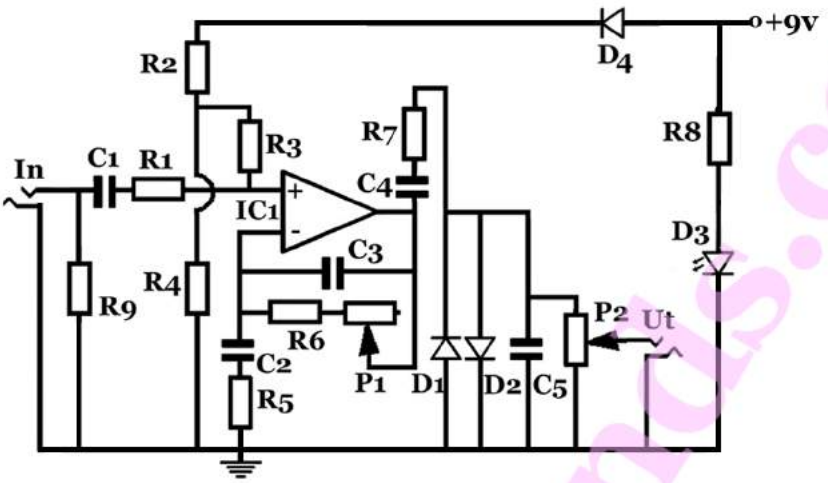
PACKING LIST MOODY DRIVE KIT (v3.3)

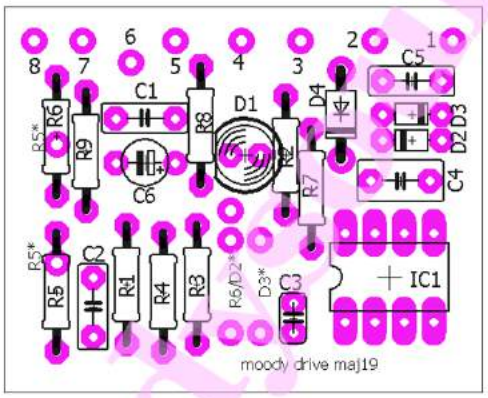
R1 = 1 k *(brown black black brown brown)*
R2, R4, R6, R7 = 10 k *(brown black black red brown)*
R5 = 2k2 *(red red black brown brown)*
C1 = 10 nF *(denoted "10n J 100")*
C2 = 100 nF *(denoted ".1 J 100")*
C3 = 100 pF *(ceramic capacitor)*
D2, D3 = 1N4148 *(orange with black ring)*

R3, R9 = 1 M *(brown black black yellow brown)*
R8 = 3k9 *(orange white black brown brown)*
C4 = 470 nF *(denoted ".47 J 63")*
C5 = 22 nF *(denoted "22 nJ 100")*
C6 = 100 uF *("cylinder shaped", "100 uF")*
IC1 = TL071
IC socket

Metal box with drilled holes *("125B natural")*
LED D1 with socket
Input jack *(stereo)*
Output jack *(mono)*
Current jack with breaking contact
Battery contact
P1 = 500 k *(Drive, dentoted "A500k")*
P2 = 100 k *(Volume, dentoted "A100k")*
Potentiometer knobs (*"MXR mini, black")*
Foot switch *("3pdt blue")*
Moody Drive PCB *("maj19")*
Rubber feet
Sticker decal
Wires
Solder

Modifying components
Resistores:
1k5 *(brown green black brown brown)*
470 k *(yellow purple black orange brown)*
Capcacitors: 47 nF
Diodes: 1N4148, LEDs





Eng

Moody Sounds
Guitar effects, DIY kits
moodysounds.com
support / forum:
moodysounds.se

moody®

Moody Drive v3.3

Overdrive KIT

Power supply
9V battery or eliminator with
Polarity: + -(o- -
Voltage: 9VDC - 12VDC
Capacity: >4mA
Audio

Other properties
Current consumption: 4mA@9V
Input impedance: 1MΩ
Output impedance: 1k
Dimensions (L x B x H):
122 x 66 x 60 mm
Weight: 240g

