QRPGuys EZ WSPR-Pi Adapter Assembly

DIFFICULTY LEVEL
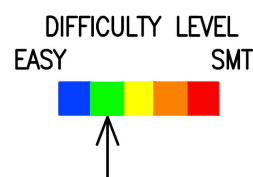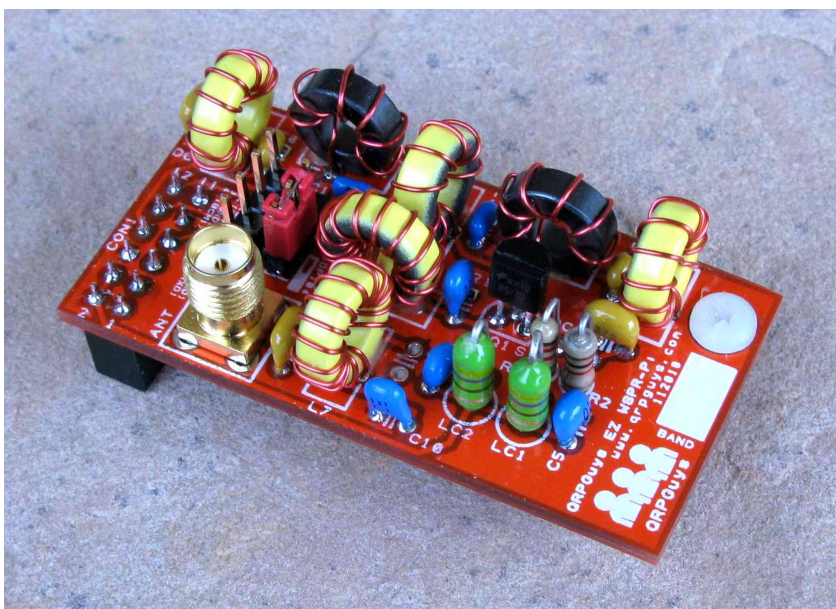
EASY   SMT

First, familiarize yourself with the parts and check for all the components. If a part is missing, please contact us and we will send one. You must use **qrpguys.parts@gmail.com** to request a part.

Parts List
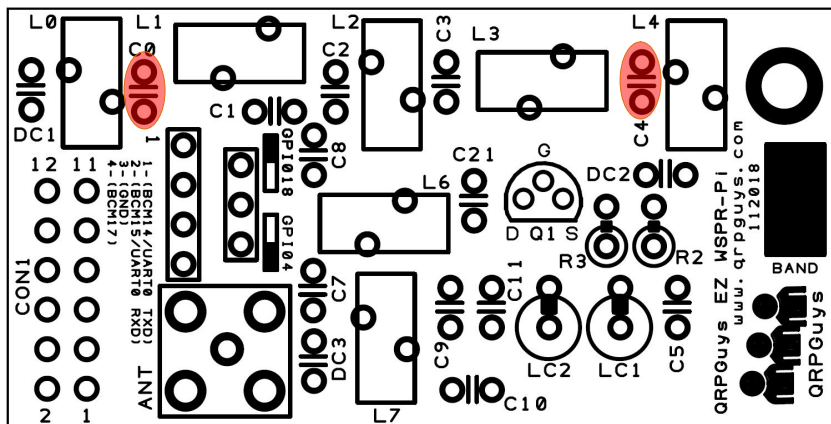
1 – QRPGuys EZ WSPR-Pi pcb
1 – Q1, BS170 transistor
3 – DC1,2,3, .22uF mono capacitor, marked 224
2 – C0,4, 390pF mono capacitor, marked 391
2 – C1,3, 39pF, mono capacitor marked 39
1 – C2, 470pF mono capacitor, marked 471
2 – C5,11, .01 mono capacitor, marked 103
1 – C6, not used
1 – C7, 680pF, mono capacitor, marked 681
1 – C8,9 for future bands
2 – C10,21, 330pF, mono capacitor, marked 331
1 – R2, 1.2K resistor, (brown-red-red-gold)
1 – R3, 1K resistor, (brown-black-red-gold)
2 – LC1,2, 47uH molded inductor, (yellow-violet-black-silver)
5 – L0,2,4,6,7, T37-6 toroid core, (yellow)
2 – L1,3, FT37-61 toroid core, (black)
0 – L5, not used
1 – 6', #26awg enameled wire
1 – CON1, 2x6 pin,2.54mm double row female pin header socket
1 – 1x3 pin 2.54mm single pin male header
1 – 1x4 pin 2.54mm single pin male header
1 – SMA female pcb connector
1 – SMA male to BNC female pigtail
1 – Berg connector (jumper)
1 – 4-40 x .19"L nylon screw
1 – 4-40 nylon nut

