ARDFrx80

Details of coils and crystals.

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Print this page, and also see "Setup".

L102 : two wires twisted, 7 turns, 1mm dia on a Conrad 8x50mm Ui=300 ferrite rod.
Use one pair twisted wires from a CAT5 network cable. Total turn is 14 with center tap.
Once adjusted correctly, do NOT re-adjust. This inductance ensures good tracking between antenna and oscillator.
Tuning of the antenna circuit should be done later on by adjustment of trimmer capacitor C105.

Nominal self inductance : 8.0 uH. See "Setup" for one time adjustment of L102.

If another ferrite rod is used, for instance a 150 x 8 mm Ui=250 rod (Amidon.de FS-150x84B), the number of turns must be changed to achieve 8.0 uH inductance.

L101 : 3 turns at or near the center of the ferrite rod. (not over L102). The number of turns is not critical. Globally : Turns(L101) = 3/14 turns(L102).

Coils are becoming more difficult to obtain. If possible i give more than one usable type, but an adaption to the coil or tuning capacitor can be needed.

Local oscillator coil L2 :

Standard Neosid 1.0 uH 7.5 x 7.5mm **BV5048 . Available at Amidon.de or Box73.de .**

If no measuring equipment is available, order at "Amidon.de" a to 1.0 uH pre-adjusted coil type 7.1 "WZ6,5" 1.0 uH.

One time adjustment of L2 :

*Once adjusted correctly, do **NOT re-**adjust.* The inductance of 1.0 uH ensures good tracking between antenna and oscillator circuits. Tuning of the oscillator should be done later on only by adjusting trimmer capacitor C110.

With an inductance meter :

Adjust L2 to 1.00 uH using an inductance meter if available. Use no connecting wires is they add inductance.

More precise if a GridDipOsillator is available :

– Connect a capacitor of 150 pF 1% ***with abt. 2cm long legs*** to pins 1 and 5.
– Hold the grid dip meter coil to the space between the capacitor wires, (these wires are your temporarily coupling loop).
– Find the circuit resonance.
– Adjust the ferrite core **WITH A SPECIAL WELL FITTING TOOL** for 13.0 MHz resonance.
– Remove the capacitor.
– From now on, L2 should **NOT** be readjusted. Tuning of the oscillator should only be done by C110.

L3,6:

Neosid 10.7 MHz IF coils 7x7mm RM 2.25 mm. Useable coil inductances are between 2 uH and 6 uH.
You can wind l3 and L6 yourself with abt. 20 turns at a Neosid 7F1S coil forms. Start=5, End= 1.

The total value of tuning capacitors C25 and C26 is depending on the maximal inductance value of the used coil If after adjustment a coil core is fully inside, add a capacitor of 10 pF NP0 to 27 pF NP0 in parallel to at the bottom side of the PCB.

The following Neosid standard coils, and **"Pre adjusted filter coils"** are obtainable from **Amidon.de.**
The coil connections on the PCB will fit to all of these.

L [uH]	Type	Start-End	RM	Neosid
4	5056	5-4	2.25	5056
3.3	5044	5-1	2.25	5044
3.3	WZ12,25	5-1	2.5	(5313 07)
3.9	WZ13,5	5-1	2.5	(5313 08)
4.7	WZ15,25	5-1	2.5	(5313 09)
5.6	WZ16.25	5-1	2.5	(5313 10)

L7,10,11,12,201 :
Fastron or EPCOS axial 3x7mm 22uH choke (SRF >=11 MHz)
Conrad orderNr 440311

L15 :
Fastron or EPCOS axial 3x7mm 1uH choke (SRF abt. 180 MHz)
Conrad orderNr 440219

F1+2:
Crystal filter **10M12B** **box73.de** .. Rx = Zfilter-1k5 **(= 1k5) .** Ry = Zfilter **(3k0 = 3k3 // 33k)**

-OR-
use filter type 10M16B of 10M20B and adapt Rx and Ry.

Xt crystal **10.7MHz HC18U** **box73.de**