Roland CR-78 uniPulse midi kit installation manual

This is the uniPulse installation manual for Roland CR-78. It gives you the following features:

- Midi trigger of all CR-78 instruments, most fully velocity sensitive. Guiro pitch can be controlled slightly.
- Midi controlled accent trigger (send max velocity 127 to trigger accent). Accent amount is still controllable via knob.
- Instrument mixer on CR-78 will continue to work.
- Sync via midi clock, switch between internal clock and midi clock via toggle switch.
- Use CR-78 Rhythms and midi control simultaneously.
- Not need to cut any traces, installation is completely reversible.

The kit contains:

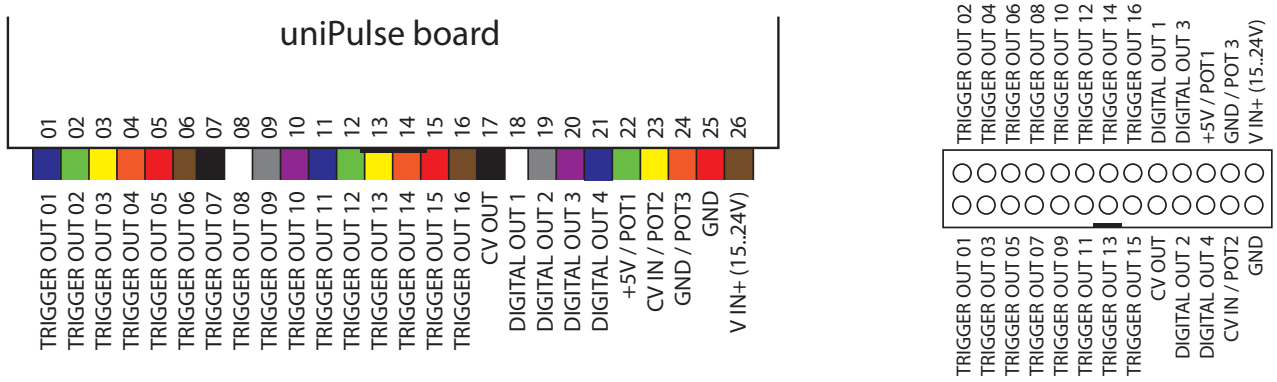
- Unipulse main board
- 2x NPN transistor (BC547 or similar)
- 2x Diode 1n1418 or similar
- Ribbon cable with connector
- Switch
- Midi socket with connector
- Stencil for drilling

Installation

Most of the uniPulse installation consists of soldering wires to trigger points on the CR-78 boards. In some cases however, additional parts such as diodes or transistors need to be installed. These can be soldered in place and are provided with the kit.

Make sure the CR-78 is unplugged during the whole installation.
Open the CR-78 case by removing the four screws on the bottom and sliding off the wooden frame. Inside you will find two boards, one on top and one on the bottom. You will need to solder wires to both boards, as well as one wire to the ‘jack socket’ board.

Start by soldering the wires of the ribbon cable provided. Each wire is soldered to a specific position on the boards, P1, P2, in the trigger point locations below are ‘TRIGGER OUT 01, 02...’, D1..4 are the digital outputs.



The voice board houses the 14 trigger points. The wires are soldered directly to existing diodes from the top. This way it is not necessary to remove the board. In two cases additional diodes need to be soldered in place. The GND connection is soldered to a wire-wrapping pin. In order to get a clean supply voltage and avoid interference, the +V connection is soldered the unregulated positive supply voltage. The most accessible point is the + connection of the round bridge rectifier D532.

