KIT 117. PICALL PIC PROGRAMMER

This is a kit of parts to use the PICALL software of Bojan Dobaj to program most 8, 18, 28 & 40 pin DIP parallel and serial programmed PIC's. Parallel programmed PIC's are the 16C5X series. The PICALL for DOS software will work under DOS, W3.1 or W9x. We suggest you download the PICALL for Windows software, **PICALLW** because this is where all the software development and support is now (2/2001) going. At this time download the latest version 0.10c, 11/2001.

There is a good reason to move to these latest versions since it has a **no-keypress** programming feature very useful if you are programming hundred's of PIC in one sitting.

PICALLW supports other PIC programmers such as dontronics.com DT-001, and Kits 81 96 and 119 from my kit range. You may also change the settings manually to suit other types of programmers which use the same (original David Tait) design of programmer .

Download the latest version (version 0.10c, november 2002 at the moment) of the PICALL software from one of the following websites:

picallw.com (software writers website)
kitsrus.com (hardware supplier)
dontronics.com

The PICALL software as downloaded is **fully functional**. There is no additional registration fee to pay.

See the **picallw.com** website for a full list of the PICs the software will currently program.

New PIC's can be added as they are released by entering them in the **device.ini** file of the software. The software shows you where to place your PIC chip on the board for programming. The hardware & power need to be connected for this to happen.

Note that the software will also program some Atmel and EEPROMs. Support to program still other micro-controllers is being written. (Some hardware modification is required. This is a V3.1 hardware version PCB. See the Help file in picallw which comes with the program.)

Do not confuse these programming methods with the serial port and parallel ports of a PC. A serial programmed PIC refers to the programming algorithm by which data enters the PIC. In this method the data bits are entered serially onto 1 pin (like a shift register) and the 13V programming voltage is toggled onto a programming pin to latch and burn the word (12 or 14 bits.) In the parallel programming method the whole word (12 or 14 bits) is presented on the PICs 8-pin port B and 4-pin port A simultaneously then the programming voltage is toggled. Timing is critical. On-board firmware is usually, but not always needed to do this.

Schematic. See the two schematics on the next page. The power supply gives the 5V and 13VDC levels required for the programmer.

We have supplied a 40 pin IC socket for programming. However, for maximum flexibility in programming you will need to buy your own 40 pin **wide-slot** ZIF (zero insertion force) (3M, Aries) socket. You must connect the programmer to the PC parallel port using a **straight-through** (male/female) cable from the on-board 25 pin PCB-mounted subd connector.

Please NOTE: the **Aries brand** ZIF socket has small pins while the **3M brand** socket has wide flat spade/shovel-type pins. The PCB is made to take both sockets. So in the **UK** and in **Australia** where Aries ZIF sockets are more common make sure you do not over-solder the ZIF socket by continuing to feed in solder wire into the hole. The solder will just flow through onto the top/overlay side of the board and possibly short out the pin(s) next to it. (People have done this then abused me for making the holes to large. Hence this warning.)

COMPONENTS

Resistors 5%, 1/4W:		
820R grey red brown	R7	1
1K2 brown red red	R9	1
2K2 red red red	R3	1
4K7 yellow violet red	R1 R4 R5	3
10K brown black orange	R8 R2 R6	3
Programmed firmware	IC3	1
78L05	IC1	1
78L08	IC2	1
1N4148	D1 D2 D3	3
4.00mhz crystal 49/US	X1	1
10n mylar capacitor	C3	1
22pF ceramic	C5 C6	2
100nF 104 monoblok	C1 2	2
470uF/35V ecap	C4	1
28 pin 0.3" skinny, IC socket		1
40 pin IC socket		1
BC557	T1 T2	2
BC547	T3 T4	2
Bridge rectifier WO2	BRECT	1
5mm red LED	D4 D5	2
5mm green LED	D6	1
25 pin male R/A subd connector	1	
DC power jack 2.5mm		1
Kit 117 PCB V3.1 version		1

Assembly. We have supplied a DS PTH (double sided, plated through hole) PCB so no links are required. Check the components against the Components Listing above. Follow the overlay in placing the components. Because

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you are building this advanced programmer we have assumed you have previous experience in kit building.