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moody®

Moody Drive Overdrive KIT

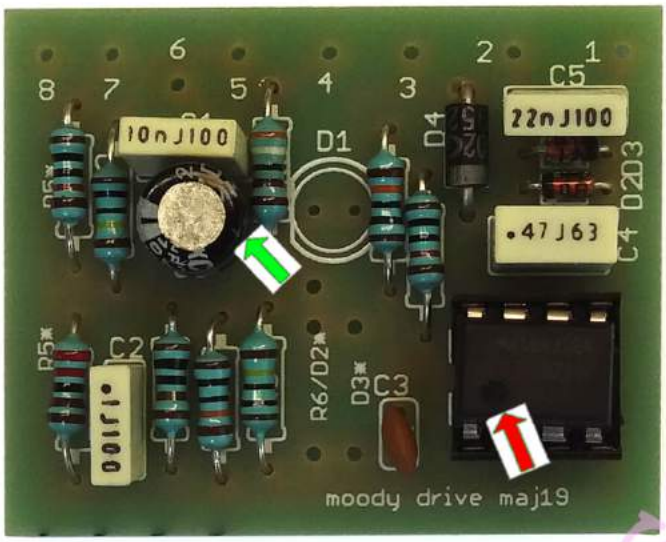

Image 1. Location of the components on the PCB.

R1 = 1 k *(brown black black brown brown)*
R2, R4, R6, R7 = 10 k *(brown black black red brown)*
R3, R9 = 1M *(brown black black yellow brown)*
R5 = 2k2 *(red red black brown brown)*
R8 = 3,9 k *(orange white black brown brown)*
C1 = 10 nF *(denoted "10n J100")*
C2 = 100 nF *(denoted ".1 J 100")*
C3 = 100 pF *(ceramic, denoted "101")*
C4 = 470 nF *(denoted ".47 J 63")*
C5 = 22 nF *(denoted "22 nJ 100")*
C6 = 100 uF *(cylinder shapd, "100 uF")*
IC1 = OP-amp *("TL071")*
D1 = LED
D2, D3 = 1N4148
D4 = 1N4001
P1 = 500 k *(Drive, denoted "A500k")*
P2 = 100 k *(Volym, denoted "A100k")*

Mounting the Components on the PCB

1. Mount and solder the nine **Resistors** R1 through R9 according to image 1. Make sure the solder covers the pins of the components completely. Solder must not cover two holes on separate tracks on the PCB. ***It does not matter in which direction resistors are turned!*** R6/D2 is empty in the standard setup. The holes "inside" R5 and R6 are also empty.

2. Mount and solder the three **Diodes** D2, D3, D4. ***It is important that they are turned the right way!*** A diode has a painted ring which indicated direction. A diode position is indicated with a rectangle with a line inside. Make sure the "rings match up with the lines" on the board. ***They may be sensitive to high temperatures. Avoid overheating them!***

3. Solder the **IC socket** on the PCB. ***It shall be turned in a certain way.*** A half circle is cut out on one of its short sides and this side is also shown on the PCB and with a red arrow in image 1. The half circle on the IC socket shall line up with half circle on the PCB.

4. Mount and solder the **Capacitors** C1 through C6. C6 is an electrolytic cap. One of its pins is longer. The longest pin goes in the hole which is marked with a plus sign on the PCB *(also shown with a green arrow in image 1).*

5. *Push* the **OP amp** into the IC socket. ***It must be turned in the way the screen print indicates.*** Sometimes the side in question is show with a dot (as in image 1), sometimes with a half circle.

6. ***The PCB is finished!*** Put on the sticker decal and cut out holes where the drilled holes are.

7. Mount the pedal parts in the box. There is a small metal tag next to the shafts of the potentiometers. Break them off! They come off easily if you grab it with a flat nose pliers and twist it slightly. Before we start connecting wires, we will look at the pedal parts briefly.

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!***

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. ***Do not mix them up!***

A **Potentiometer** has three solder lugs: 1, 2 and 3. Its value is written next to its shaft. ***P1 and P2 have different values - do not mix them up!***

The **Current jack** has three solder lugs also. We assign them numbers 1, 2 and 3, according to the image.

The first wires are connected (those that do not involve the PCB) see image 2

8. Connect a purple wire between tip on the input jack and pin 1 on S1 and, before you solder pin 1, connect another purple wire between pin 1 and pin 9 on S1.

9. Connect a grey wire between pin 3 on the current jack and ring on the input jack. ***If you want to be able to use battery as power supply, solder ring in step 23!***

10. Connect a red wire between pin 8 on S1 and tip on the output jack.

11. Connect a red wire between pin 2 on P2 and pin 7 on S1.

12. Connect a black wire between pin 1 on P2 and ground on the output jack. ***Solder the output jack in step 22!***

13. Connect a black wire between ground on the input jack and pin 3 and pin 5 on S1. Take off more cover than normal and put the end of the wire through both pins.