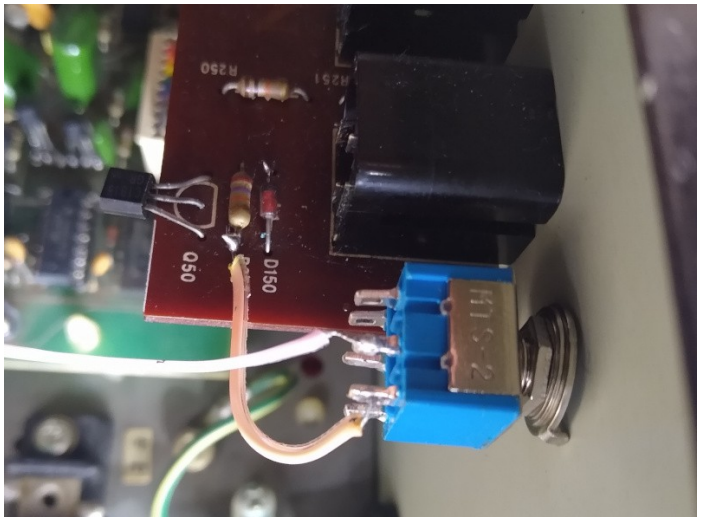
In order to get accent and start/stop control you need to solder two NPN transistors to points on the digital board. Solder the collector of the transistor to R199 and the emitter to the wire-wrapping pin labeled ‘G’. The base of the transistor is soldered directly to the D1 wire. (Don’t worry a base current-limiting resistor is included in the uniPulse)

The second transistor is soldered across the existing transistor Q5 as shown in the picture. The collector is soldered to the upper pin of Q5, the emitter to the lower pin. The base is soldered to wire D4.

Finally you can install the switch to chose the clock source. (internal or midi clock). It is soldered between R252 on the jack socket board and uniPulse wire D3 as shown in the picture.

You need to drill holes for the midi socket and the switch. Drilling can be simplified by removing the back metal panel. A stencil or the midi socket is provided. The switch needs a single hole between 6.5 and 7mm (1/4’’ should work as well). You can install them anywhere you like, the pictures below are just suggestions.

If you are finished soldering, mount the uniPulse board in the CR78. Make sure that no no pins make contact to the metal case.



WARNING!

There are at least 2 different CR-78 versions. Differences are where uniPulse power is connected and a where the transistors need to be soldered.

OLD version:

GND and -5V are switched. This can be used to identify this version.
Also switched is the voltage regulator for +15V and 5V, so you need to connect +V of uniPulse to a different point. (see pictures “old Version”)

This version also has a slightly different position of the extra transistors (see pictures “old version”)

Configuration

After installing the uniPulse, plug in the CR-78 and turn it on. The LED on the uniPulse board should light up indicating it is running. Connect midi out of your computer to midi in of the uniPulse.

Download the 'UniPulse configurator' program from the Tubbutec website, as well as the file CR78.pconf

Run the configurator and load the config file. Select the midi interface that is connected to uniPulse and press the upload button. The light on the uniPulse should turn off shortly and turn on again.
You can also modify the configuration to your needs, for example if you switched wires during soldering, or if you want to experiment with different pulse shapes.

Use the test functionality to test all instruments. You should be able to hear them all when pressing the Test button. However the machine needs to be started (with the start button), otherwise all instrument are muted. Deselecting all rhythms will result in no instrument playing, alas Guiro is hardwired to always play if the instrument is started. A mitigation of this problem is to select midi clock as clock source and not send a midi clock.

Usage	
Internal rhythms with internal clock (default)	Midi clock off
Midi instrument control only	Midi clock on, do not send midi clock, send note on
Midi instrument control and midi clock	Midi clock on, send midi clock (guiro will be on), send note on
Internal clock + midi instrument	Midi clock off, send midi note on