Start with the smallest components first, using the figure below as a guide. All the components mount on the top side, *with the exception of the 2x6 female inline header and the 4-40 nylon nut.*
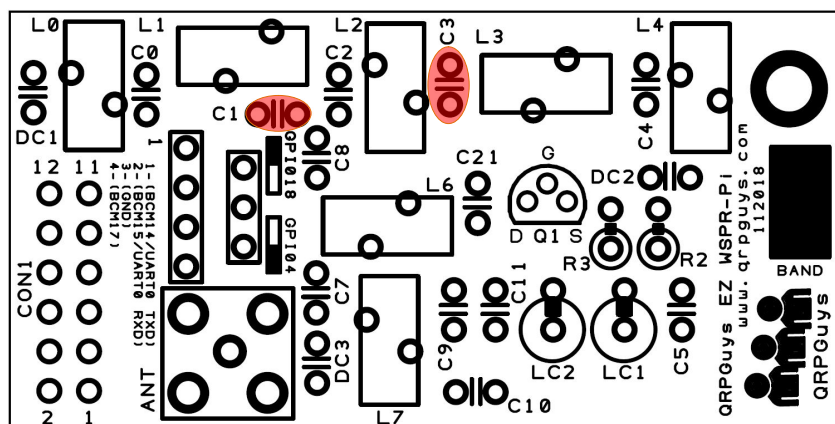
[ ]   Install DC1,2,3, .22uF mono capacitor, marked 224
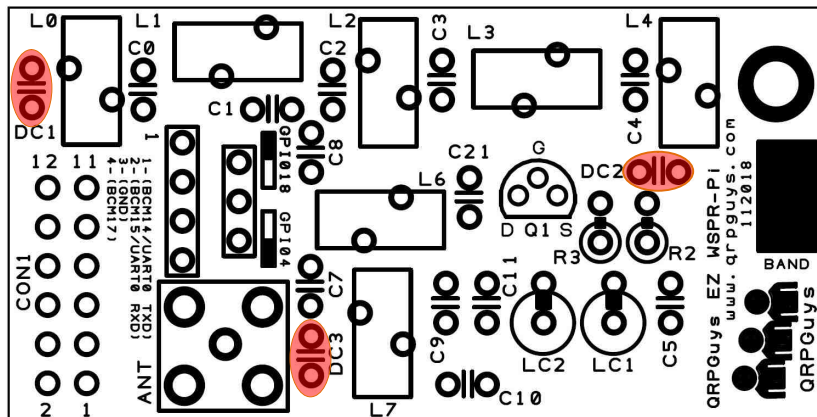
[ ]   Install C0,4, 390pF mono capacitor, marked 391

[ ]   Install C1,3, 39pF, mono capacitor marked 39
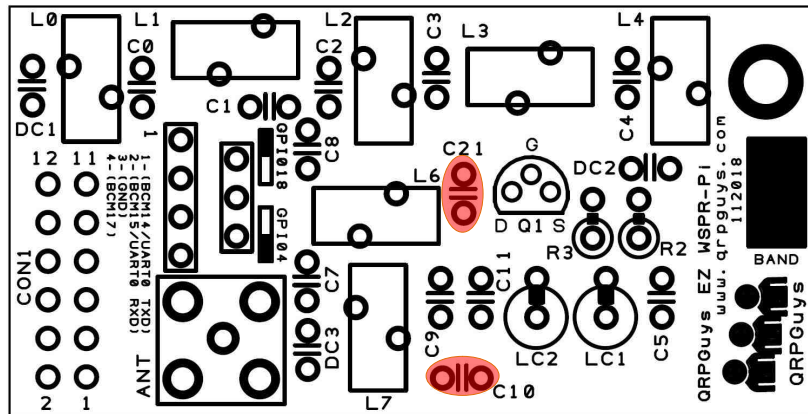

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[ ]   Install C2, 470pF mono capacitor, marked 471

