonk.co.uk/documents/springreverb/>

Refer also to the Music Thing
documentation here - <http://bit.ly/2hwUjvq>

For all technical support please create a
Github account and log an issue here -
<https://www.thonk.co.uk/spring-github/>

Chat about the build here –
<https://www.thonk.co.uk/spring-muff/>

All Thonk kits are sold under our standard Terms and Conditions -
<http://www.thonk.co.uk/faq/>



DIY INSTRUCTIONS

This document gives detailed instructions that assume you have purchased a
complete Spring Machine Expander kit from www.thonk.co.uk after
November 2017, it also assumes no previous knowledge of electronics.

To learn to solder try <https://www.youtube.com/watch?v=lpkkfK937mU> and
the **Adafruit guide to excellent soldering** – <http://bit.ly/1I77tF4>

**Watch and understand that whole YouTube video! If you're not achieving the
results shown in the video then you need to buy new tools or seek advice.**

You will not end up with a working unit otherwise.

TOOLS REQUIRED

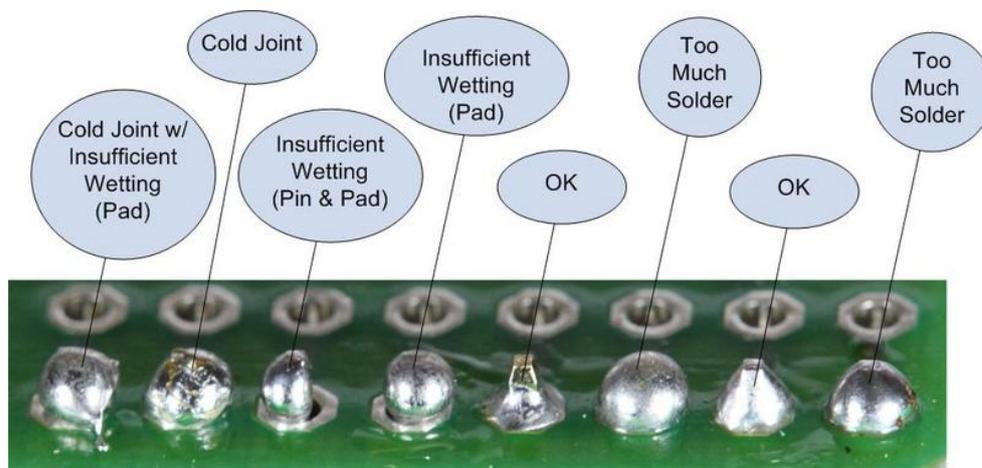
Soldering iron, snipe nose pliers, wire strippers, small flat head screwdriver
and diagonal cutters AKA snips AKA side-cutters. A Digital Multimeter is
always helpful for checking for bad solder joints and continuity. Thonk sell a
range of inexpensive tools here - <http://bit.ly/1jxqF3n>



SOLDER JOINTS

Your solder joints should look like those shown as 'OK' below, they should have that neat conical shape on **BOTH sides of the PCB**. If they don't look the same on both sides then stop! Work out why from the soldering guides linked and don't continue until you are getting those results.

This isn't about perfectionism, you are very likely to end up with a destroyed, damaged or defective unit if you're not hitting that standard.



This photo is from the **Adafruit guide to excellent soldering** - <http://bit.ly/1i77tF4> and is reproduced under an Attribution-Sharealike creative commons license - <http://creativecommons.org/licenses/by-sa/3.0/>



SPRING REVERB EXPANDER BUILD INSTRUCTIONS

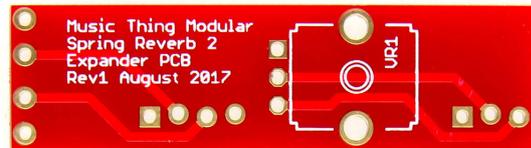
1.

To start with we advise emptying the bag into a bowl or container so it makes it easier to find parts.

This document has hi-res images.
ZOOM IN for a closer look

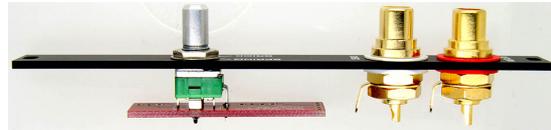
2.

First solder the single potentiometer into place as shown.



3.

Next you are going to use the nut and washer to secure the pot in place and then attach the RCA jacks into place like so.



NOTE: You must follow the instructions for the RCA sockets exactly or the external tank **WILL NOT WORK.**

The RCA jacks are designed to isolate themselves from the metal panel with special plastic washers (coloured red and white).

