

# Midi Bass Pedals

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## Introduction

Ever since I first heard the Prog Rock band Genesis, I wanted a set of Moog Taurus Bass pedals to use alongside my bass guitar. When I had the funds to consider a purchase, they weren't on sale anymore and used versions on eBay were ridiculously pricy. Then I discovered that MIDI bass pedals were around and looked into those, but soon found the pedals needed a keyboard or sound module again putting them financially out of reach. I wanted a simple self-contained unit.

Recently I came across projects on YouTube and the "Instructables" website which gave me hope. I found projects using second hand pedal units from old organs being used with various Arduino computer boards and old keyboards to make something along the lines I was looking for. However, most still needed an external MIDI Sound Module of some sort.

I found a company in Belgrade, Serbia called MikRoe ([www.mikroe.com](http://www.mikroe.com)), who made a small monophonic MIDI Bass module called "Bass Boy" (see parts list for full details). I also found the Doepfer MBP25 MIDI Controller on the Thomann website – a board designed to convert a pedal board into a MIDI Controller.

This gave me all I needed – the parts to create a self-contained pedal board which could output to an amp without any sound module or keyboard.

Thomann and Doepfer do offer a kit – MBP25 & Faceplate plus a FATAR PD/3 Pedal board for around £185 which I could have bought and simply added the Bass Boy. Still a bit expensive as I would have to design and build a case etc. EBay came to my rescue with a used pedal board from a c1980 WERSI Organ for £30. I ordered the MBP25 and Bass Boy and began building.

## Preparation for Testing

### Part 1 – Test Rig

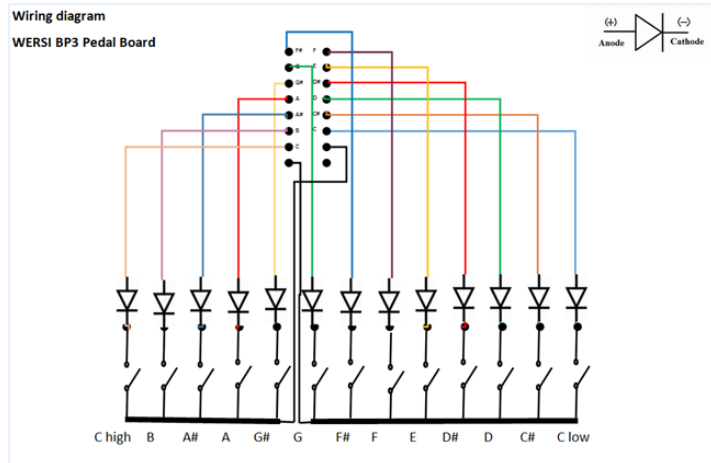


Once the pedals arrived, I did a few continuity tests and mounted the chassis on a board so I could put everything together and make sure it all worked. I just used a few bits of timber and board I had in the shed. I would use this to wire things up temporarily to get it working and to help with the design of the proper case. I found out very early on that I needed the side timbers to stop the pedal unit tipping forward when a pedal was pressed.

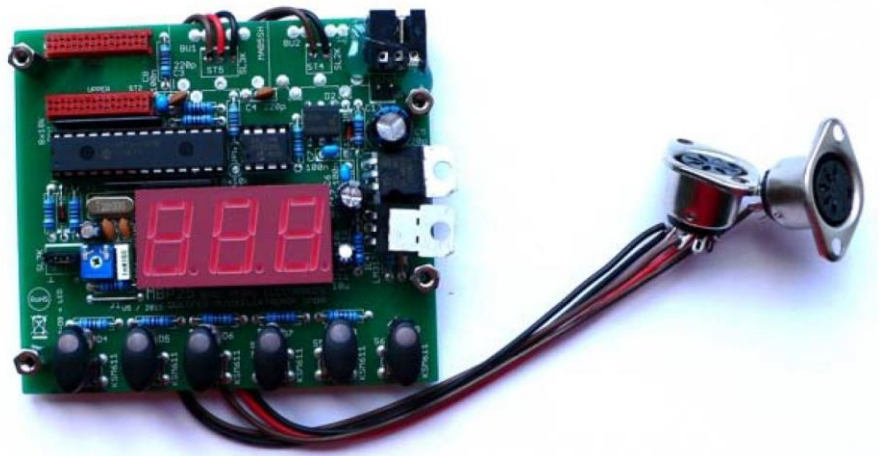


I took the circuit-board off the pedal board to check the wiring underneath. The board came off easily and I took the opportunity to clean the mechanical switch wires with a little wire wool. The circuit underneath was very simple – no components just tracks connecting the mechanical switches to the pins on the top surface.

Working out the wiring of the board needed some thought. It had to be the same as the schematic supplied in the MBP25 manual. This required the cutting of the thick circuit track to split the switches into two busses. I used a small Vero board to build a board to hold the required diodes and configure the wiring.



As the Doepfer MBP25 Midi Controller board came with a power supply, I was able to plug it in and test that it powered up and behaved as the manual said it should. This is a supplier photo of the controller without the face plate.

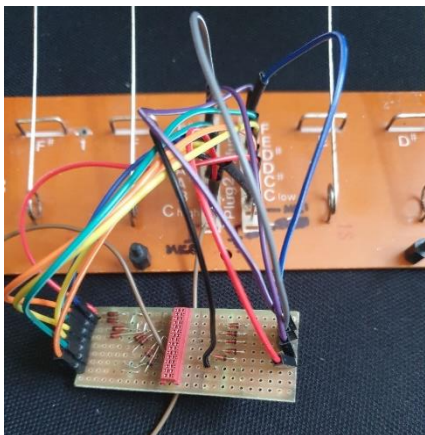


The Bass Boy is a small circuit board – you can work out the size in relation to the mono jack socket. The online manual lists how the unit can be configured for different MIDI channels using the yellow jumpers (bottom left). I am planning to wire the board so that it can be switched off and isolated from the MIDI Controller signals so that the pedal board could be used with an external sound module or keyboard if required.