[ ]   Install C5,11, .01 mono capacitor, marked 103

[ ]   Install C7, 680pF, mono capacitor, marked 681
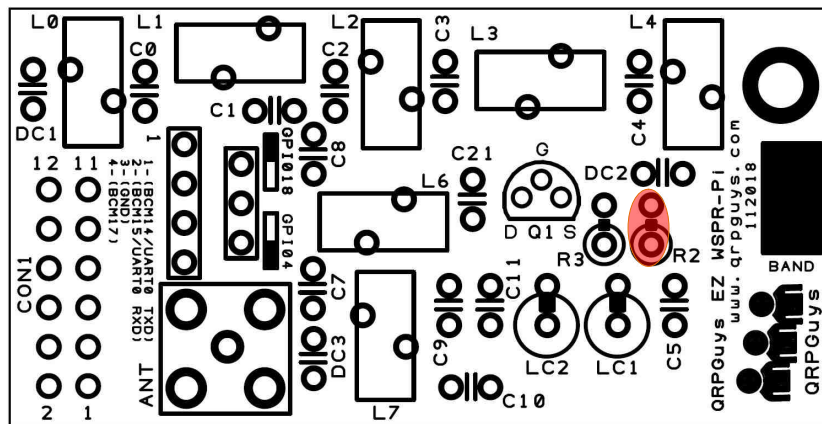
[ ]   Install C10,21, 330pF, mono capacitor, marked 331

Use caution identifying the inductors and resistors. They are difficult to remove if installed in the wrong location. Bend as shown and the end of the component mounts flush with the board at the silkscreened circle.
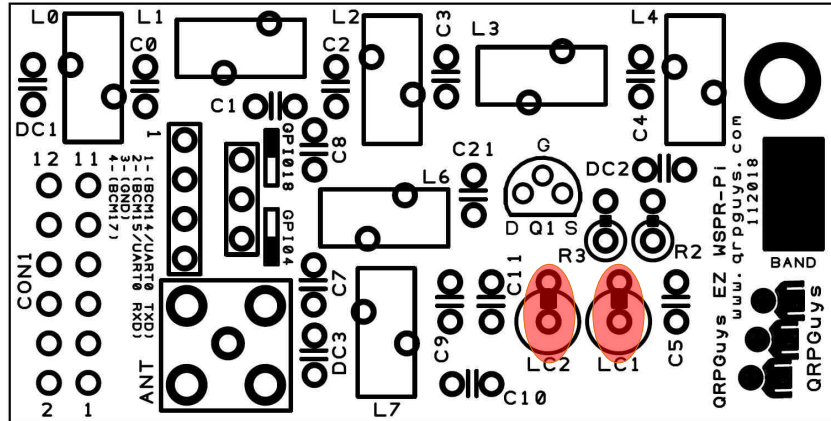

RESISTORS
AND
INDUCTORS

[ ]   Install R2, 1.2K resistor, (brown-red-red-gold).

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[ ]   Install R3, 1K resistor, (brown-black-red-gold)
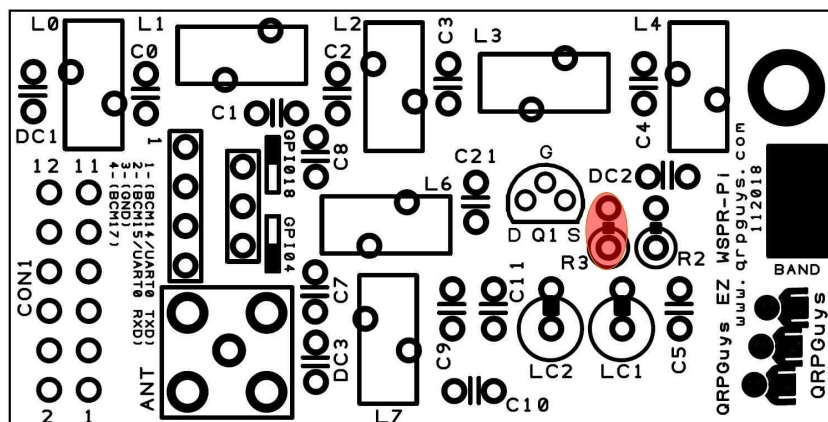
[ ]   Install LC1,2, 47uH molded inductor, (yellow-violet-black-silver)

[ ]   Install Q1, BS170 transistor, *observe outline*

[ ]   Install the 1x3 pin 2.54mm single pin male header

[ ]   Install the 1x4 pin 2.54mm single pin male header

[ ]   Install the 2x6 pin 2.54mm double row female pin header socket, on the **"BACK SIDE"**

[ ]   Install the SMA connector at the antenna position flush with the board.

