

## Introduction

To make your own WP 34S you need to flash an HP 30B or HP 20B with the WP 34S firmware. In order to do this, you need to connect the calculator to the PC. This can be done using the HP flash cable, connecting into the back of the calculator, and, if you don't have a physical RS232 port on your computer, a USB to RS232 converter. The same connections are required if you want to exchange data between the PC and your WP34S.

Now, wouldn't it be more convenient, if you could just connect your calculator to the PC using an ordinary micro USB cable? At least that is what I thought after using the HP flash cable a few times. So I designed a PCB that would fit inside the calculator and would enable you to do just that.

## Versions

There are 3 different version of the PCB available:

### 1. Basic version

This version provides the USB port and nothing else.

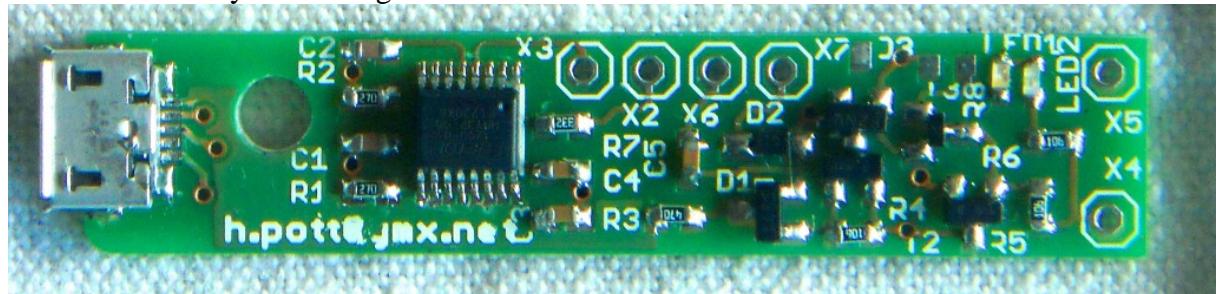
### 2. USB power and IR printing version

This version provides the USB port, IR printing and USB power when the calculator is connected to the USB port



### 3. Lithium Ion version

This version provides the USB port and allows you to connect a lithium ion or lithium polymer battery. When the calculator is connected to the USB port, the battery is charged. When it is disconnected it runs of the battery. One of the original CR2032s is kept and acts as a memory backup battery. That way you do not loose data when the lithium ion battery is discharged.



In addition to these 3 versions, there is also a PCB available that replaces the PCB in the original flash cable. The flash cable can then be plugged directly into the PCs USB port.



## Installation

### Preparation of the calculator

First you need to open the calculator

(Pictures to follow)

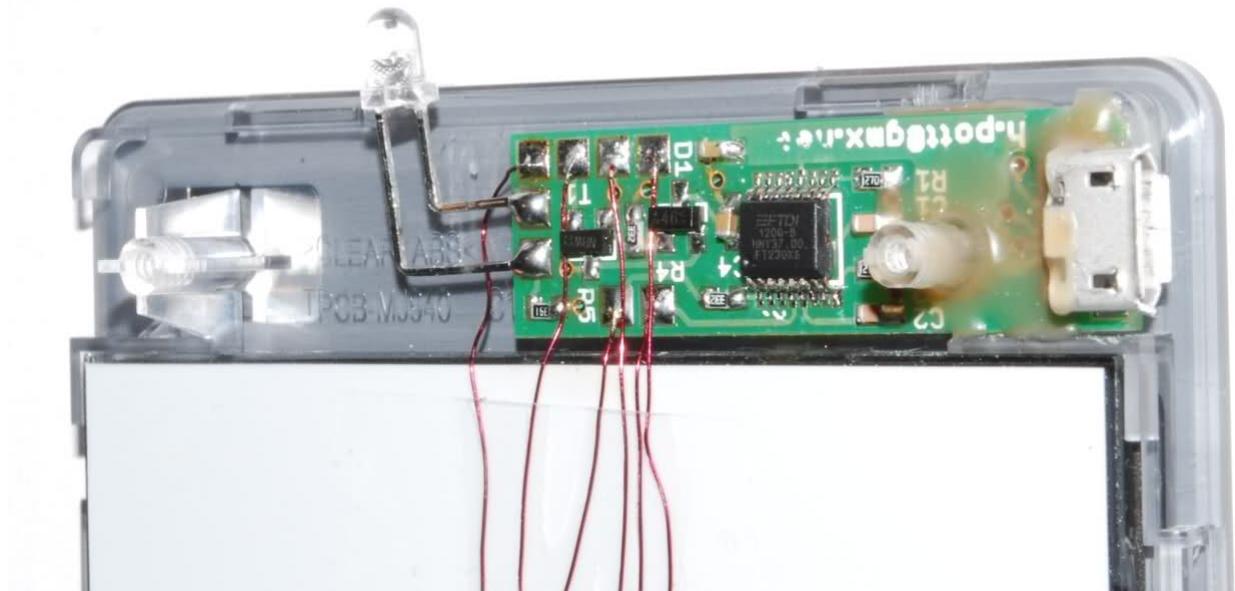
Then you need to prepare the area where the board will be installed. Cut away the plastic supports around the top left screw post with a sharp knife:



