PACKING LIST MOODY DELAY KIT v4.0

R1, R7, R15 = 4k7 *(yellow purple black brown brown)*
R2 = 2M2 *(red red black yellow brown)*
R3 = 1k *(brown black black brown brown)*
R4 = 1M *(brown black black yellow brown)*
R5, R14 = 15 k *(brown green black red brown)*
T1 = 78L05 voltage regulator
C1 = 100 uF *(cylinder shapd, denoted "100 uF")*
C2 = 10 uF *(cylinder shaped, denoted "10 uF ")*
C4 = 22 nF *(denoted "22nJ100")*
C6 = 100 pF *(ceramic capacitors "101")*

R6, R17 = 82k *(grey red black red brown)*
R10, R11, R16 = 47k *(yellow purple black red brown)*
C3 = 47 uF *(cylinder shaped, denoted "47 uF")*
C5, C7, C9, C10, C11, C12, C16, C17, C20 =
100 nF *(denoted".1J100")*
C13, C14 = 470 pF *(ceramic capacitors "471")*
C15 = 2n2 *(denoted "2n2K100")*

R9 = 1k5 *(brown green black brown brown)*
R12, R13, R18 = 10k *(brown black black red brown)*
C18 = 4n7 *(denoted "4n7J100")*
C19 = 68 nF *(denoted "68n J100")*
D1 = LED
D2 = 1N4001 *("black with white ring")*
IC1 = OP-amplifier TL072 with socket
IC2 = Delay chip PT2399 with socket

Input jack *(stereo)*
Output tjack *(mono)*
Curent jack
P1 = 100k lin *(Intervall, denoted "B100k")*
P2 = 50k lin *(Repeats, denoted "B50k")*
P3 = 50k lin *(Mix, denoted "B50k")*
Potentiometer knobs *("Boss mini, black")*
Foot switch 3pdt *("S1")*
Rubber feet
Mushroom Mushrom Delay sep21 PCB

Modifying components
Capacitors: 47 nF, 100 nF
Resistors: 3k3, 33k, 100k
Component sockets

