Weekend VHF/UHF radio Assembly instruction

Thank you for purchasing Weekend VHF/UHF radio!

There are three basic producs:

KIT all components (code 5KIT0036) contains:

- All components that are to be soldered on the PCB
- Double sided PCB
- Nokia 5510 LCD, RGB LED & Red LED
- Preprogrammed ATmega328 DIP
- Rotary encoder
- Potentiometer
- 2 buttons
- Speaker
- All wires
- Connectors:
  - BNC for antenna
  - 4-pole microphone connector
  - 3.5 mm jack for external speaker
  - DRA818 (VHF or UHF, depending from the ordered KIT)

KIT VHF module + PCB (code 5KIT0042) contains:

- DRA818V
- PCB_VER 5.11

KIT UHF module + PCB (code 5KIT0043) contains:

- DRA818U
- PCB_VER 5.11

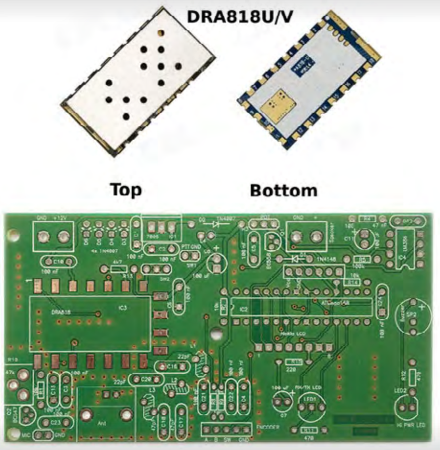
The KIT all components (code 5KIT0036) includes all wires needed to wire your components and make coils. In the KIT you will see:

- 1 m of 2 wire red/black cable
- 20 cm of 10 wire flat cable
- 15 cm of coaxial microphone cable
- 26cm of 0.8 mm CuL copper wire

Use red/black cable for powering your Weekend radio station. Place rubber sleve to predrilled hole on the back side of enclosure and insert cca. 10 cm of red/black cable in it. Connect red/black cable to +12V & GND terminals on the PCB

Cut flat cable to 15 cm lenght (to half), take 7 wires and use them to connect Nokia 5510 LCD.