The PCB is mounted on the LED in the box

14. The **LED** D1 will hold the PCB in place in the box. Mount its metal socket and push D1, together with the insulating plastic piece, into the socket. ***Turn D1 so that its longest pin is to the right, compare with image 2!***

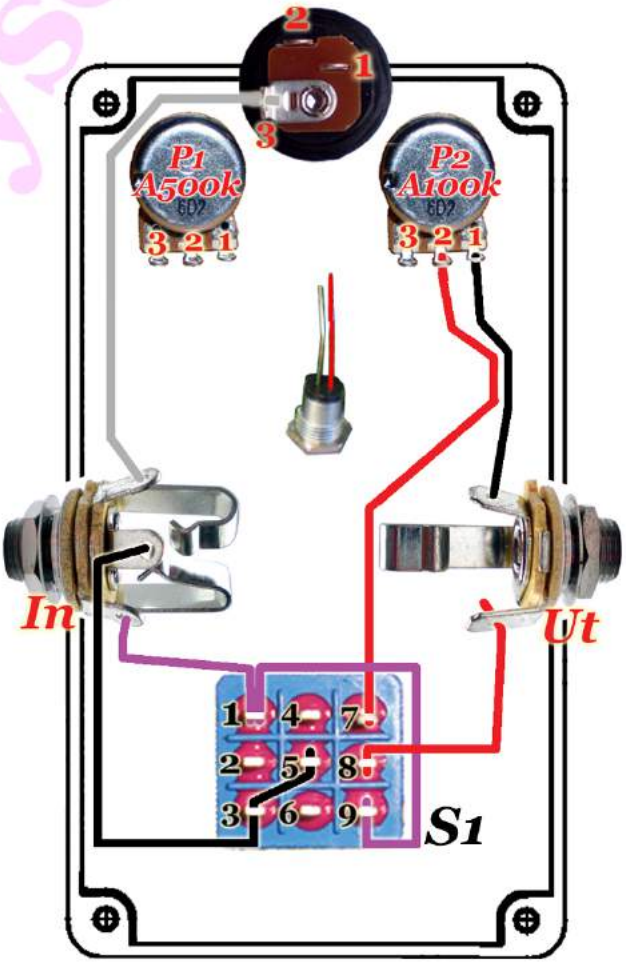

Image 2. S1's pins shall be in parallel with the short sides of the box.

15. We want the PCB to stand vertical in the box. Place the tops of D1's pins in the holes denoted D1 on the PCB and solder on the other side. In step 14 we made sure that D1 was turned correctly. Check again that D1's longest pin is closest to "the side of the circle which is not cut off". The hole, which the longest pin goes in, is shown with a red arrow in image 1 and the long pin is red in image 2.