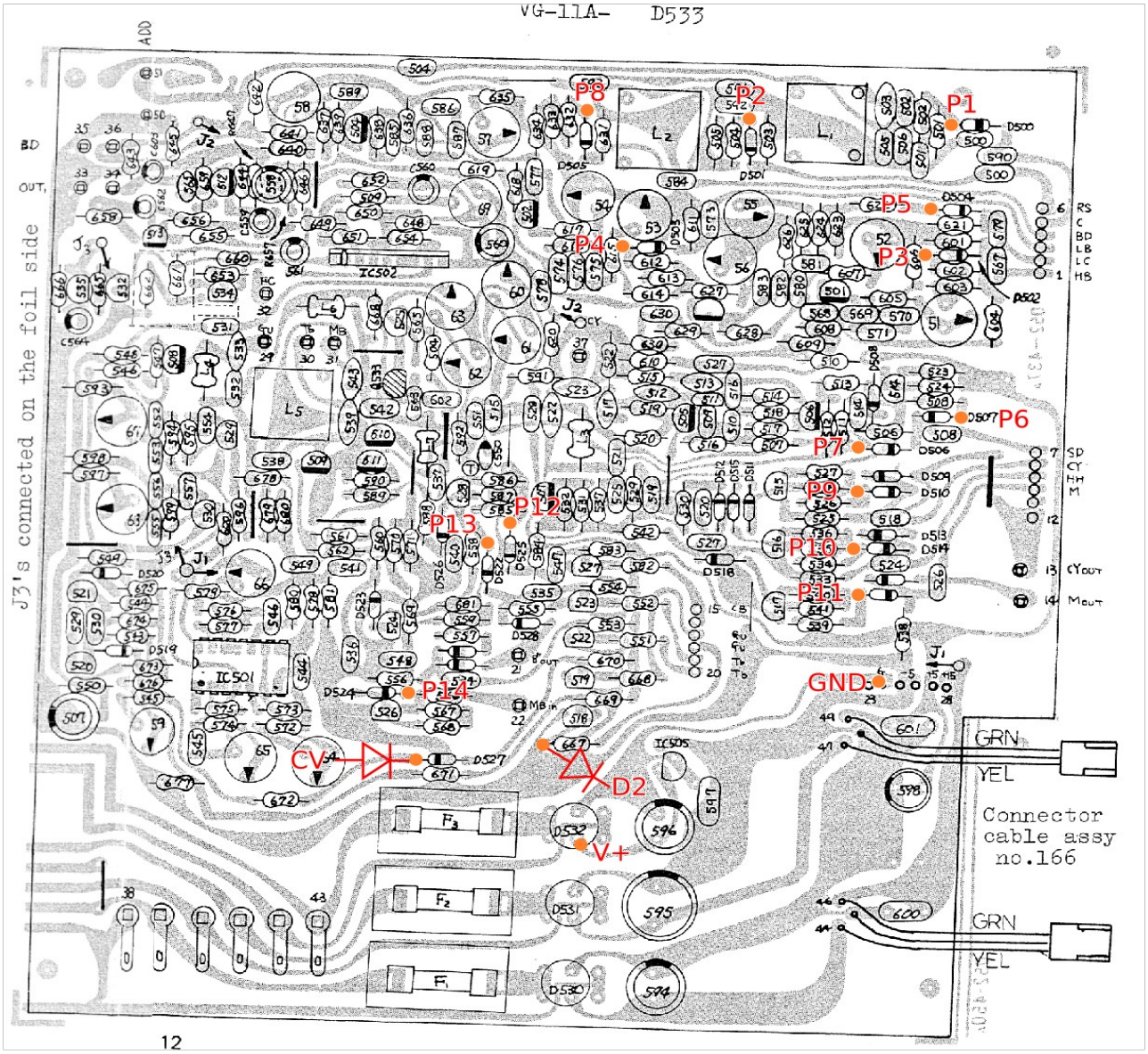
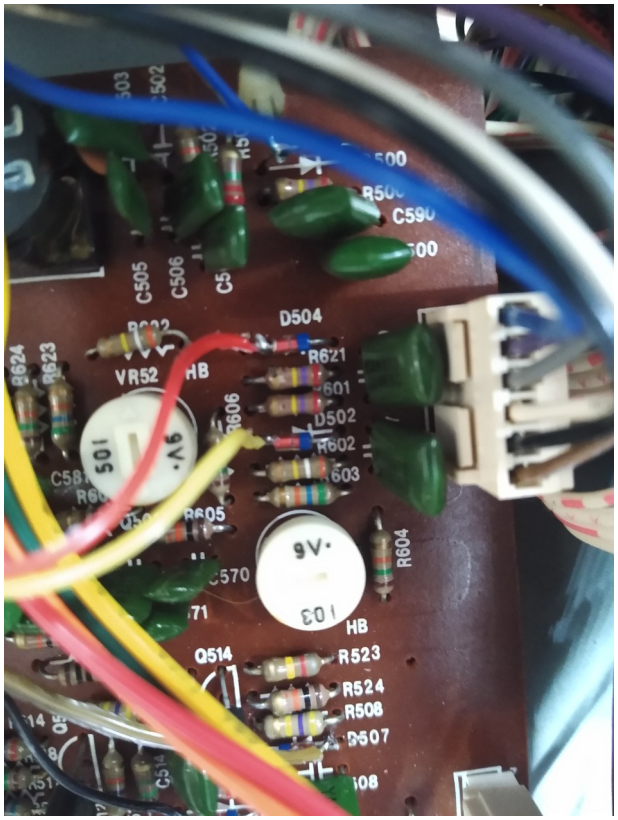