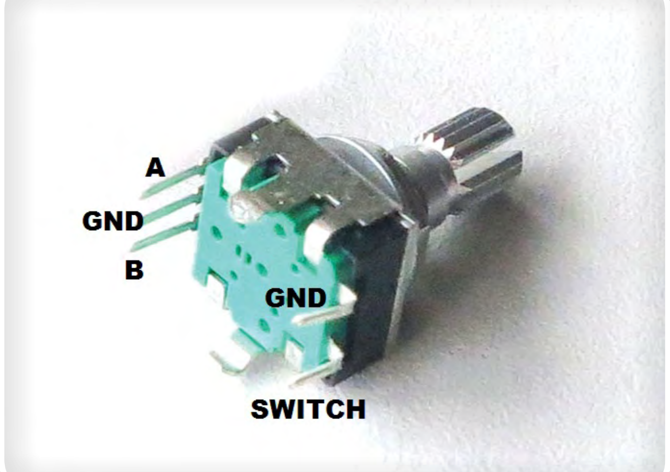
5KIT0036

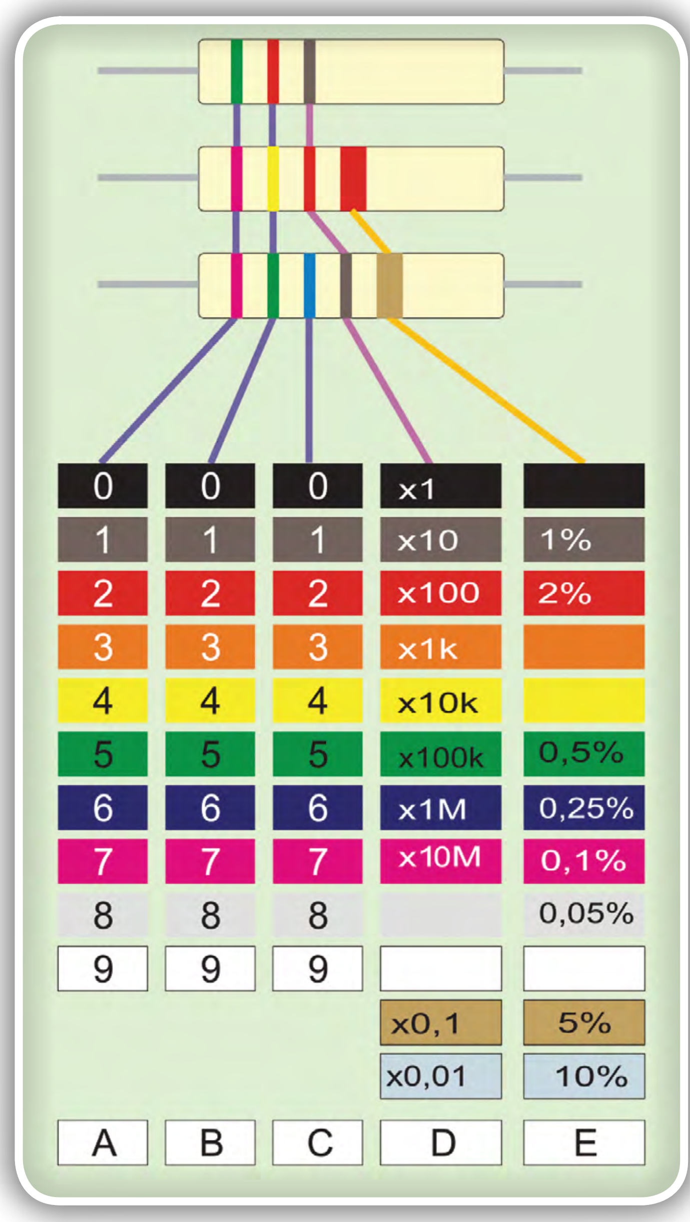


5KIT0042 and 5KIT0043

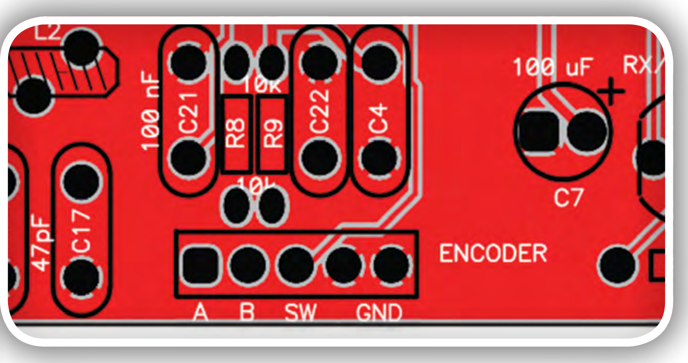
5ELU0005

This will leave 3 wires that you can use to connect RGB (RX/TX) LED. Use 3 wires from the other flat cable and use them to connect potentiometer, use 4 wires and connect rotary encoder. On encoder you will see 3 and 2 pins.





0	0	0	x1	
1	1	1	x10	1%
2	2	2	x100	2%
3	3	3	x1k	
4	4	4	x10k	
5	5	5	x100k	0,5%
6	6	6	x1M	0,25%
7	7	7	x10M	0,1%
8	8	8		0,05%
9	9	9		
			x0,1	5%
			x0,01	10%
A	B	C	D	E

