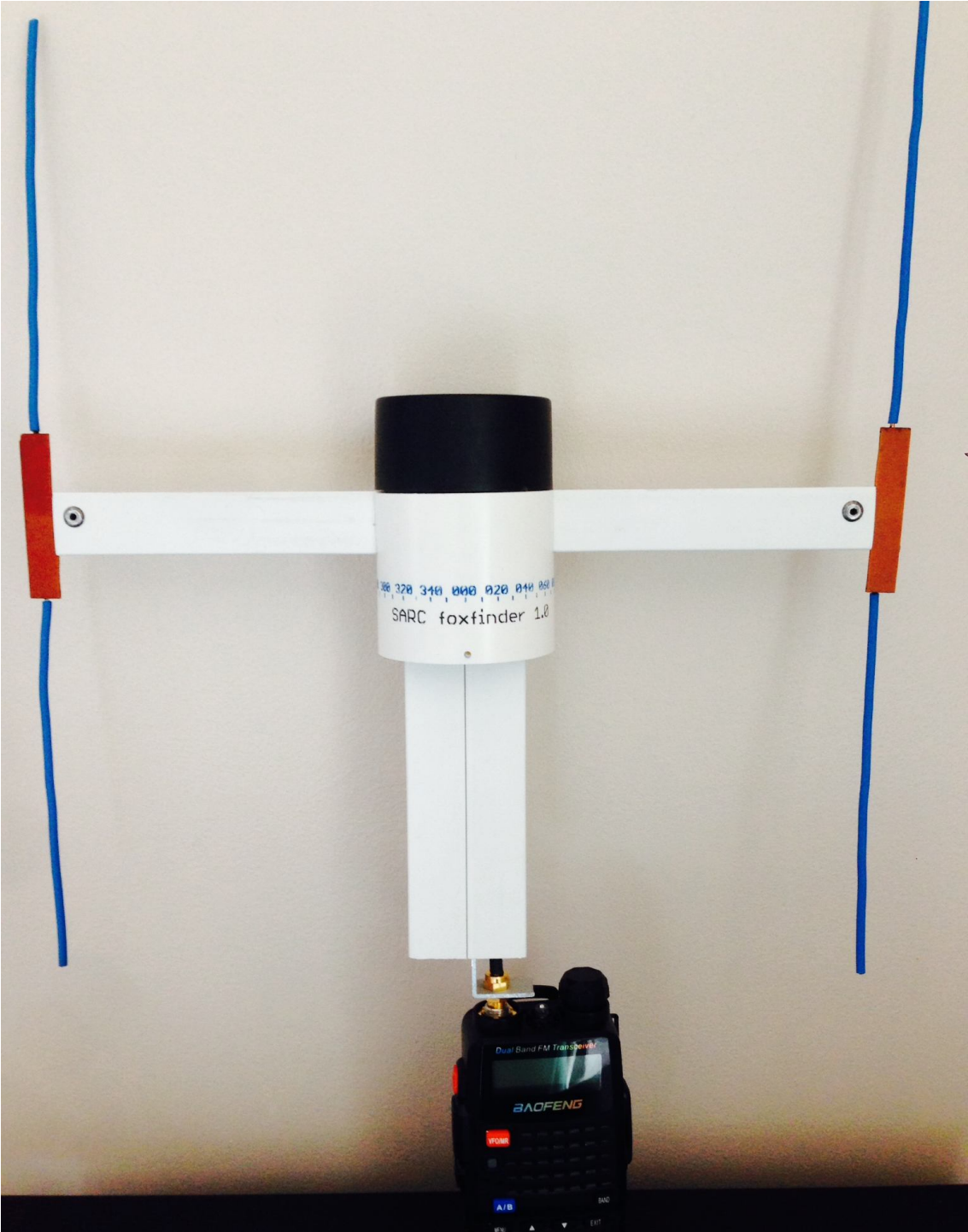


Building instructions for
The SARC foxfinder
19/6/14
G0CJG



Construction steps

Circuit board.

1. Cut the tracks on the veroboard
 2. Fit and solder the components to the top of the board (except inductors)
 3. Make and solder in the inductors
 4. Solder the surface mount components
 5. Solder the 3 coax cables to the board
- (Ask for help if you have little or no soldering experience, steps 4 and 5 are tricky if you haven't done them before)

Solar Module

1. Unsolder the LED from the internal board
2. Solder 2 wires in place of the LED

The Chassis and Enclosure

1. Drill and pop rivet the chassis from supplied plastic angle and aluminium bracket
2. Assemble chassis, circuit board and solar module
3. Now slide the enclosure over the circuit board
4. Pop rivet the aerials in place and solder the coax to them

Look at the photos on the club site on the construction notes link at the bottom of the article titled Solar DF for 70cms by David Slatter G0CJG

The link is <http://www.shirehampton-arc.org.uk/sarc/sites/default/files/SolarDF-construction.pdf>

Solar Module Options

- Options for using the solar module.