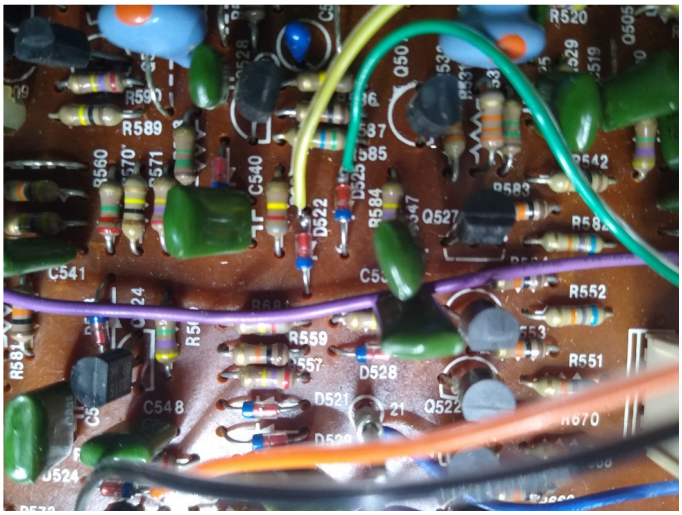
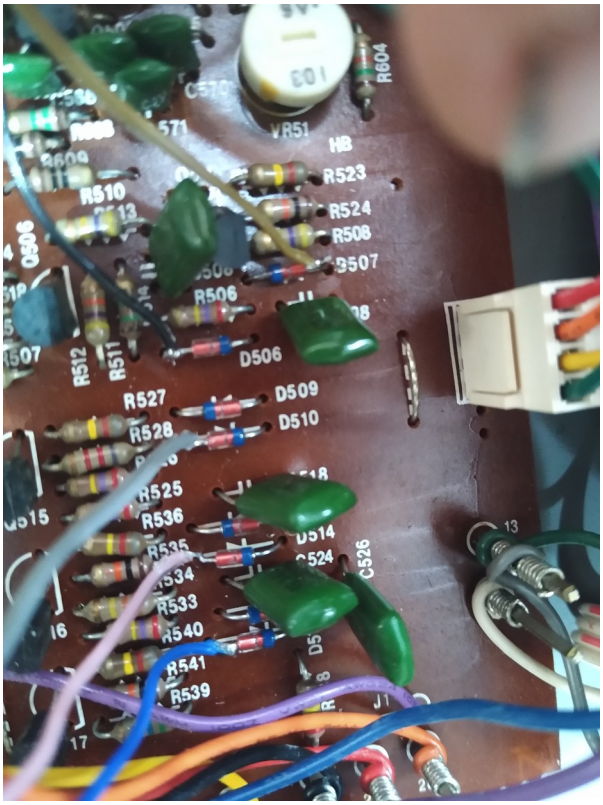