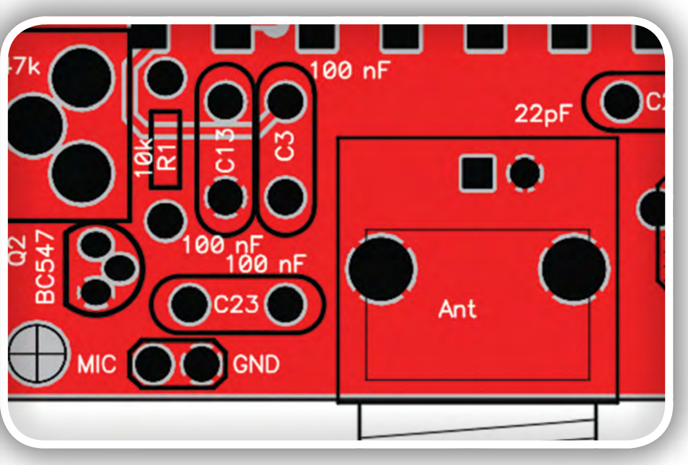


3 pins are named A, B and the middle pin GND. Two pins are Switch and GND. You can connect both GND terminals to one wire and use 3 wires to connect terminals A, B and Switch to PCB terminal Encoder as seen on the image.

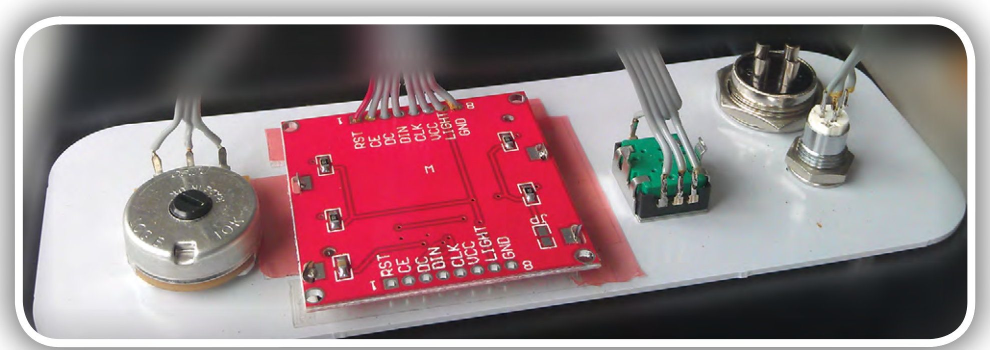
Out of remaining 3 wires use two wires for connecting PTT to microphone socket. One wire that is left can be used if you need to power your electret microphone with 5V via microphone socket. Use coaxial cable to connect microphone socket to MIC terminal on the PCB.

On the PCB you will see value of R10 to be 470k. The praxis has shown that this value can be smaller, down to 10k.

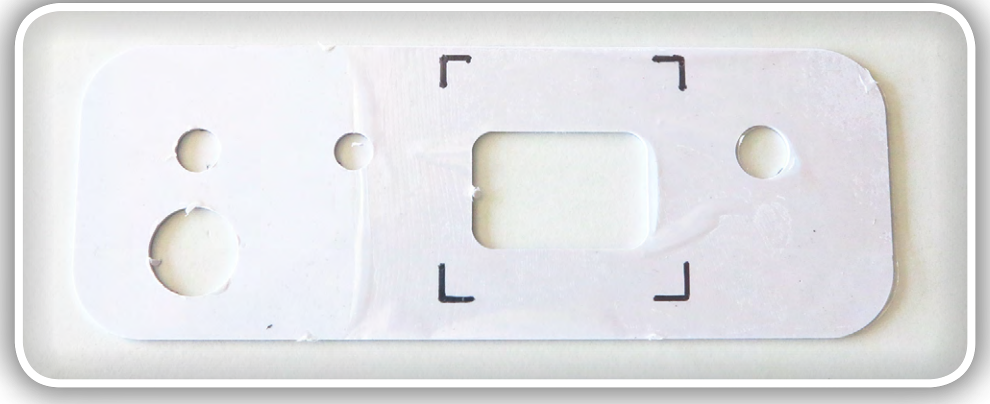
Copper wire should be used to wind coils L1, L2 and L3.