This is what it looks like when you are done:



Next you can glue the PCB in place:



Then you need to solder the LED and the wires to connect to the calculator to the board. See next chapter for instruction on what to connect where.

Finally you will have to drill a 3mm hole for the LED and cut a hole for the micro USB connector. This is a bit tricky if you want to be exact. I got the best results when drilling out

the corners of the hole with a small (1.5 to 2mm drill) and then cutting the rest with a sharp knife.

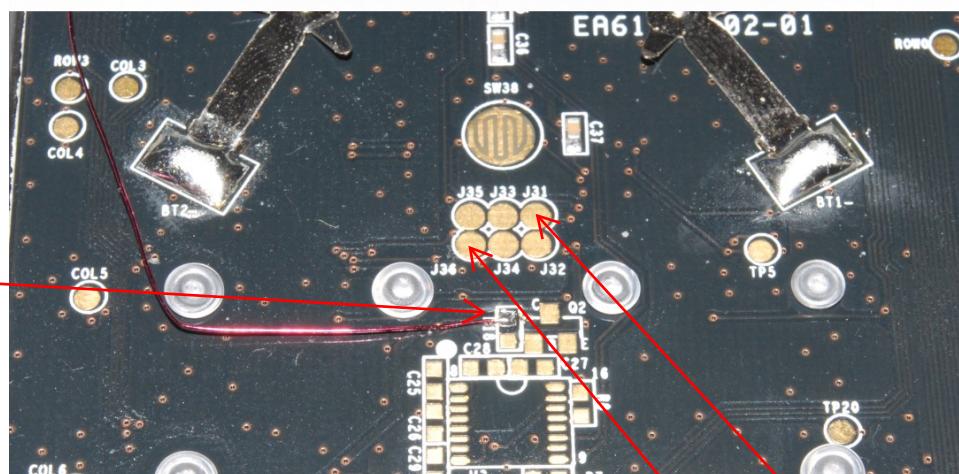
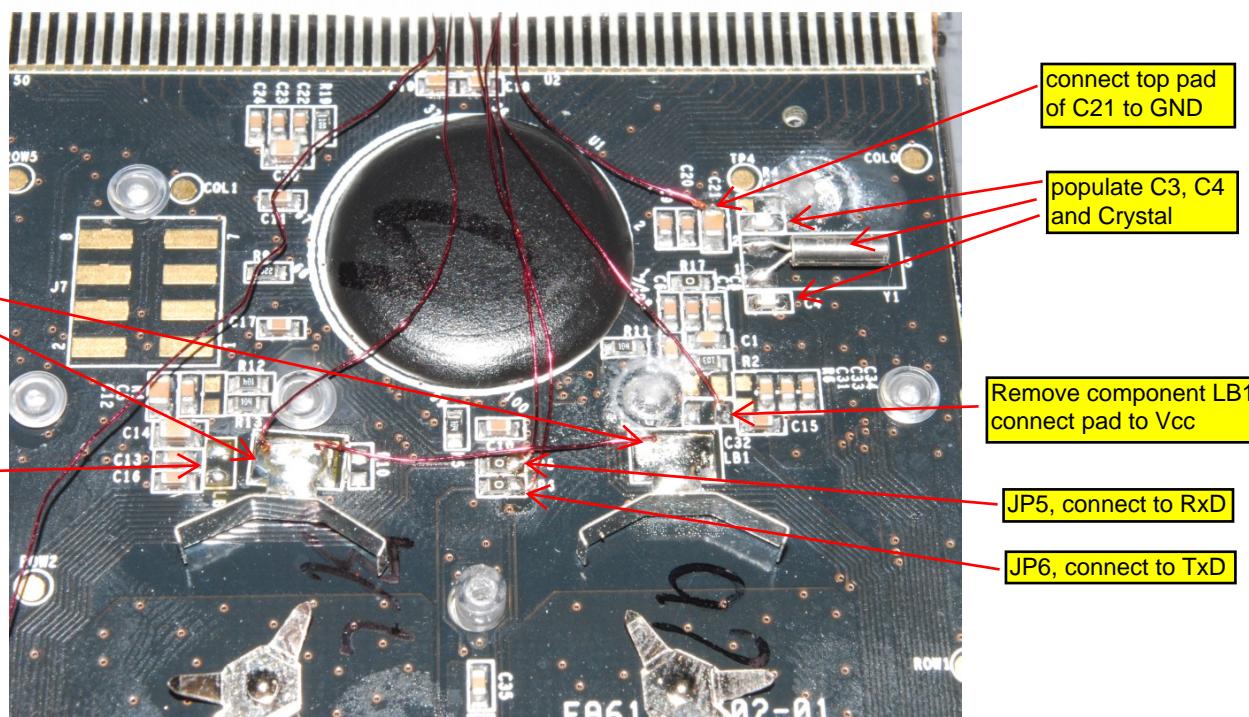
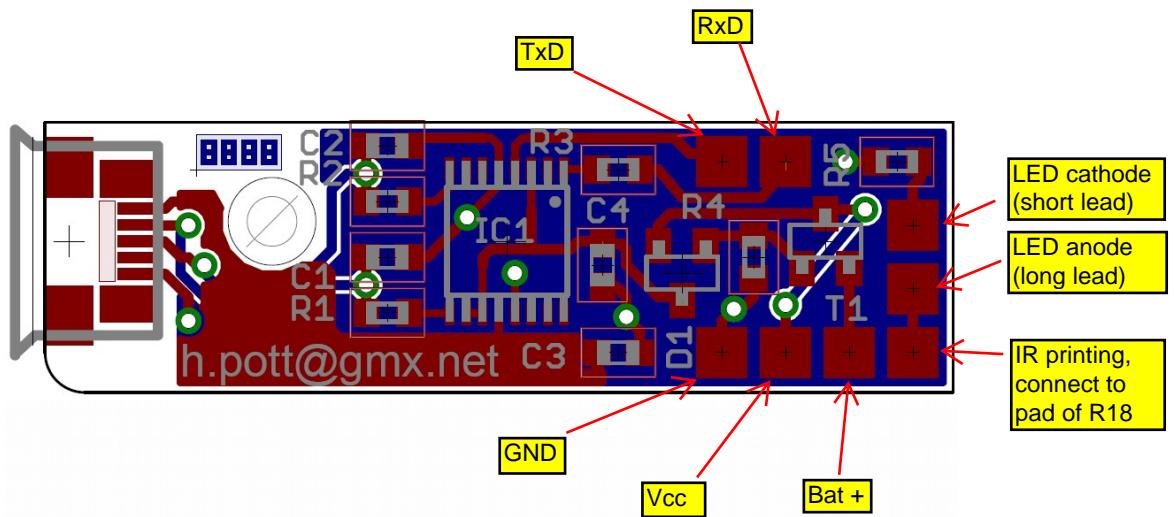
(pictures to follow)

The result looks like this:



## Electrical Connections

The following instructions are based on the installation of the “IR printing and USB power” version of the flash adaptor.



If you are using the flash adaptor for first time programming of a HP30B, you will need to short out these two pads instead of pushing the erase button on the flash cable. It is easiest, if you solder a wire accross the two pads, and remove it when you are done.

I will update and extend this document in the future.  
Feel free to email me with any questions or corrections.  
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