In both options the LED in the module is replaced with 2 wires leading to the veroboard.

Option A

The switch on the solar module is in the off position and the positive lead from the module is connected direct to the positive rail of the circuit bypassing the schottky diode. The battery can be removed. The circuit works only when the module is lit.

Option B

The switch on the solar module is in the on position. The positive lead must be connected to the schottky diode. When the solar panel is in the dark the solar module produces a 2V square wave at about 200khz from its battery and internal voltage converter.

When the solar panel is illuminated the voltage converter is automatically turned off and the battery charges.

Veroboard layout and bottom mounting components. (View from copper side, by popular request)

Start with a piece of veroboard comprising 14 tracks each with 17 holes. Tracks 13 and 14 just provide room for the cables

.I haven't shown tracks where they are not used but there is no need to remove them.

Make gaps in the tracks with a 4mm drill. Position of the gaps are shown by small circles and are at
 (row,col)(1,12)(3,9)(4,9)(6,9)
 (7,9)(9,6)(9,9)(9,12)(10,4)(10,8)(10,10) (10,14)(12,3)

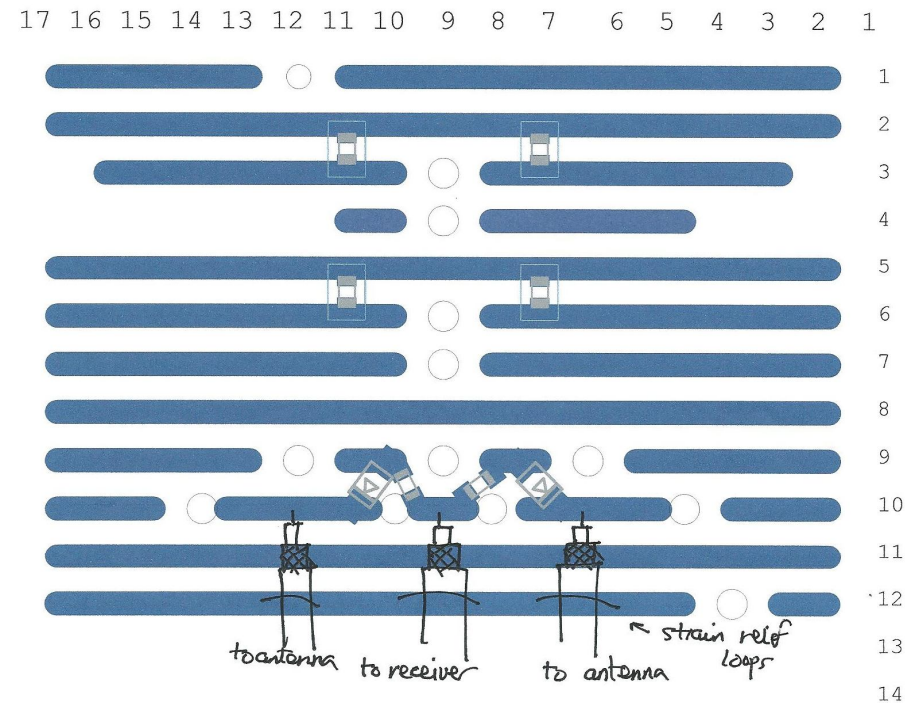
Solder the top of board components before the bottom

Mount the 6 chip capacitors and 2 pin diodes on the bottom of the board (ask for help if you don't know how to do this)

The coax cable to the handheld comes up column 9 with its outer soldered at row 11 and its inner at row 10.

The coax cables from the dipoles come up along column 6 and column 12.. The outers are soldered to row 11 and the inners at row 10.

Make loops of wire through [(12,5),(12,7)], [(12,8),(12,10)] and [(12,11),(12,13)] to provide strain relief for the cables. Twist the wires with pliers on the non-copper side to tighten them.



The brown tracks are link wires on the top of the board.

The components marked L are coils.

For the two longer ones wrap 10 cm of wire in 12 turns around a 2mm drill.

For the shorter ones use 9 cm of wire for 10 turns. None of the dimensions are critical. Scrape the insulation and tin the ends before coiling the wire.