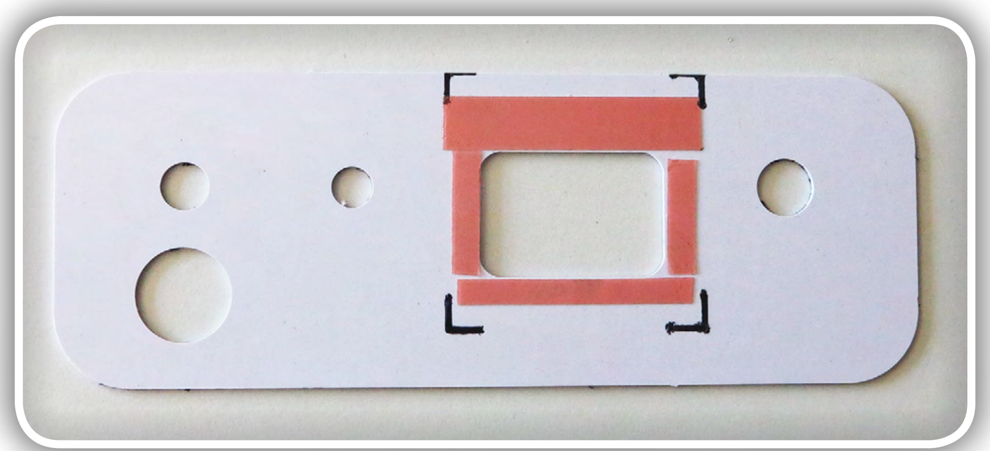
Fixing LCD to Front plate



Front plate is predrilled and delivered with a protective foil. Peel that foil before you continue.

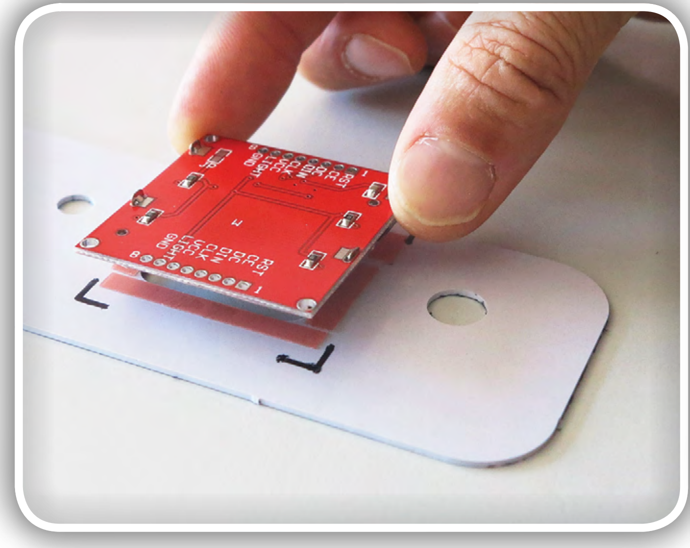


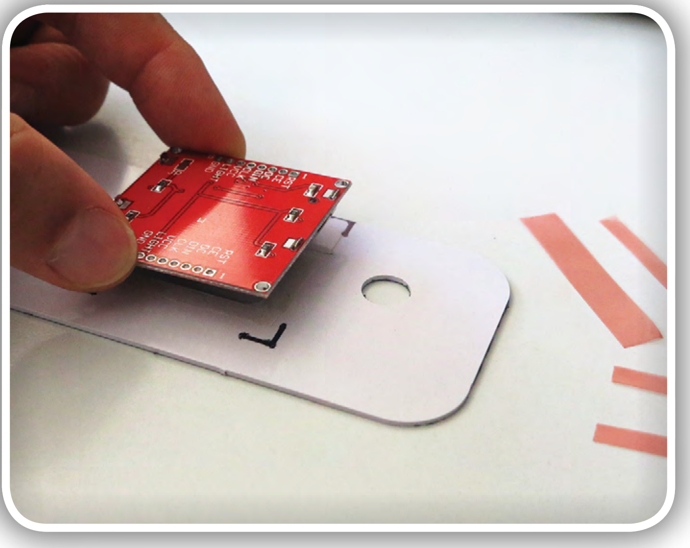
Fixing LCD to front plate is easy. Use a double side red adhesive tape that you find among other components.