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Moody Delay KIT

Eng v4.0

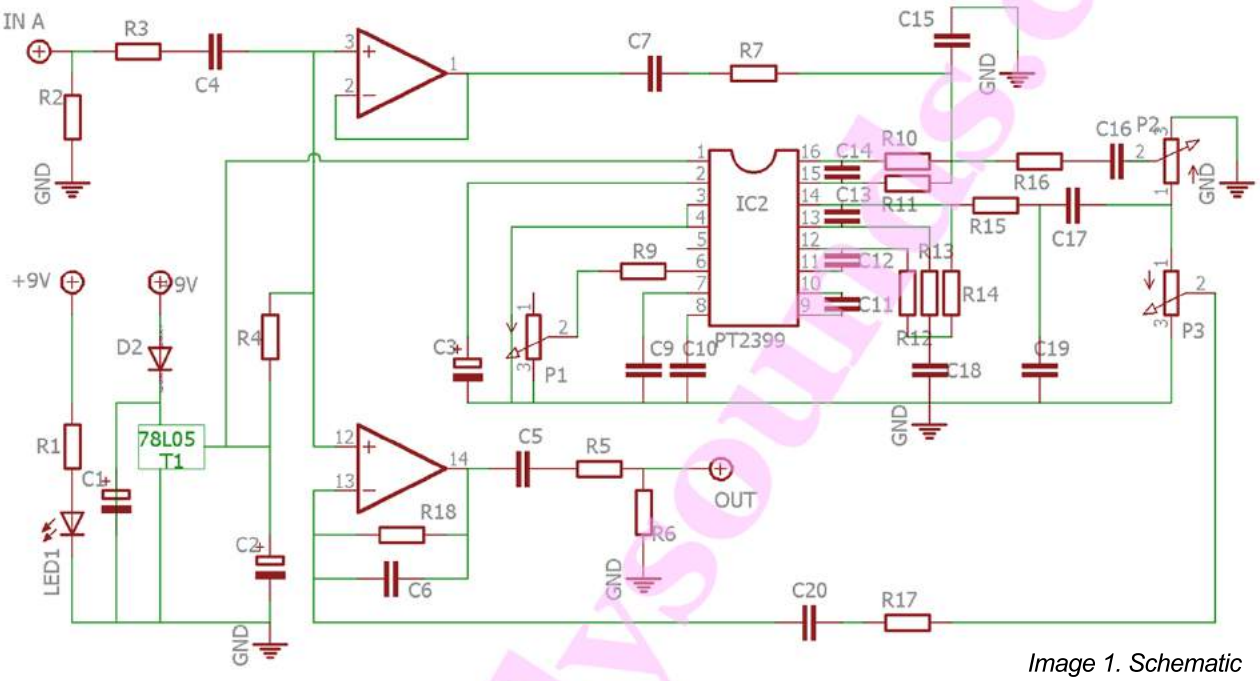


Image 1. Schematic for Moody Delay.



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The components are attached to the circuit board (PCB)

1. Moody Delay is described by the schematic in image 1. The components of the circuit will be mounted and soldered on the circuit board shown in image 2. Find the PCB and start by mounting the **Resistors** of the circuit. Colored rings describe their resistance. Use the color code in the component list to locate them in the bags and place them on the PCB. Moody Delay has 17 resistors, designated R1 to R18 (R8 is not used). ***It does not matter in which direction the resistors are turned on the PCB!***

2. Solder the resistors. Solder should not settle in rings around the component pins. Make sure that it flows out and arranges good contact between the pins and the current track on the PCB. Make sure it does not overflow from one hole to another. If the holes are connected to the same track, it certainly does nothing but strive for fine and reasonably large solders.

3. Mount and solder **Diode** D2. A diode has two pins and they are called "anode" and "cathode". The cathode is marked with a ring on the diode. The connection of the cathode on the card is indicated by a line inside its component symbol. Make sure that D2 is turned correctly. ***"The diode ring should coincide with the line on the PCB"!***

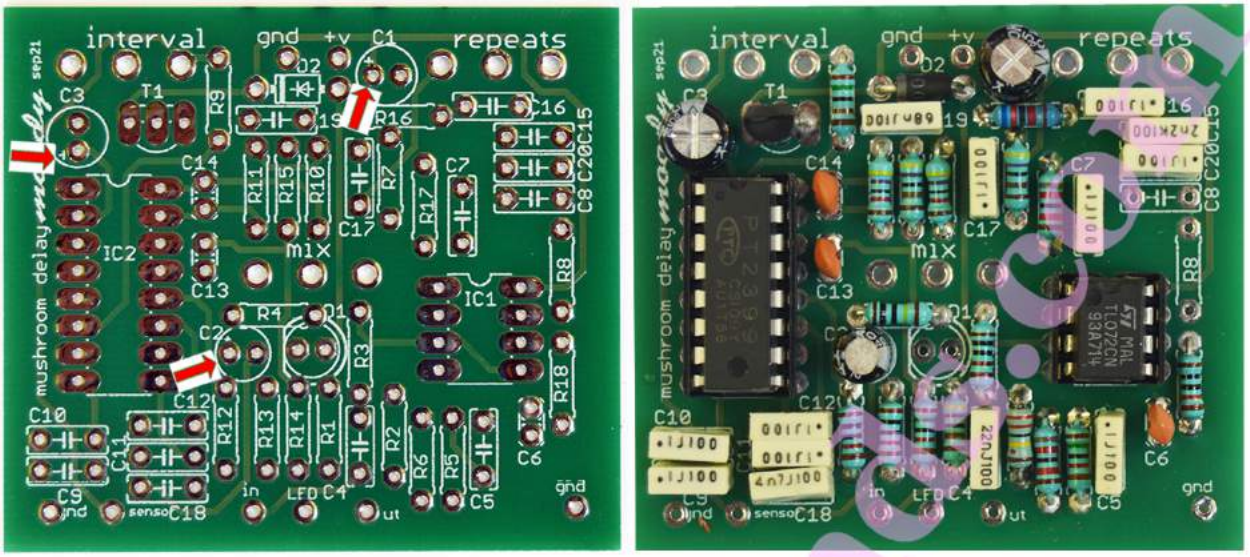


Image 1. Location of the components on the PCB.

