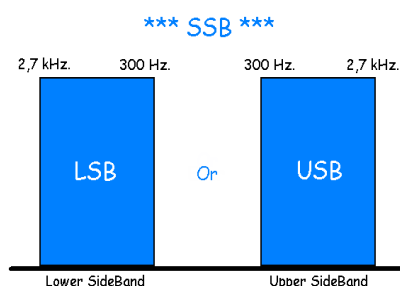
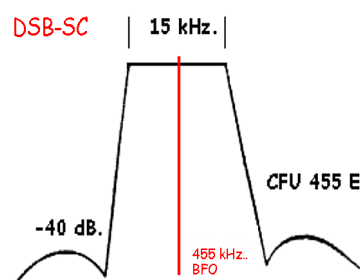


**Let's see how this can be done
(listen to SSB with a DSB-SC receiver)**



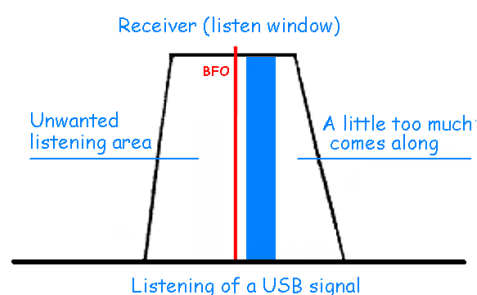
Here an illustration of the 2 sidebands.
They both have a bandwidth as the speech area
PS: USB here, has nothing to do with 'computer USB'.



Here we see the AM filter.
The missing carrier wave is replaced
of an internal carrier called BFO.



If we want to listen to an LSB signal, then tune in the receiver so the signal lands as shown, the lower part of the filter.



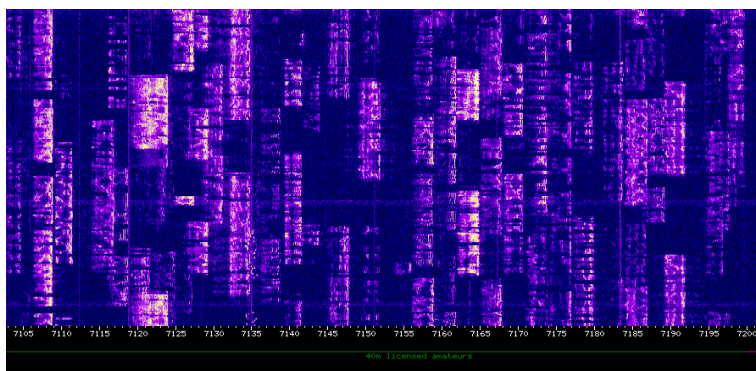
If we want to listen to an USB signal, then we tune the receiver until it is in the upper part of the filter.

Unfortunately, the trees don't grow into the sky...

As can certainly be seen on the 'filter figure', there is 'excess space' in the filter and here unwanted signals can easily sneak in.

This is here a 'SSB X-tal' filter comes into its own, as it only lets the 'sideband' itself pass through. At the same time, however, AM listening is excluded, as the SSB filter is far too narrow for AM use and it will therefore require an additional X-tal filter, with AM bandwidth, if AM is also to be listened to.

But don't despair. Regardless of whether the unwanted SSB signals come above or below what we are listening to, they will always appear 'incomprehensibly out of tune', however their strength will determine how much they will disturb. At CW, you only listen for 'the desired tone'.

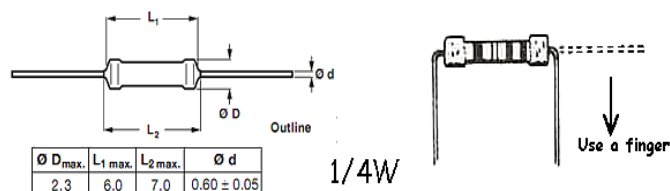


This 'contest density' on the 40 meter band did not cause problems.