Cut this tape so that it will be nicely aligned around hole for LCD. Then peel off red protective cover on all 4 lines, align LCD and gently press it to adhesive tape. Don't overdo that because you may want to re-align LCD.

When LCD is aligned as good as possible, gently press all sides so that LCD glues well to front plate.





NOTE

There is a slight modification needed on the PCB Ver. 5_11. Version No. may be found at the solder side of the PCB.

Robert has suggested a small mod **in case if you're using a small rubber duck antenna with Weekend radio project**. In this case it can happen that TX will keep staying on although microphone PTT switch was released. To solve that problem you can solder one resistor and one capacitor on the solder side as seen on the image.

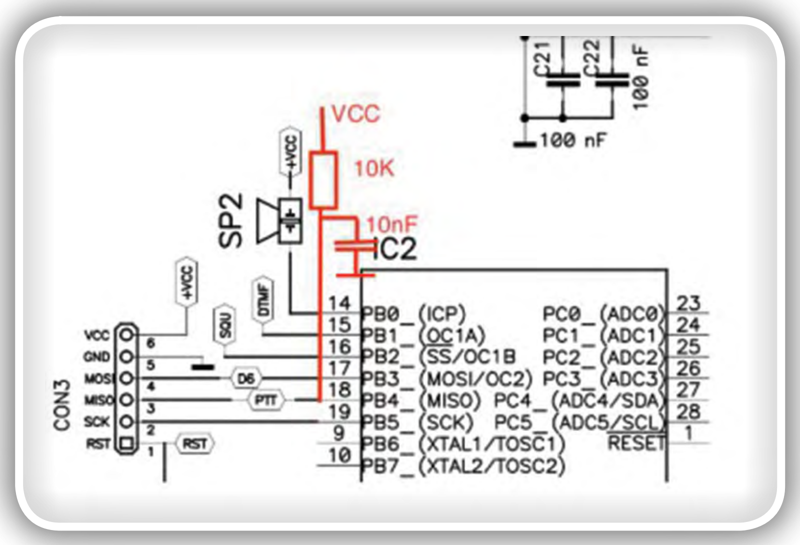
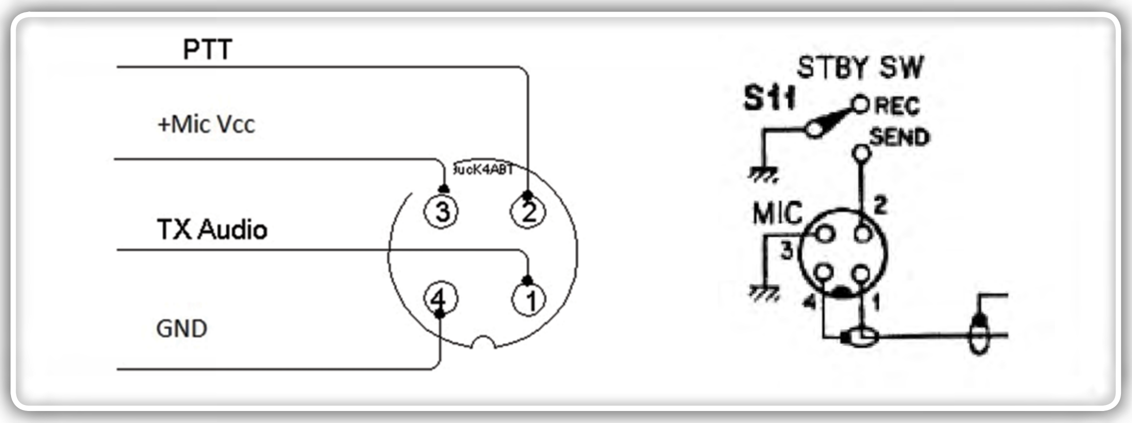
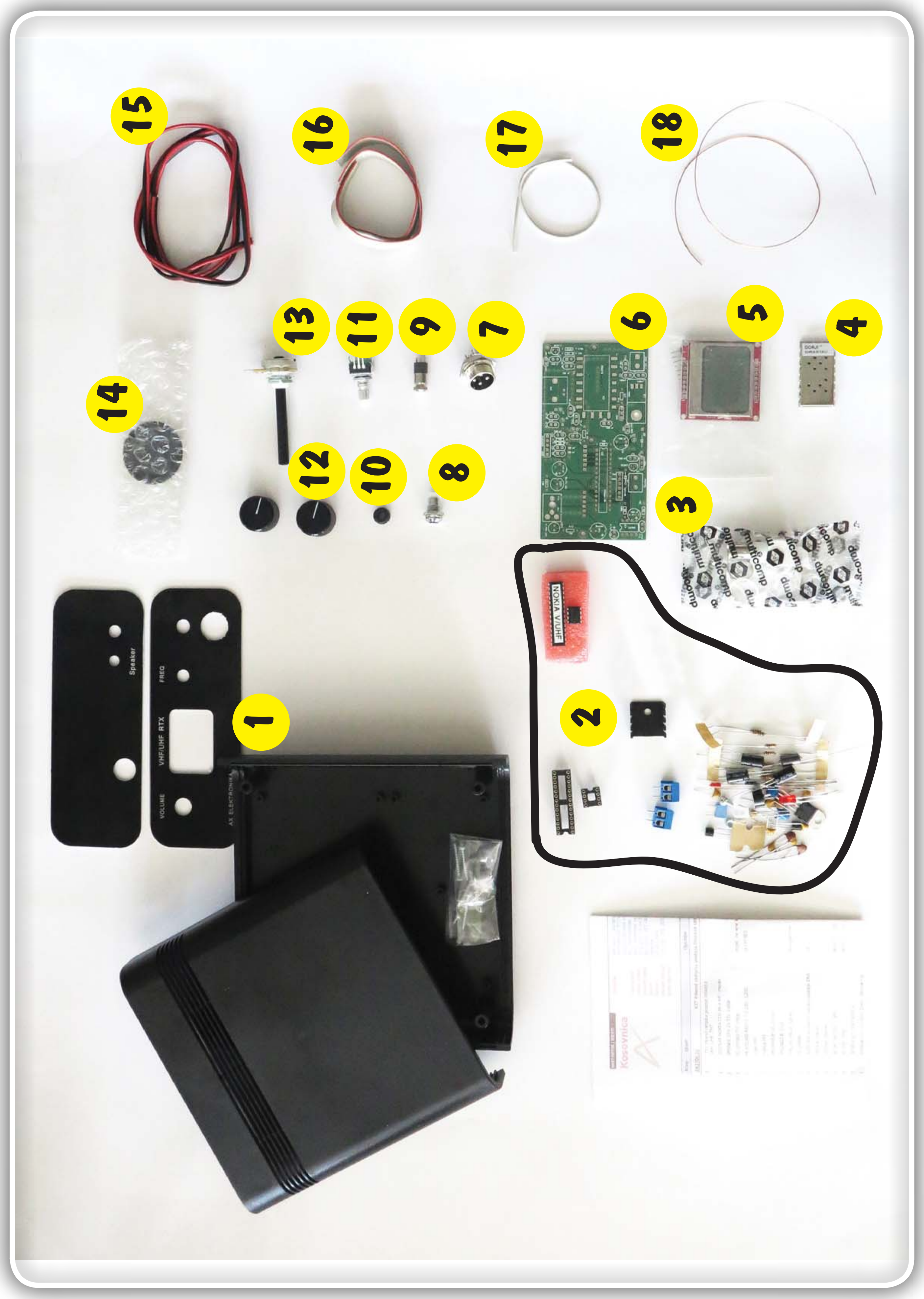