R1, R7, R15 = 4k7 *(yellow purple black brown brown)*
R2 = 2M2 *(red red black yellow brown)*
R3 = 1k *(brown brown black brown brown)*
R4 = 1M *(brown black black yellow brown)*
R5*, R14 = 15k *(brown green black red brown)*
R6, R17 = 82k *(grey red black red brown)*
R8 not used
R9 = 1k5 *(brown green black brown brown)*
R10, R11, R16 = 47k *(yellow purple black red brown)*
R12, R13, R18 = 10k *(brown brown black red brown)*

C1 = 100 uF *(cylinder shaped, denoted "100 uF")*
C2 = 10 uF *(cylinder shaped, denoted "10 uF")*
C3 = 47 uF *(cylinder shaped, denoted "47 uF")*
C4 = 22 nF *(denoted "22nJ100")*
C6 = 100 pF *(ceramic, denoted "101")*
C5, C7, C9, C10, C11, C12, C16, C17, C20 = 100 nF *(denoted ".1J100")*

C8 not used
C13, C14 = 470 pF *(ceramic, denoted "471")*
C15 = 2n2 *(denoted "2n2K100")*
C18 = 4n7 *(denoted "4n7J100")*
C19* = 68 nF *(denoted "68n J100")*

D1 = Lysdiod
D2 = 1N4001 *("black with white ring")*
IC1 = TI072
IC2 = PT2399
T1 = 78L05 Voltage regulator
P1* = 100k lin *(Interval, denoted "B100k")*
P2 = 50k lin *(Repeats, denoted "B50k")*
P3 = 50k lin *(Mix, denoted "B50k")*

** These components are discussed in the Suggestions for modifications section in the end of the manual. Socket them if you want to see how different values affect the sound!*

4. Solder the **IC sockets** on the PCB. ***They must be turned in a certain way.*** A half circle is cut out on one of the short sides on such a socket and this side is also shown on the PCB. The half circles on the IC sockets shall line up with half circles on the PCB.

5. Mount and solder the nineteen **Capacitors** C1 through C20. C8 is not used, leave this place empty. C1, C2 and C3 are electrolytic caps and they must be turned correctly on the PCB. The longest pins shall go in the holes marked with plus signs on the PCB *(also shown with red arrows in image 1).* It does not matter how the other capacitors are turned.

6. *Push* the **OP-amp** and the **Delay chip** into their sockets. ***They must be turned in the way the screen print indicates.*** Sometimes the side in question is show with a dot , sometimes with a half circle.

7. Now, lets look at the three **Potentiometers** P1, P2 and P3. Their resistance values are shown on the front, just next to the shaft. They have different resistance values and they must be placed on the right places. For instance P1, which is a 100k linear potentiometer denoted "B100k", will adjust Interval.



8. Remove the nuts and break off the metal tags that sits next to the potentiometer shafts. (shown with a red arrow in the image to the right). They come off easily if you twist them sideways with a flat pliers.

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9. Place P1, P2 and P3 in their holes on the board. They shall not be connected on the same side as the other components, see image 2. You can solder *one* pin one each pot and then complete the soldering in step 12. Try to avoid soldering them to close to the board (specially P3) as it may cause short circuits. Five rubber feet are included in the kit. Four of them are for the lid. You may put the fifth on P3 the set the distance

If you want to use the sticker decal or do artwork to the box, do it before proceeding to step 10!

The PCB is mounted in the box according to image 3
10. Put the **LED** D1 on its place on the PCB. D1 has one short and one long pin. Its symbol on the board is a circle with a removed segment. D1's shortest pin shall connect to the hole which is closest to the removed segment. If D1 is turned the wrong way it will not light in effects position.

D1 shall, unlike the other components, connect from the solder side of the board, and then soldered from the component side. Fold the pins for now and solder ind step 13. This simplifies adjusting its position on the front and setting it at the right level.