P1 thru P5 are where you insert the supplied pins to make it easier to connect wires to the top of the board.

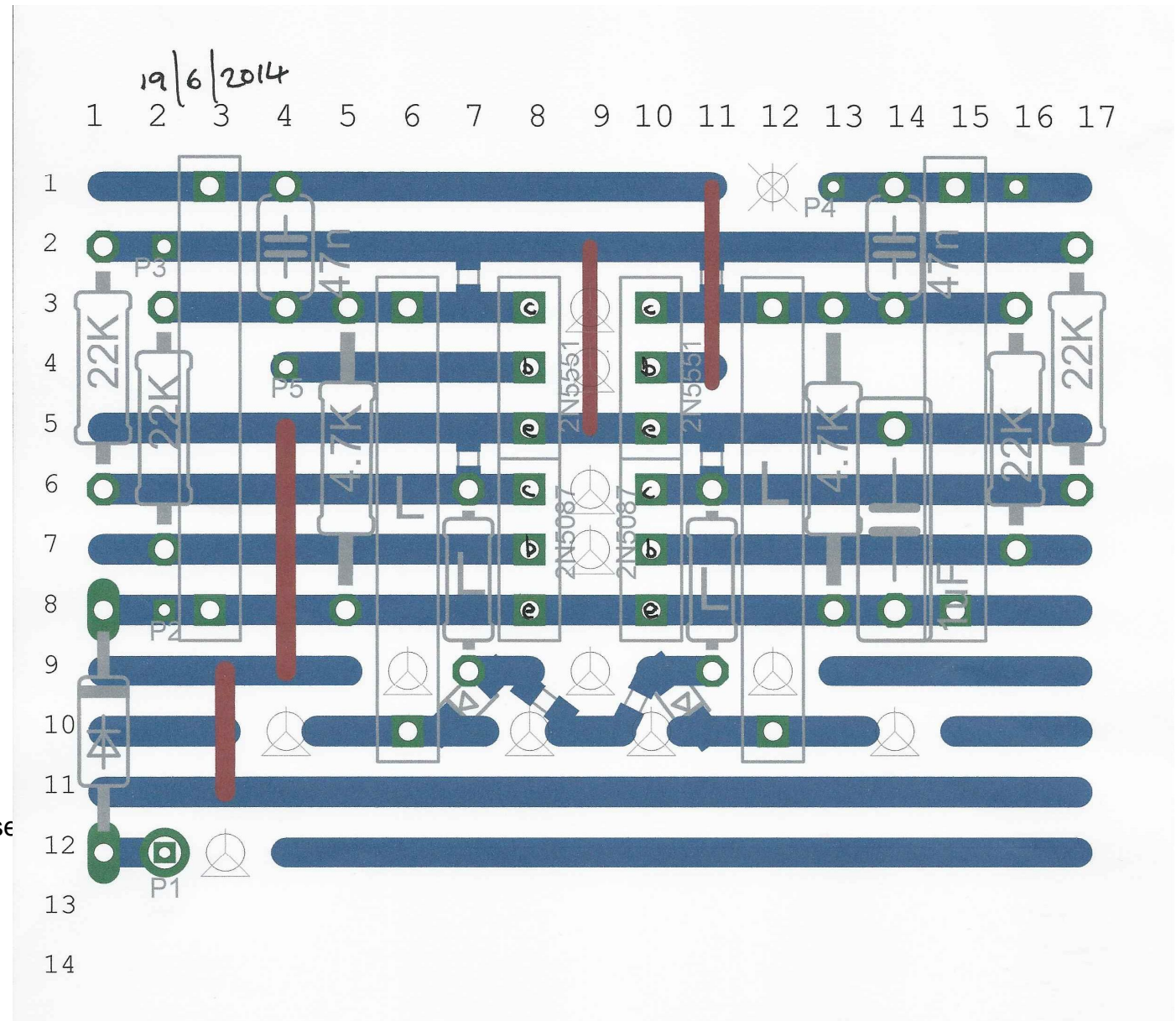
P1 +ve from solar (Solar ON)