Assembling the PCB:

It is recommended that a soldering tip with the same width as the diameter of the small pads (2mm) is used, with 'reasonably thin' solder lead.

Should you happen to misplace a component in the plated solder pad, then use a 'solder wick' or a desoldering pump, first from the top (if possible) and then from the bottom.

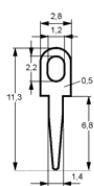


To create some distance between the print itself and the bottom of the 'soon-to-be cabinet', start by mounting 3 mm. threaded rods or 'solderable brass tubes' in the four mounting holes.

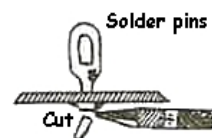
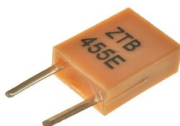


If you use brass tubes without threads, you can initially mount them into the 'four mont holes' with a 3 mm screw and nut, solder the tube onto the print and remove the bolt and nut again.

Be careful... A soldered brass tube stays hot for quite a while (ouch).



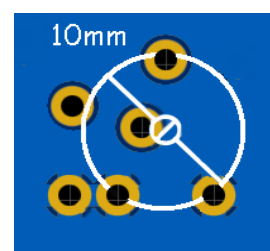
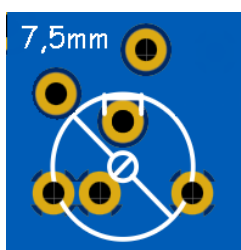
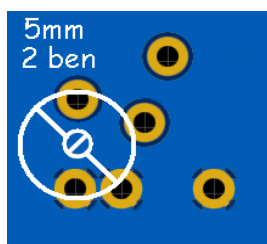
2 modul



Then install:

All soldering pins. Then mount the 'lowest components' first, resistors, IC sockets, one-module capacitors, two-module capacitors (100 nF.), Electrolytes, transistor and finally IF can, ZTB 455 E and the trimmer. 3 types can be used, 5 mm with 2 legs, 7.5 or 10 mm.

Select and install selected trimmer type, 22 pF. (e.g. Philips green type):



Testing:

If the assembly is done correctly and no components are defective, then the module should work immediately when the power is connected for the first time.

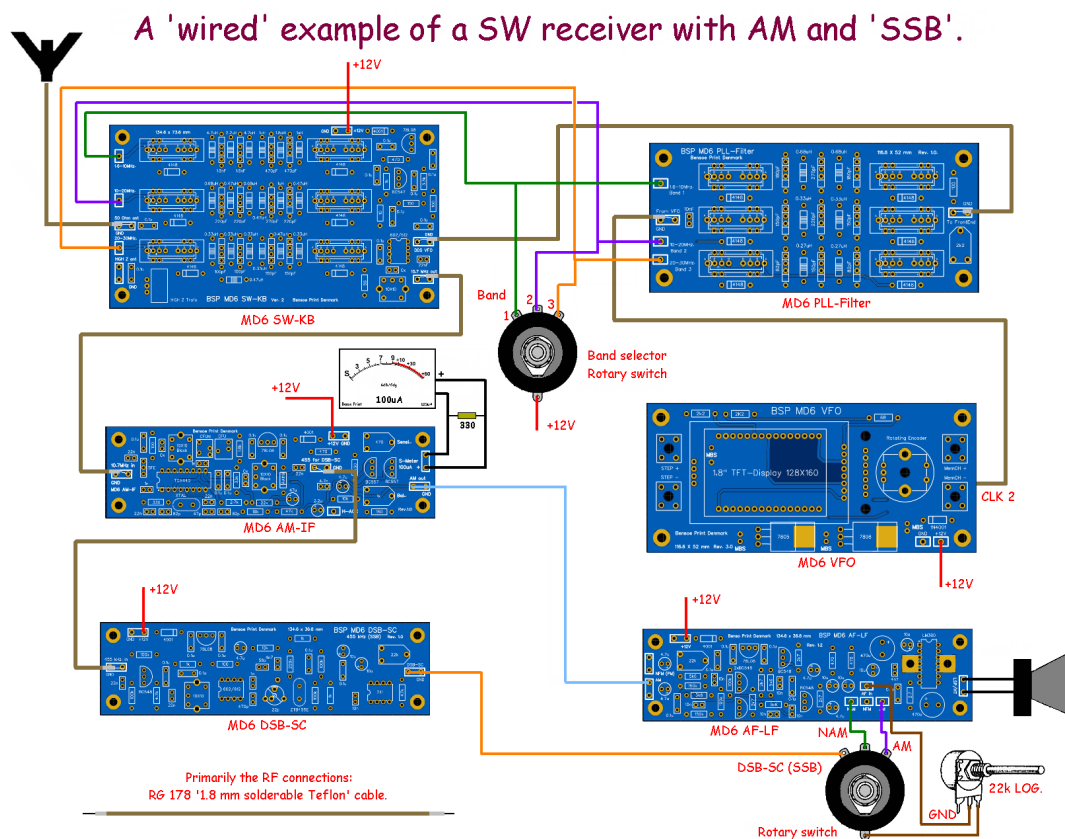
Is the line clear?