## Wiring for Testing

I spent a long time trying to work out the wiring for the pedal board to interface with the MBP25. I used a Veroboard to construct an interface board allowing me to add the diodes needed in each switch line and hold the wiring to the pedal board. I included the socket to connect the ribbon cable from the MBP25.

Unfortunately, in the first interface board, I failed to realise that the socket pin outs were not 1,3,5,7,9 down one side and 2, 4, 6, 8, 10 etc down the other – they are 1 to 8 down the left and 16 to 9 down the right. Once I realised that, I created a second interface board using a second socket everything worked!!



I was not convinced that this would be the best way to wire things up as it may be difficult to connect and disconnect the ribbon cable once everything is installed in the case. In the end I did rewire the interface board giving it longer wires between the pedal circuit board and the interface board.

## Front and Rear Panels

I purchased a 3U rack blanking plate and 2 recessed mounting boxes from CPC ([www.cpc.farnell.com](http://www.cpc.farnell.com)) and mounted the MBP25 in the centre of the panel along with the power switches and LEDs for the MBP25 and Bass Boy and the MIDI Signal indicator. I also later added a volume control for the MBP25 which allows a bit of control over the output signal.

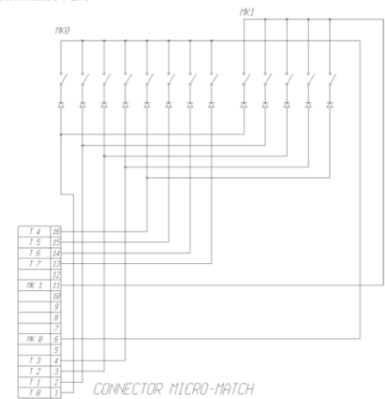
The back panel contains the MIDI IN and MIDI OUT, Audio Out from the Bass Boy, and the mains power In socket and switch.

Both boards are 12V so I included an internal Power Supply of an appropriate rating to supply the two boards.

One of the recessed boxes was fitted with an IEC mains connector with switch and the other with the MIDI IN and MIDI OUT Sockets from the MBP25 and the BASS BOY using its Jack socket. (Photo shows temporary labels)

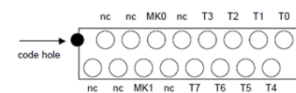


Schematics PD/S



If another bass pedal or single contacts/switches are connected to the MBP25 they have to be wired identically to the PD/S

This is the pin-out of the MBP25 connectors (ST1, ST2) for the bass pedals (top view):







Mains Panel



MIDI and AUDIO OUT



Rear of same panel showing BASS BOY Mounting

(Photos show temporary labels)

A final hook up and test to make sure all was well before starting to build the case

### Case

I chose to build a case and add a flight case later. The pedal board itself was to look similar to all other bass pedal boards with all the connections on the back and controls on a top panel.

The first picture is the rough build – screws to be countersunk and joints glued. Still needs sides to be added at this point.



The 3U Panel fits into the top of the box and clears all the pedal board stuff below.

I constructed the case so that the top and back came off as one so all the wiring and connecting, with the exception of the pedal board ribbon cable could be done before the top was fitted. This way I can keep the wiring tidy and tie it down to keep things safe.

The second photo shows the almost completed case with the sides. Next stage is to sand and smooth the box ready for finishing.



The case was to be black. As wood doesn't take spray paint that well, it was given a base coat of satin black with a little satin black spray paint over the top. Quite pleased with the results.

I am now able to carry out final assembly. The case enables everything to be fixed to the top/back cover leaving only the connection to the pedal board. Had to make sure everything cleared everything else before fixing things in place.

Added some labels and a logo (no I'm not a pro builder – just a bit of fun!) and here is the completed project.

It works well and also has been tested with an external MIDI Sound module.

Total Cost £220 approx



### Parts List

Module	Description	Model & Spec
MBP25 /BB	Power Supply Unit	7-12V 250mA + 100ma
MBP25 & BB	Switch	3PDT (On-On) 6A 3PDT Toggle Switch On-On Latching Miyama MS-500M
MBP25	Ribbon Cable - Board to pedals	AMP MicroMatch 16 way
BB	LED - No Resistor	Blue 12V 10 x Blue LED 5mm - Diffused
MBP25	Potentiometer	Between 5K and 500K Lin
MBP25	Knob	To fit Pot above
BB	Midi Cables	2m Midi Cables
Case	Power Connector	IEC Mains Connector with Switch
Case	Connector for Ribbon	2x TMM-4-0-16-2 Connector Micro-MaTch socket female PIN16 straight THT 1A
Pedals	Mounting kit	Various Pillars, screws etc.
Pedals	Diodes	50 x IN4148 Diode - High Speed Signal Diode
Project	Ribbon Prototype Cables	M-F 40 Way
Case	c13 rewirable plug	
MBP25	Midi Control Unit	MBP25 Circuit Board and Face plate - Doepfer.com <a href="http://www.doepfer.de/MBP25.htm">http://www.doepfer.de/MBP25.htm</a>
BB	Bass Boy	Mono MIDI Bass Sound board – Mikroe.com <a href="https://www.mikroe.com/bassboy-board">https://www.mikroe.com/bassboy-board</a>
Pedals	13 Note Organ Pedalboard	Used Organ Pedal Board from EBAY