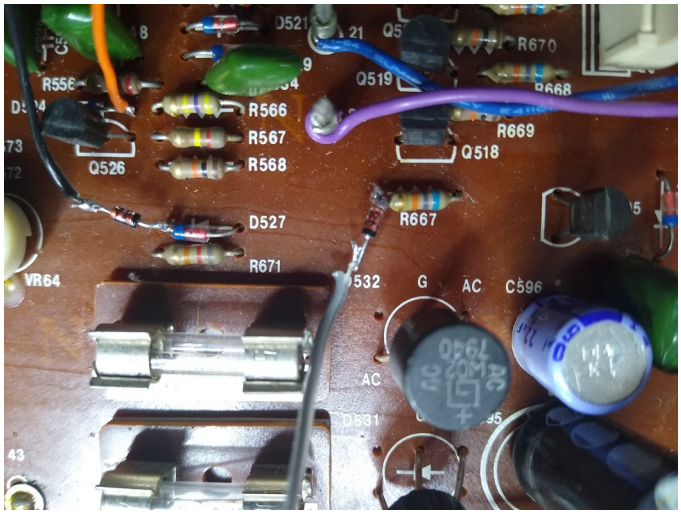
Figure 1: Voice board soldering locations


VR57
R633
R632
C577
D501
D503
C575
R614
C630
Q503
OFF
SET


D504
VR52
HB
R621
D502
R602
R603
R604
R523
R524
R508
D507
Q514


R589
C540
D522
Q527
C541
R552
R559
D528
R551
D521
Q522
R670


VR51
HB
R523
R524
R508
D507
R506
D506
R512
R511
R527
D509
D510
R525
R536
R534
R533
R540
R541
R539
C526


R566
R567
R568
Q526
Q519
R669
Q518
R667
D527
R671
VR64
G
AC
C596

New version:

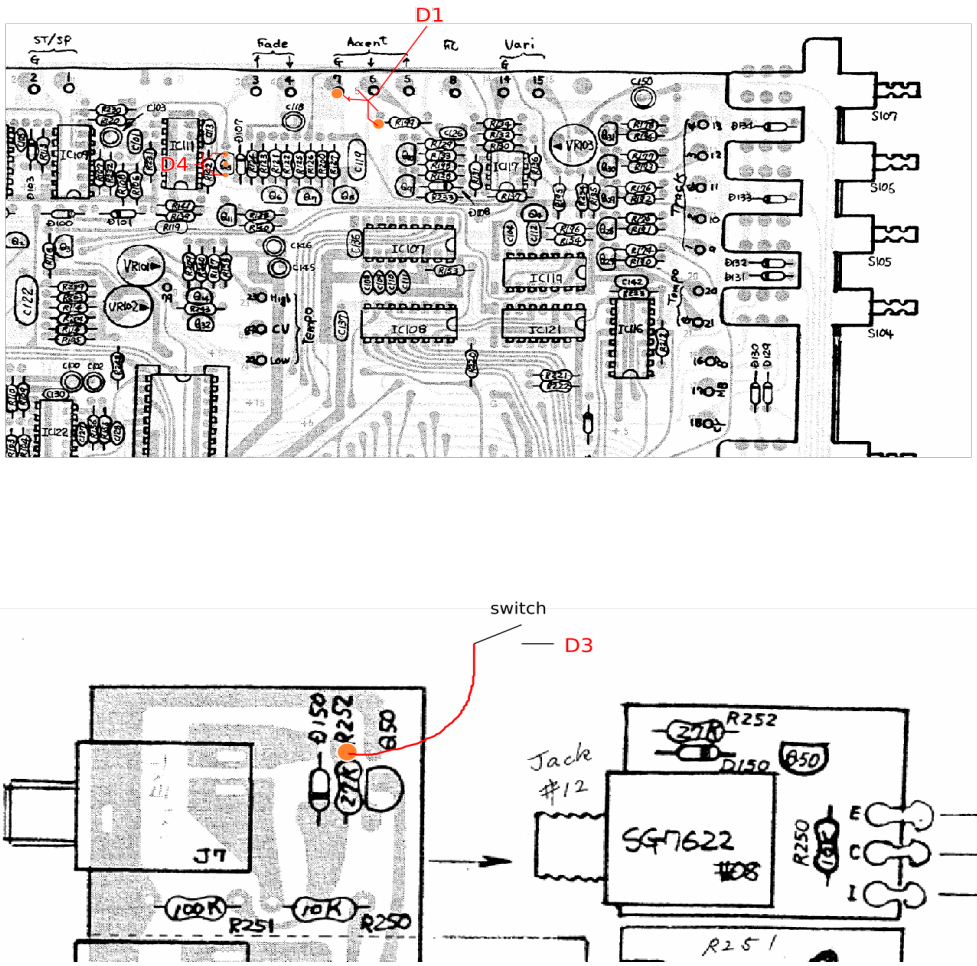
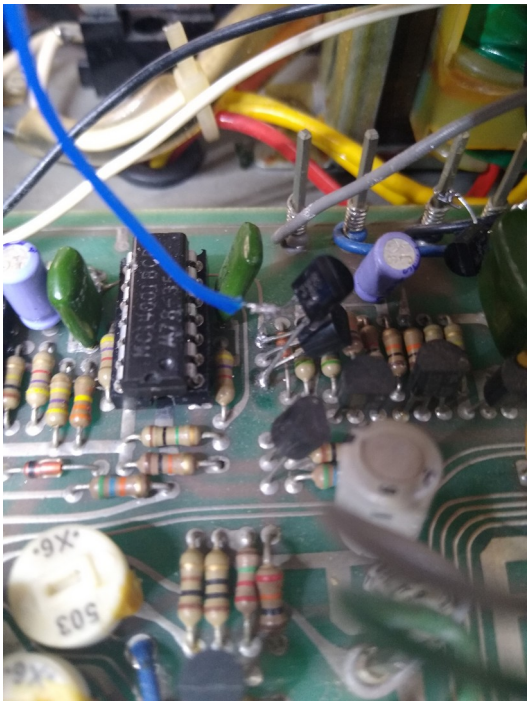
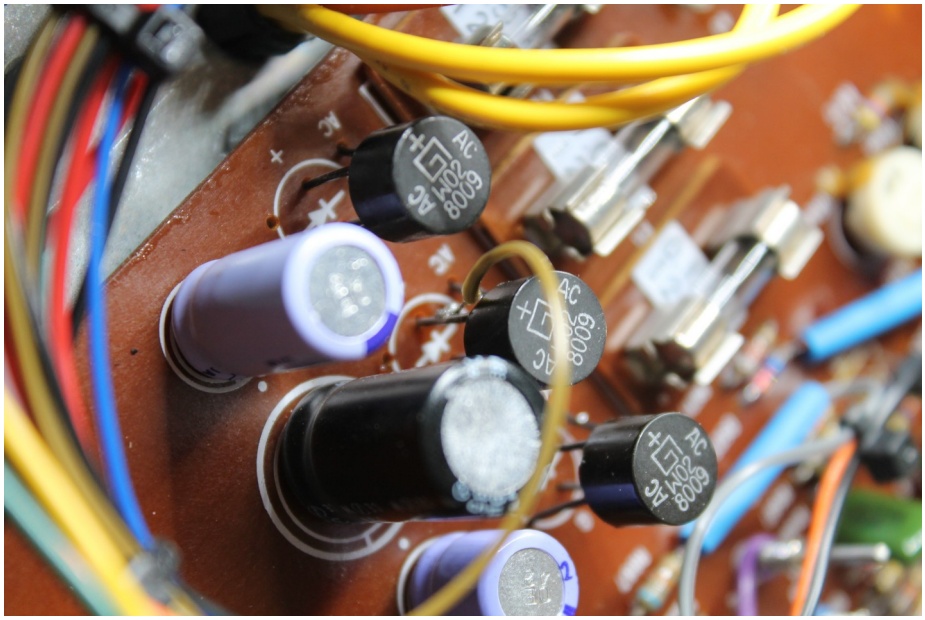


Figure 2: Digital and Jack board soldering locations



Old Version:



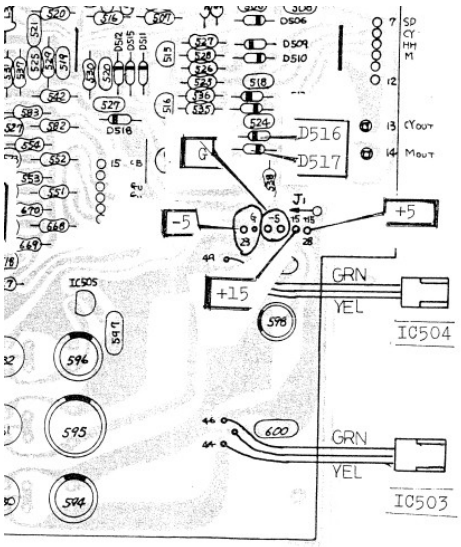


Figure 3: Old version with flipped GND and -5V connections