These washers have recessed sections which sit inside the hole in the panel and stop the metal sides of the RCA jack coming into contact with the metal panel. If the RCA jack grounds have connectivity to each other via the metal panel then the spring tank simply doesn't work.

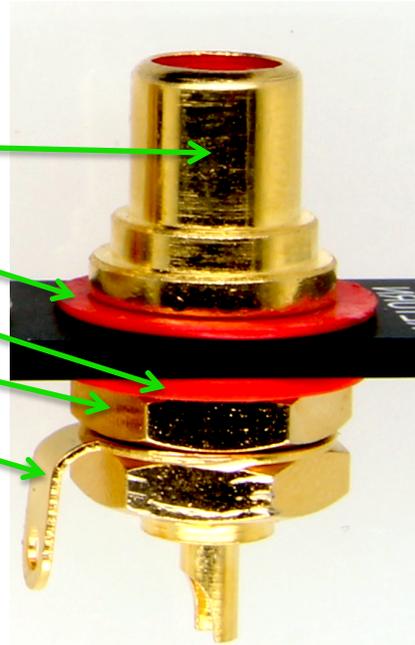


PLEASE TURN OVER FOR RCA INSTRUCTIONS



Take the RCAs apart and you should have 6 items

- 1 x RCA body
- 1 x plastic isolation washer
- 1 x plastic flat washer
- 2 x nuts
- 1 x ground ring with soldering lug

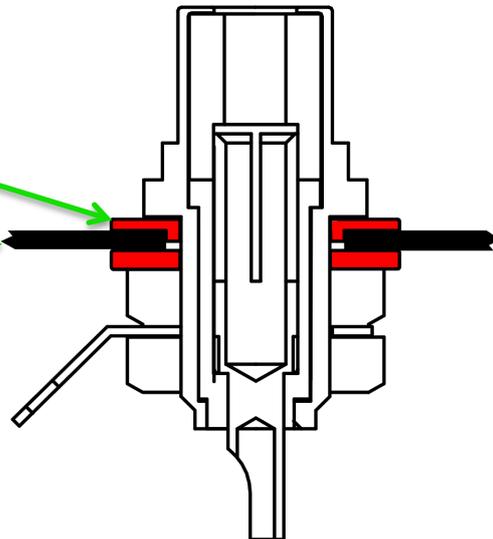


Reassemble on the panel like so, ensure the RCA body is well secured and tight with nut 1 first before putting on the ground ring and second nut to secure.

Ensure also that the plastic isolation washers are sitting flat to the surface of the panel, with the thicker section neatly hidden away in the hole and keeping the jack central in the hole.

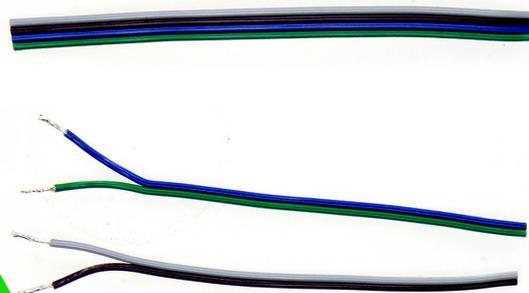
Isolation washer sits inside Eurorack faceplate

Eurorack Faceplate



4.

Next take the four conductor ribbon wire included and break into two double conductor sections like shown. Strips both ends of all four conductors and twist and tin with solder. Your wire is likely to be different colours.

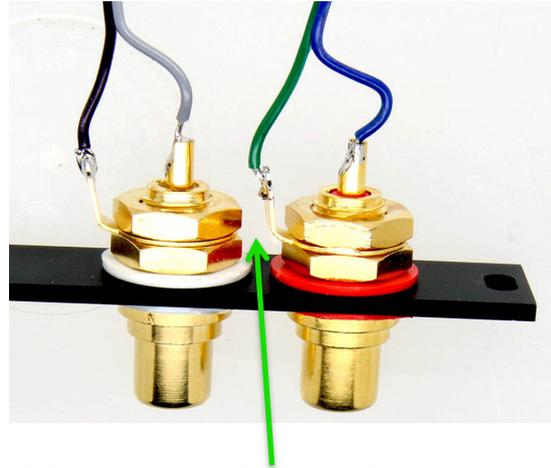




5.

Solder the wire to the RCA sockets like shown.

Make sure the ground ring lugs are bent up so that they can't contact with the adjacent RCA jack.