11. The **Potentiometers** will keep the PCB in position in the box. P1, P2 and P3 will go in the drilled holes when the PCB is positioned in the box and D1 shall "look out through" its hole in the panel, see image 3.

12. Put the potentiometer washer in place and tighten the nuts. Try to keep the pots from rotating when the nuts are tightened. Solder all pins on P1, P2, P3.

13. Adjust the position of D1 and solder it.

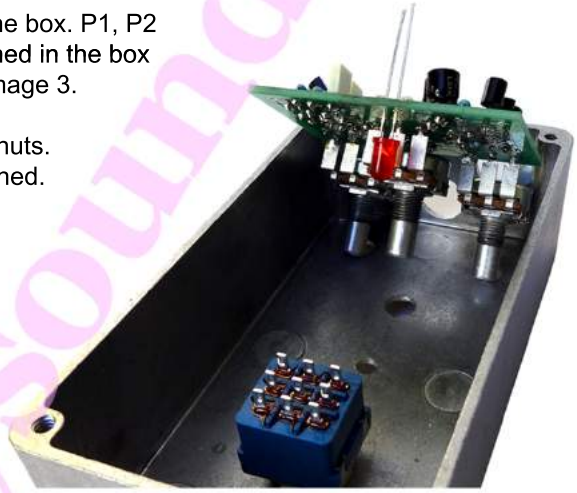


Image 3. The PCB is kept in position with P1, P2 and P3. D1 must be turned the right way to light in effects position.



The **Output jack** is mono. and it has two solder lugs, which we call "tip" and "ground". Tip conducts with the "arm" of the jack and it is marked with a red dot in the image to the left.



The **Input jack** is stereo. It has three pins: "tip", "ring" and "ground". The image shows tip marked with a red dot and ring marked with a green dot. ***Keep track on which is which!***



The **Current jack** has three pins and we assign them numbers according to the image. If you also want the possibility to use the pedal with a battery, the red wire from the battery contact shall connect to pin 1 on the current jack. The black wire from the battery contact shall connect either to pin 3 (together with another wire, step 14) on the jack *or* to RING on the Input jack, step 25.



The **Footswitch** S1 has 9 pins. We assign them numbers, 1 through 9. ***To get the switching right, mount S1 with its pins in parallel with the short sides of the box*** (see images 2 and 3). It is ok to turn it 180 degrees with respect to this direction (but not 90 degrees). ***Avoid overheating the pins!***

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The current jack is connected to the circuit
There is not much space for connecting wires on the current jack and it may be simpler connect wires to it before it is mounted in the box.
14. Remove the nut from the current jack. Cut a grey wire, ca. 4 cm long, and remove ca 5 mm cover from its ends. Solder one side to pin 3 on the current jack (its other end will be connected in step 26).
15. Solder a ca. 4 cm long orange wire to pin 2.
16. Mount the jack in the box.

The wires to the pedal parts are connected according to image 4
17. Mount the **Footswitch S1,** the **IN-** and **OUT-jacks** in the box. Use locker washers for IN and OUT. ***The arms of the jacks must not come in contact with the box or the pots and OUT must be turned a bit compared to what is shown in image 4!***

18. Wires shall connect in a *nice and neat* way. Avoid too long wires. Solder a purple wire to tip on IN. Cut the wire at an appropriate length and fold it to pin 1 on S1.***Solder in next step!***
19. Connect a purple wire between pin 1 and pin 9 on S1. ***Now solder both pins 1 and 9 on S1!***

20. Connect a brown wire between pin 2 on S1 and the holes “in” on the PCB.
21. Connect a white wire between pin 4 on S1 and the hole “LED” on the PCB.
22. Green wire between pin 7 on S1 and the hole “ut”.
23. Red wire between pin 8 on S1 and tip on UT.
24. Black wire between the hole “gnd” in the low corner of the PCB and pin 3 *and* pin 5 on S1 (remove more cover than before and put the end of the wire through both pins).