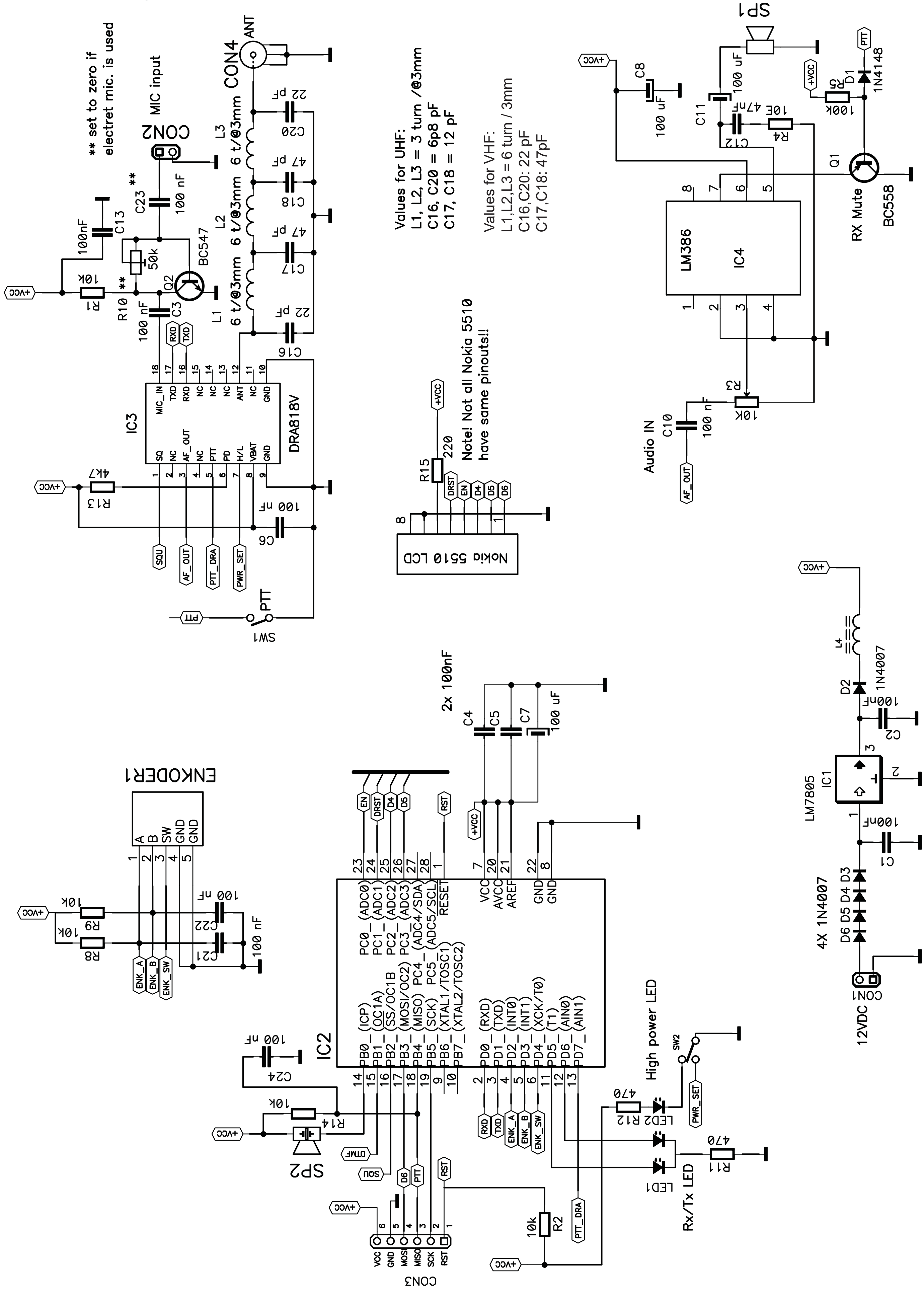
Photo of the KIT (code 5KIT0036):