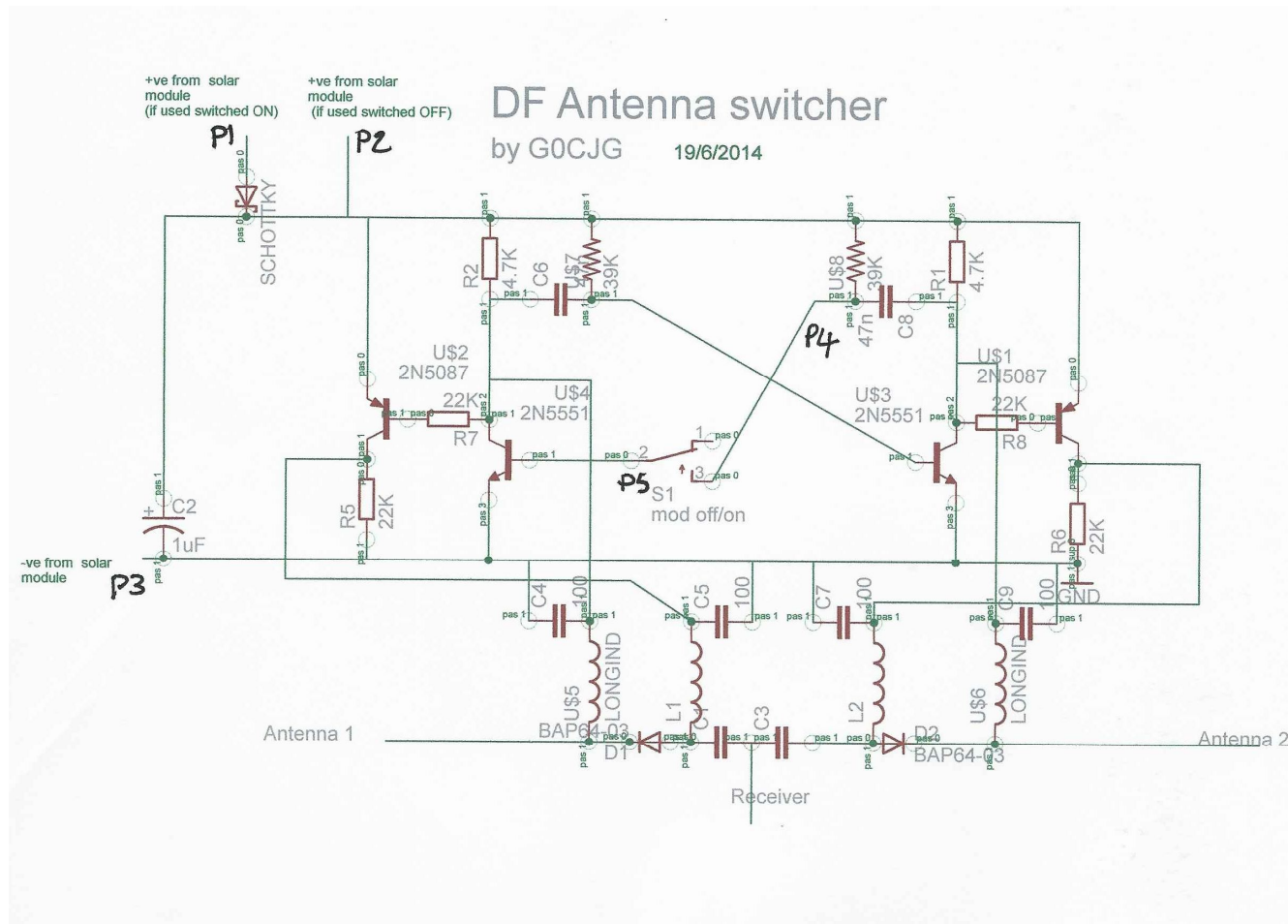
P2 +ve from solar (Solar OFF)