Winding the toroids

Wind the toroids in the direction as shown in the pictures. They will line up with the holes in the pcb. Always tin the magnet wire before soldering them in place. We supply Thermaleze® wire so it is easy to tin without scraping. Install in the upright position.
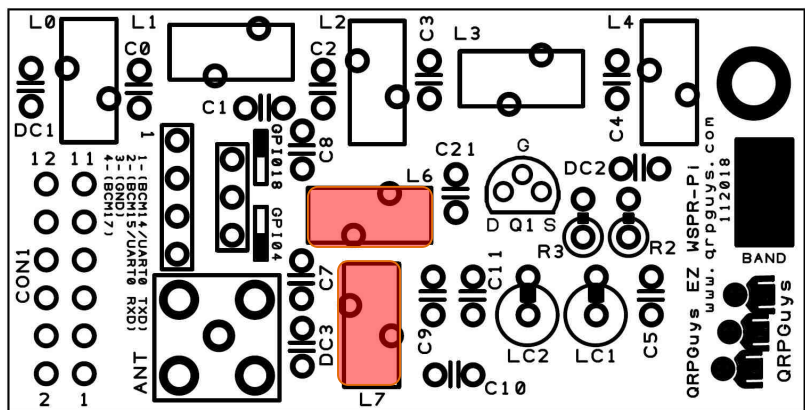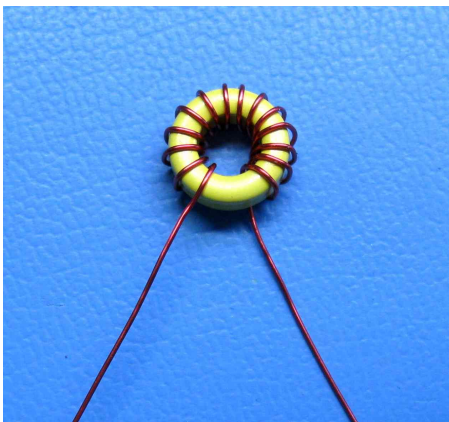
[ ]   Wind L2 using 6" of the supplied magnet wire and a T37-6 (yellow) toroid with 8 turns as shown below. Tin the leads before installing.
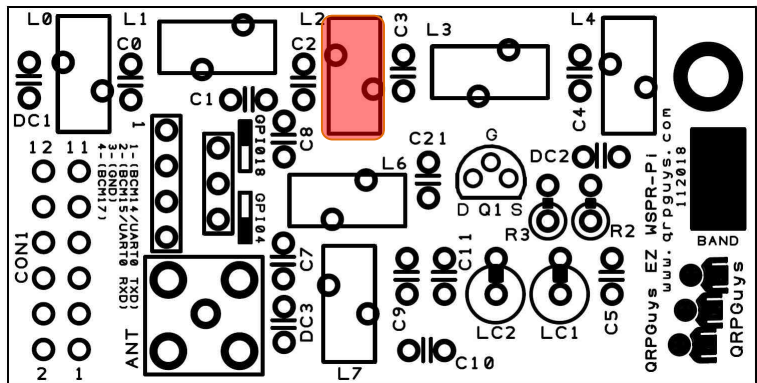
[　] Wind L0 and L4 using 7" for each, of the supplied magnet wire and a T37-6 (yellow) toroid with 10 turns as shown below. Tin the leads before installing.
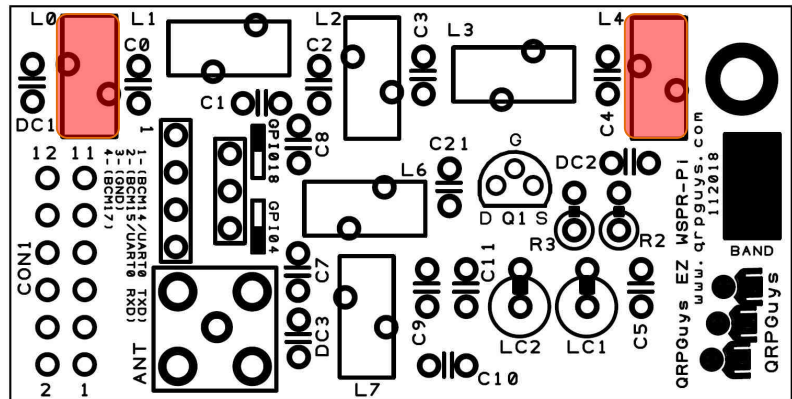
[　] Wind L6 and L7 using 9" for each, of the supplied magnet wire and a T37-6 (yellow) toroid with 14 turns as shown below. Tin the leads before installing.
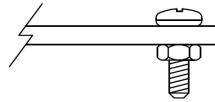