Testing K117 with picallw.exe. Connect power. The green LED should go on. Neither of the red LEDs should turn on. If they do then check component placement and soldering before going on. Make sure PICALL is the programmer selected in the center drop down menu.

- Settings/LPT Port. Set to 'auto' is what I use.
- Settings/Hardware Setup-Test. Click on the first 3 tests will show little dots appearing after the test box. If everything is OK the word 'passed' will appear.
- clicking on Set/Clear VPP and Set/Clear VPP1 will turn the two red LEDs labelled VPP and VPP1 on Kit 117 on/off.

That is it. Click OK and do your programming. If you get any Error Messages you can find the details at:

Help/Contents/Hardware/Picall Hardware/PICALL Error Codes

Kit 117 is the hardware version 3.1 mentioned in Bojans documentation.

Unfortunately I can find no discussion in the Help about Prog Delay Auto Adjust setting. Just leave it where it is seems to work well.

To program the 64 pin PIC's - 16C92x & 17Cxxx - you will need to buy an adaptor from Microchip or make your own. Only 5 lines need to be taken from the 40 pin socket to the adaptor card - MCLR/Vpp, Vdd, Vss, RB7 & RB6.

For a comprehensive list of PIC tools & websites go to **dontronics.com**

For my Introduction to PIC Programming Kit 81 and my other programmers see **kitsrus.com**

If you have questions or error reports about the software please email Bojan Dobaj at **support@picallw.com**

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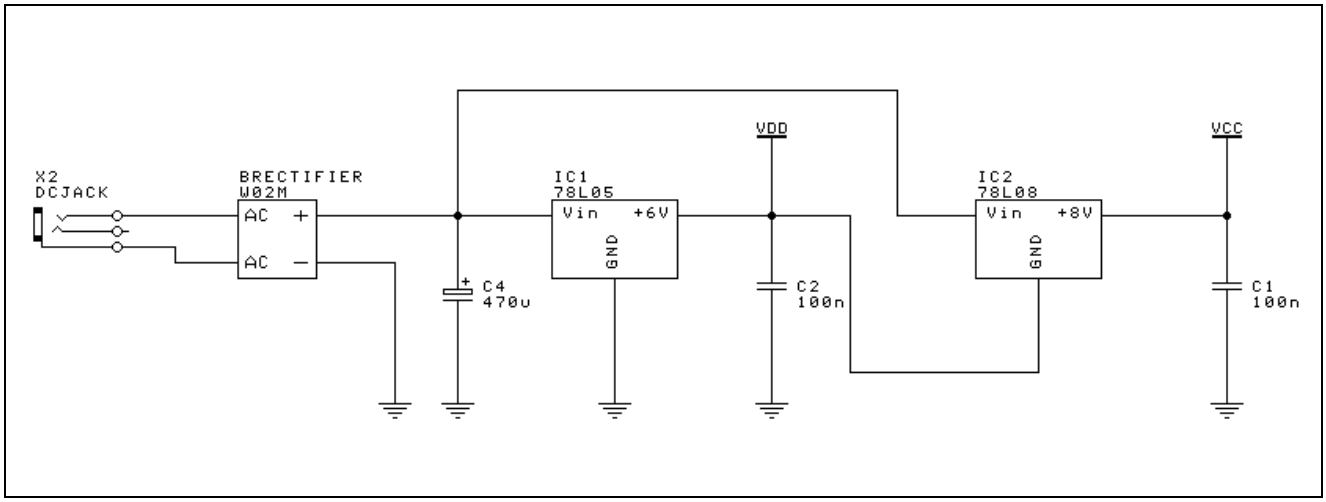

Figure1. Power Supply.

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