In reality, you cannot fully test the module until it is connected to '455 kHz.' the output of e.g. one of our 10.7 MHz. intermediate frequencies (or an equivalent intermediate frequency with 455 kHz. output). If you have access to a measuring transmitter with 455 kHz. and a 'scope', you can 'test around a bit via the diagram', i.e. see if the BFO oscillator is running, etc. Set the trimmer to approx. 1/4 turned, then without the 'big instrumentation', you will get close to a BFO frequency of 455 kHz. The trimmer is introduced to 'eliminate' any 'scattering' in the ZTB455E resonator.

Now connect the DSB module to the intermediate frequency 455 kHz. output (the complete running receiver), use e.g. a piece of RG178 and connect 12V. Also connect an AF amplifier with loudspeaker to the module's 'AF output'. With the trim pot (22k), you can tune the 'AF level' to match the other LF levels from AM and FM.

Hints: If you want to listen around a band range (eg 160, 80 and 40 meters) with LSB/SSB stations, use 100 Hz. step in the VFO. LSB: Start at the high end of the band and search down in frequency, then the stations will be much easier to catch and tune, adjust by 10 Hz. the VFO setting.

If you listen for USB stations (in the higher amateur bands), then you should instead start at the low end of the band and search upwards in frequency.



*** Parts list ***

Resistors (1/4 W 7 mm):

100 1 pcs. **1k** 3 pcs. **4k7** 1 pcs. **10k** 1 pcs. **47k** 1 pcs. **100k** 4 pcs. **220k** 1 pcs.

Trim potm.:

22k hoz. 10 mm 1 pcs.

Capacitors (keramiske 1 module):

47pF 1 pcs. **220pF** 1 pcs. **470pF** 1 pcs. **1nF** 1 pcs. **4,7nF** 2 pcs. **22nF** 2 pcs.

MKT 2 module:

100nF 6 pcs.

Electrolyte 1 module vertikal:

4,7 uF 1 pcs. **10uF** 2 pcs.

Diode:

1N4001 1 pcs.

Transistor:

BC547 / 548 1 pcs.

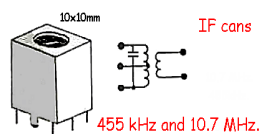
ICs:

78L08 1 pcs. **602/612** 1 pcs. **741** 1 pcs.

IC-sockets:

8 pin 2 pcs.

IF-cans 455 kHz. 10X10: 1 pcs.



20k / 5k black core.
Cx = space for external capacitor (1mH. - 520uH.)..

Capacitor var.:

22 pF green Philips type (5mm 2 legs, or 7,5mm, or 10mm) 1 pcs.

TZB 455E:

455 kHz. resonator 1 pcs.

Solder pins:

1,2mm 6 pcs.

PCB:

MD6 DSB-SC 1 pcs.

Component purchase:

Bensø Print:

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