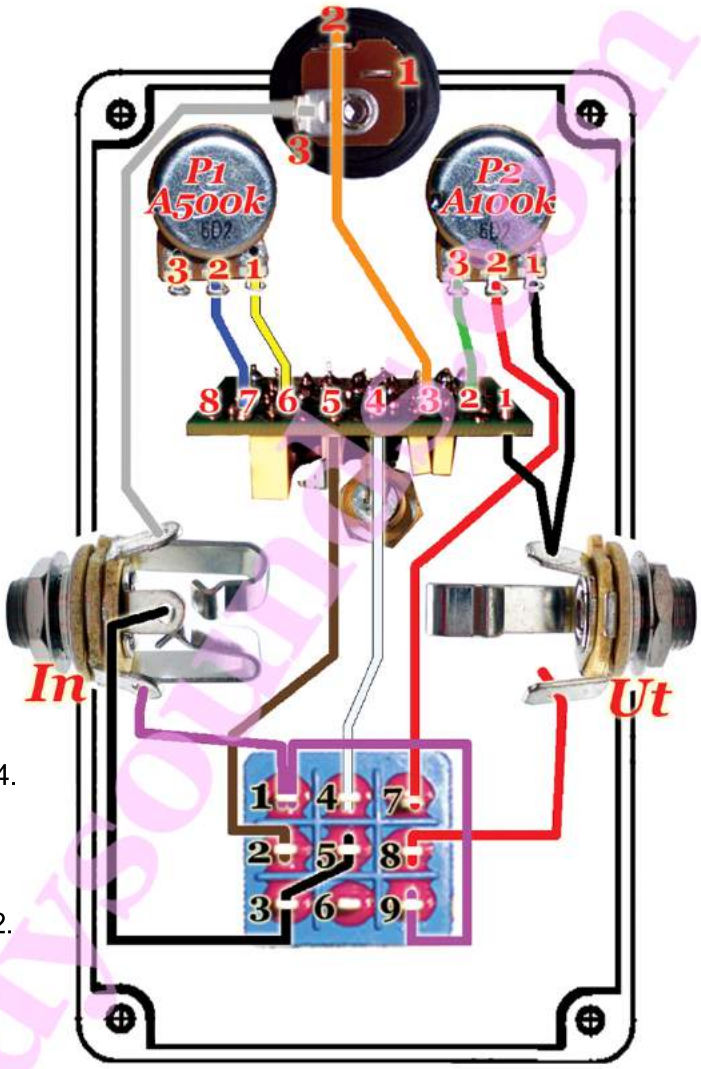

Image 3. Inside a Moody Drive.

The final wires are connected

16. Connect a blue wire between pin 2 on P1 and hole 7 on the PCB. ***It is ok to connect the wire from the solder side if it is better for you! Hole 8 is not used here!***

17. Connect a yellow wire between pin 1 on P1 and hole 6 on the PCB.

18. Connect a brown wire between pin 2 on S1 and hole 5 on the PCB.

19. White wire between pin 4 on S1 and hole 4.

20. orange wire between pin 2 on the current jack and hole 3.

21. Green wire between pin 3 on P2 and hole 2.

22. Black wire between ground on the output jack and hole 1.

23. Connect the battery contact's red wire on hole 1 on the current jack and put its black wire on ring on the input jack. The battery fits between S1 and the short side. ***The power is on when a plug is inserted into this jack! Remove the input plug when the pedal is not used.***

24. ***Your work is done! Test the pedal!***

Suggestions for modifications

There are many ways to tweak the Moody Drive. Maybe you want a different tone response from it? That is an easy fix! C2 is a part of a filter that cuts bass. **A bigger C2 cuts less bass.** And the other way around. A 47nF is an included mod cap. Change the 100nF for a 47nF for sharper sound. Or solder the 47n on the solder side, in the same connections and without removing the 100n, for more bass (the two caps come in parallel now and the total capacitance is 100 + 47 nF).

R7 and C5 make up a low pass filter. Increase C7 (for instance make C5=47nF) to cut more of the highs and vice verca. Solder a 47nF to the same connections as the 22nF that is in place now (new capacitance 22n + 47n) for even more high cut". Remove C5 for minimal high cut. In the same way, R7 can be increased/decreased for more/less high cut. A 50k pot instead of R5?

Some OD's have their **clipping diodes between the OP amp's output and inverting pin,** "logarithmic amplifier", instead of between output and ground. See image 1. Four empty holes "R6/D2*, D3*", are intended for this mod. Remove the diodes from the PCB and solder them in these holes instead. They shall be directed in opposite directions. Does the pedal sound differently now?

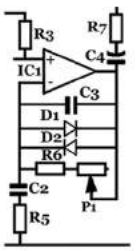

Image 4. Alternative diode position.

The diodes distort the amplified signal from the OP. The sound of the pedal depends to some extent on which type of diodes are used. **Replace the 1N4148's with LEDs** (and remember to put them in opposite directions). Or **remove the diodes completely**. Without diodes the circuit will be more like a boost.

The amplification A can be expressed as A = 1 + R5/R6 (here we have ignored the effects of C5 which is frequency dependent).

In the Moody Drive gain is changed with a pot in series with R6. Bigger R6 gives more gain. In the same way, lower R5 gives more gain (try lowering R5 to 1k5). In many popular distortions and OD's **gain is adjusted by making R5 variable and keeping R6 fix**. You can mod Moody Drive so that gain is varied in this way instead. Here is how you do: remove R6=10k and put a new R6=470k on the position R6/D2* (D2 and D3 could be in the original position to simplify mounting the new R6). Now the 470k is in parallel with out and - as in image 5.

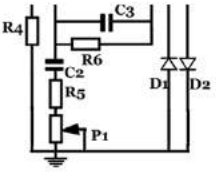

Image 5. Alternative way of adjusting gain.

Move R5 to the holes denoted R5*. Remove the yellow wire between hole 6 and pin 1 P3. Connect a new wire between hole 8 and pin 3 on P3. You will get best response with a pot with C curve, "antilog", with this setup. This type of pot is not included in the kit. Now P1 changes the resistance between R5 and ground as shown in image 5.