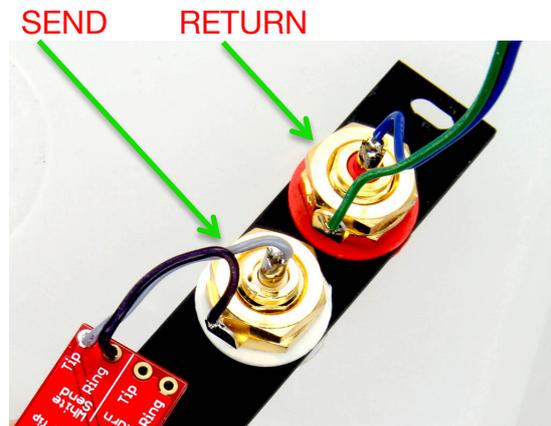
Make sure there is a good air gap here

6.

You can now cut the wires to length so that they will not be too long when soldered to the end of the PCB. While the following photos show the panel still in place you will find it easier to unscrew the pot now and let the PCB hang free.

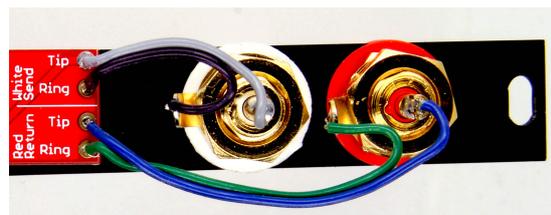


Here we show the **SEND RCA** soldered, the **black wire** on the ground ring is going to the PCB input marked **Ring**, the **grey wire** on the tip of the jack is going to the PCB input marked **Tip**.



Next solder the **RETURN RCA**.

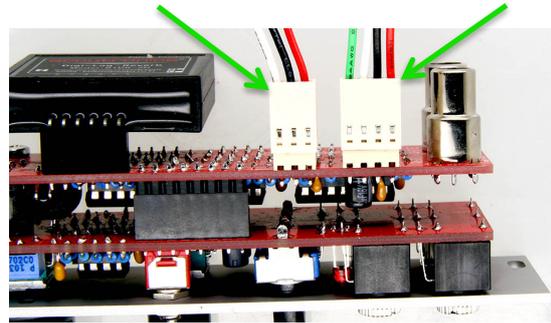
the **green wire** on the ground ring is going to the PCB input marked **Ring**, the **blue wire** on the tip of the jack is going to the PCB input marked **Tip**.





7.

Next take the two MTA cables included and plug them into the main Spring module like so.

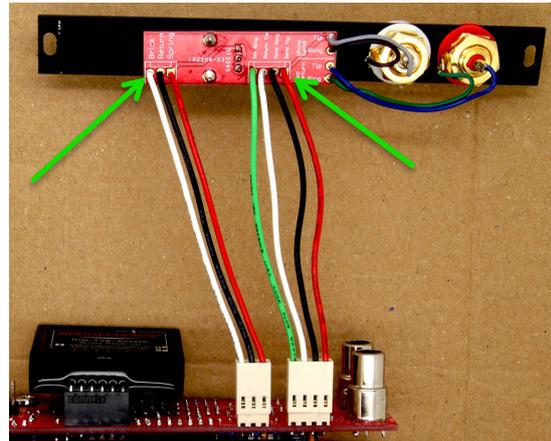


When you remove the red **shunt** to connect the expander remember to keep it somewhere safe in case you ever decide to remove the Expander! The main module will not work without the shunt.



8.

The expander is designed to be mounted either way up in your Eurorack case so that the RCAs can be at the top or bottom of the panel... however for the purposes of finishing the soldering arrange the modules as shown and solder the MTA wires into the PCB as shown.



9.

You are finished! Before you connect your real spring tank to the expander, have you confirmed first that it works ok connected to the main module first without the expander connected? This is a good way to check your wiring is good!

Again remember, you need to attach the shunt when the expander isn't connected or the module will not work.

CALIBRATION

Calibration doesn't need specialist tools, just your EARS

If you are using a real spring tank then before putting the big knob on the



main module you will want to use a small screwdriver to adjust the trimmer.

While you will already have set this level when you calibrated the main module you may now want to recalibrate it again if you have the digital brick also attached.

This trimmer controls the wet reverb level of the REAL spring tank only. It does not affect the gain of the digital brick reverb but you will want to balance the gain of the real spring tank against the gain of the digital brick if one is present.

We advise feeding the loudest sine wave available to the reverb module input and then patch into the wet output only. Adjust the trimmer level until you can hear the reverb start to distort and then back off a little. Now use the knob on the expander to sweep between the real spring tank reverb and the digital brick reverb. Set the level so that the volume of the reverb sounds roughly equal on both sides.

For more information on this module and selecting a suitable tank read here - <https://medium.com/music-thing-modular-notes/everything-i-know-about-spring-reverb-1fb4b32abf87>