[　] Wind L1 and L3 using 6" for each, of the supplied magnet wire and a FT37-61 (black) toroid with 7 turns as Shown below. Tin the leads before installing.
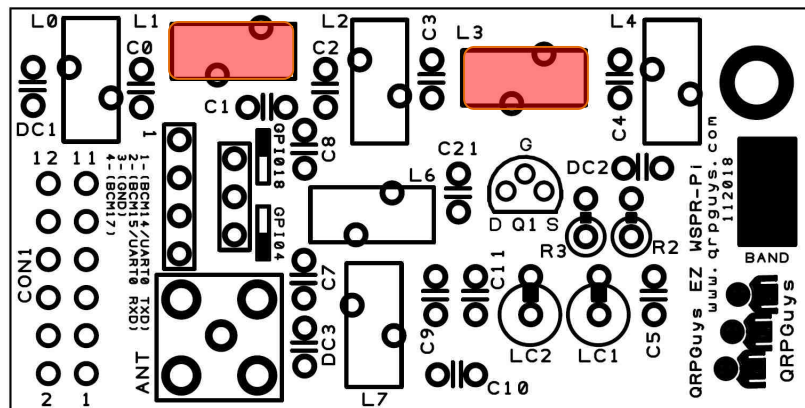
Yellow core shown for clarity

[ ]   Install the 4-40 nylon screw and nut on the board as shown, with the screw head on the top of the board and the nut on the bottom.

[ ]   Install the Berg connector (jumper) on the 3 pin header in the GPIO4 position. This completes the assembly.

Usage:

This document only addresses the assembly of the pcb. For implementation of this adapter with the Raspberry Pi 3 or 3B, please use the programs and guides at:

https://www.raspberrypi.org/downloads/raspbian/
https://github.com/JamesP6000/WsprryPi
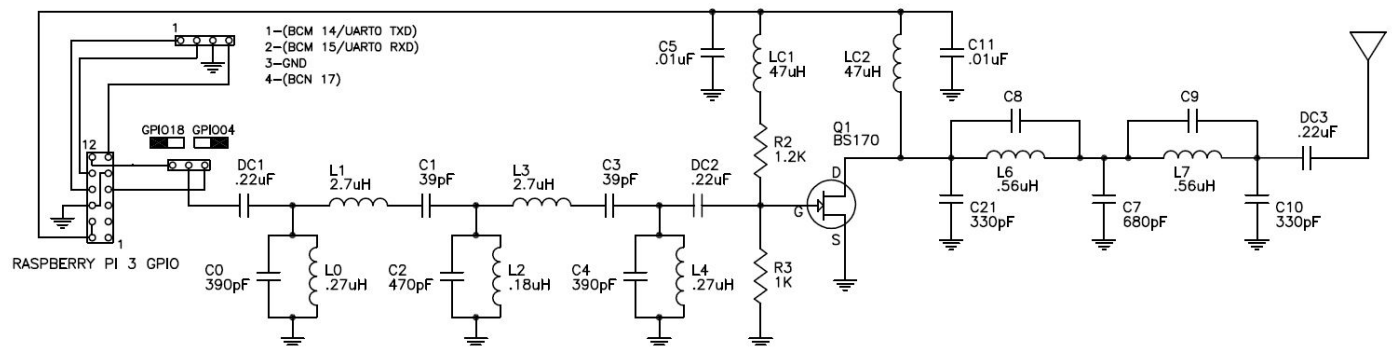https://www.realvnc.com/en/connect/download/viewer/

For those that want a full assembled and tested 20m version with the full history of the product development and a wealth of reference material, please visit the TAPR site at:

https://www.tapr.org/kits_20M-wspr-pi.html

Schematic:

Values for 20m

Notes:

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