1. Predrilled PVC enclosure
2. All components that are to be placed to the PCB (including preprogrammed microcontroller)
3. BNC antenna connector
4. DRA818 module (VHF or UHF, depends of your order)
5. Nokia 5510 LCD
6. Doublesided PCB
7. Microphone 4-pin socket
8. LED holder
9. 3.5 mm jack for external speaker
10. Enclosure sleeve
11. Rotary encoder
12. 2x Metal buttons
13. Potentiometer
14. Speaker
15. 1 m of 2 wire red/black cable
16. 20 cm 10-wire flat cable
17. 15 cm Coaxial microphone cable
18. 26 cm of 0.8 mm CuL copper wire (for VHF), and 16cm for (UHF)



Microphone 4-pin socket


15
16
17
18
13
11
9
7
6
5
4
14
12
10
8
3
NOKIA V/UHF
Speaker
FREQ
VHF/UHF RTX
VOLUME
AX ELEKTRONIKA
1
2


Values for UHF:
L1, L2, L3 = 3 turn /@3mm
C16, C20 = 6p8 pF
C17, C18 = 12 pF
Values for VHF:
L1,L2,L3 = 6 turn / 3mm
C16,C20: 22 pF
C17,C18: 47pF
** set to zero if electret mic. is used
MIC input
CON2
CON4
ANT
L1
L2
L3
6 t/@3mm
C16
C17
C18
C20
22 pF
47 pF
C23 **
100 nF
C13
100nF
R1
10K
R10 **
C3
100 nF
Q2
BC547
50k
IC3
DRA818V
MIC_IN
TXD
RXD
NC
ANT
GND
SQ
AF_OUT
PTT
PD
H/L
VBAT
R13
4K7
C6
100 nF
SQU
AF_OUT
PTT_DRA
PWR_SET
PTT
SW1
+VCC
Note! Not all Nokia 5510 have same pinouts!!
Nokia 5510 LCD
R15
220
DRST
EN
D4
D5
D6
IC4
LM386
SP1
C8
100 uF
C11
100 uF
C12
47nF
R4
10E
R5
100K
D1
1N4148
Q1
BC558
RX Mute
R3
10K
C10
100 nF
Audio IN
ENKODER1
A
B
SW
GND
R8
R9
10K
C21
C22
100 nF
ENK_A
ENK_B
ENK_SW
2x 100nF
C4
C5
C7
100 uF
IC2
PB0_(ICP)
PB1_(OC1A)
PB2_(SS/OC1B)
PB3_(MOSI/OC2)
PB4_(MISO)
PB5_(SCK)
PB6_(XTAL1/TOSC1)
PB7_(XTAL2/TOSC2)
PC0_(ADC0)
PC1_(ADC1)
PC2_(ADC2)
PC3_(ADC3)
PC4_(ADC4/SDA)
PC5_(ADC5/SCL)
RESET
VCC
AVCC
AREF
GND
PD0_(RXD)
PD1_(TXD)
PD2_(INT0)
PD3_(INT1)
PD4_(XCK/T0)
PD5_(T1)
PD6_(AIN0)
PD7_(AIN1)
RST
C24
100 nF
R14
10k
SP2
DTMF
CON3
VCC
GND
MOSI
MISO
SCK
RST
R2
10k
High power LED
SW2
LED2
R12
470
LED1
R11
470
Rx/Tx LED
L4
D2
1N4007
C2
100nF
IC1
LM7805
C1
100nF
4X 1N4007
D6 D5 D4 D3
CON1
12VDC

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Assembly