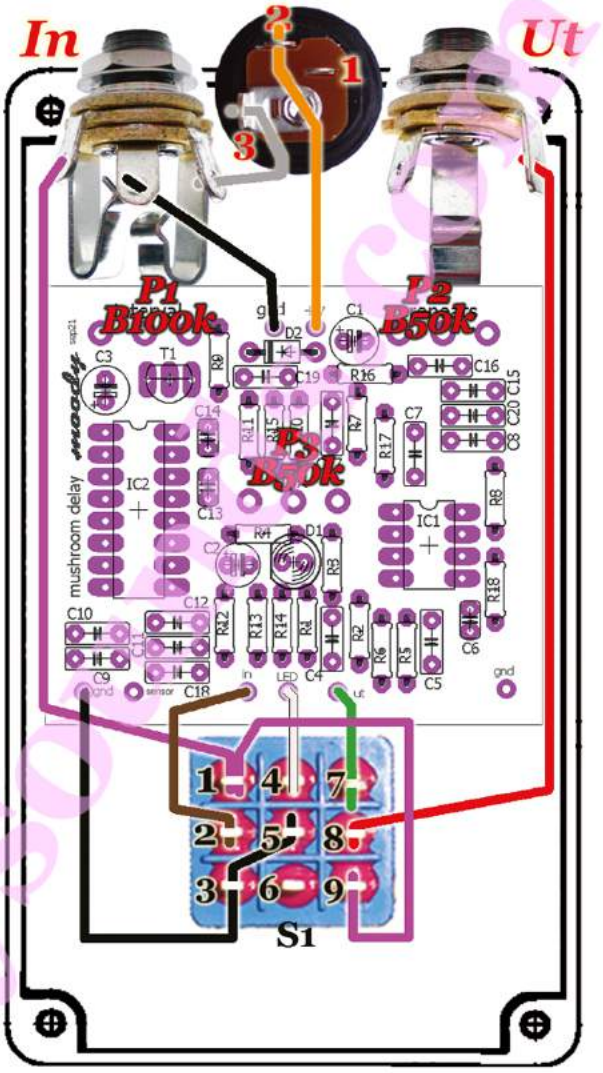


Image 4. Inside a Moody Delay.

25. Connect the orange wire (step 15) in the hole “+v”.
26. Connect the grey wire (step 14) to ring on IN. If you also will be using battery as a power supply, also connect the battery contact’s black wire to ring on IN.
27. Connect the battery contact’s red wire to pin 1 on the current jack.

Suggestions for modifications
If you use the bypass connection in image. 4, a faint click can be heard when switching between bypass and effect mode. One way to reduce this click is to use the wiring described in image 5. With this wiring, the input of the effect is not disconnected in bypass. But since the circuit impedance is high, it has minimal effect on the signal in bypass.

You can put sockets in some places on the PCB to make it easier to replace and test sounds with different components.

Each repetition passes the filter R15 / C19. You can increase C19 to cut more treble in each repetition. Test for example C19 = 100 nF to get a delay that is duller. Decrease C19 for brighter repeats, test C19 = 47 nF. Some noise can be heard in the background if Interval is turned up to the maxi. If C19 is large these sounds become less clear. If C19 becomes small enough, each repetition will be stronger than the previous one where repeats are in max. These sounds degenerate quickly and the pedal gets a kind of round that can be fun in experimental music. You can also reduce R15 for rounds with Repeats in max, test R15 = 33k.

We have chosen a 100k interval potentiometer to make it possible to set long interval times. The chip not designed to handle such long interval times and you can hear that the distortion increases when the longest times are set. If you do not want these settings to possible to dial in, replace the interval pot with a B50k or solder a 100k resistor to two of its connections (middle and the right).

It is common that you want the volume in effect mode to be the same as in bypass with this type of effect. It can be changed by lowering R5 to a lower value. With R5 = 3k3 you get a slightly higher volume in power mode. The lower the R5, the higher the volume.

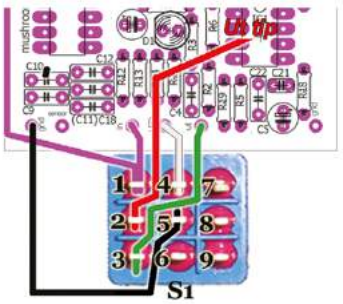


Image 5. Alternative bypass wiring.



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