P3 -ve from Solar

P4,P5 Modulation on/off switch

Wire P4,P5 together if switch not use



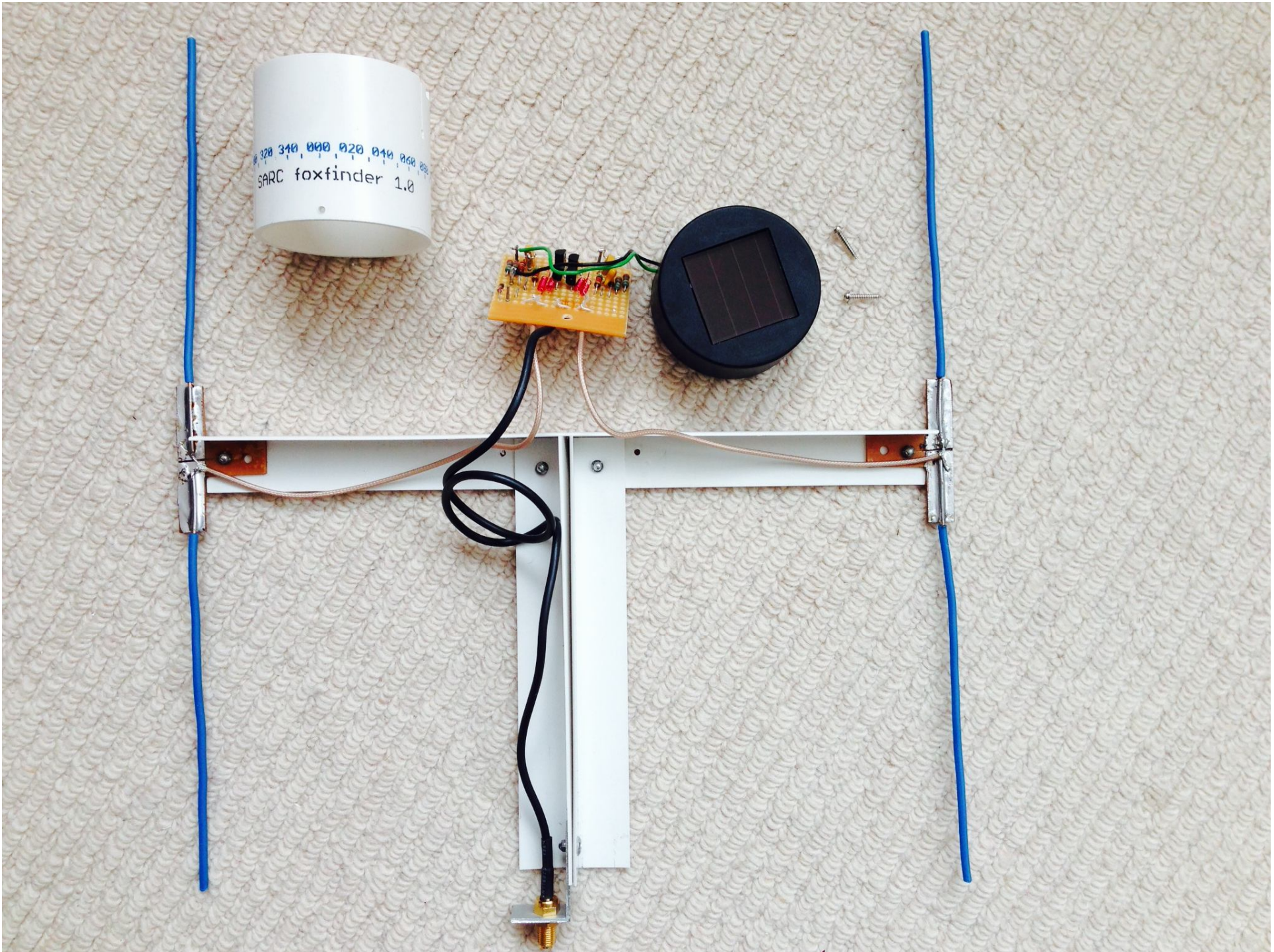


- P1 +ve from solar (Solar ON)
- P2 +ve from solar (Solar OFF)
- P3 -ve from Solar
- P4,P5 Modulation on/off switch
- Wire P4,P5 together if switch not used

Electrical Parts Packing List and Cost

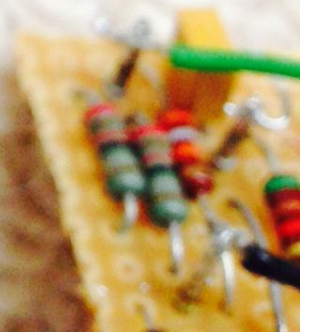
Total £6.80

Description	Qty	Unit Cost	Cost £
Pin Diode	2	0.10	0.2
47n cap	2	0.265	0.53
100p SMD	6	0	0
4.7K resistor	2	0.035	0.07
39K resistor	2	0.01	0.02
22K resistor	4	0.036	0.144
2N5087	2	0.073	0.146
2N5551	2	0.047	0.094
Schottky Diode	1	0	0
1uF cap	1	0.34	0.34
SMA pigtail	1	1.67	1.67
RF miniature coax	0.35m	3.47	1.21
Veroboard	1/6	8.06	1.34
Veropins	5	0.0085	0.04
Solar Module+ 2 long screws	1	1	1
32 SWG wire (2*9cm and 2*10cm)		0	0



0 320 340 000 020 040 060

SARC foxfinder 1.0





.310, .000, .020, .040, .060, .080
foxfinder 1.0

