IF AMPLIFIER 2MHZ XTAL

RIFERIMENTI

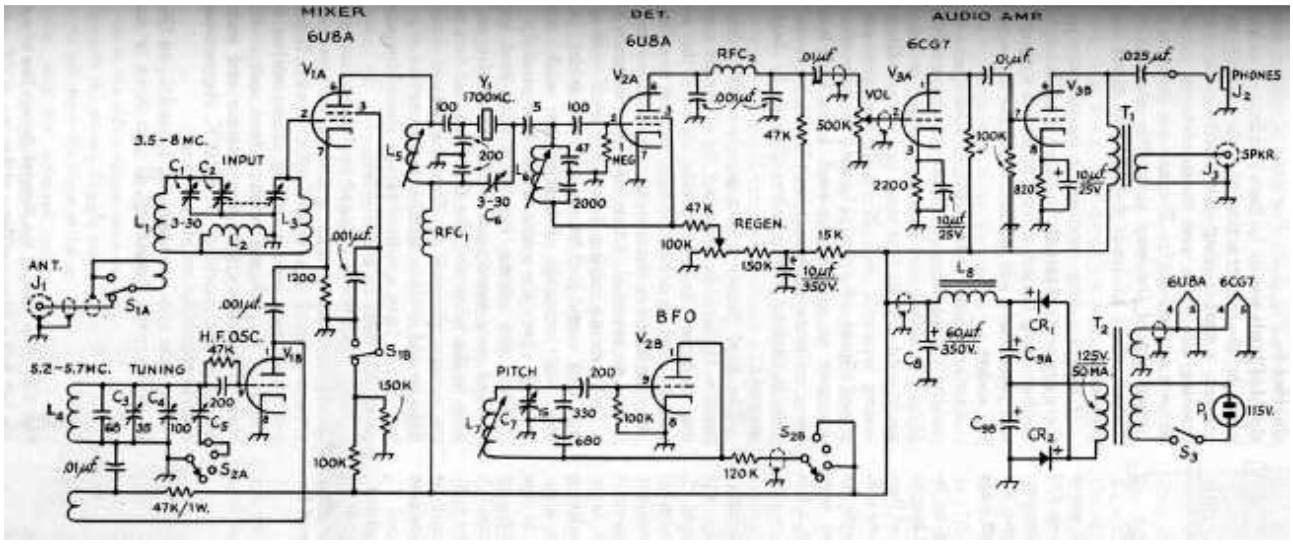
Genere	DATA	Generalità	Note	Distribuzione
radio	Mrz 16	Amp. Per prove o piccoli rx		af

OVERVIEW

Amplifier module at frequency of 2000 kilohertz, with BJT 2N2369 as an active element. Built for tests and possibly for modest receivers. It does not provide AGC.

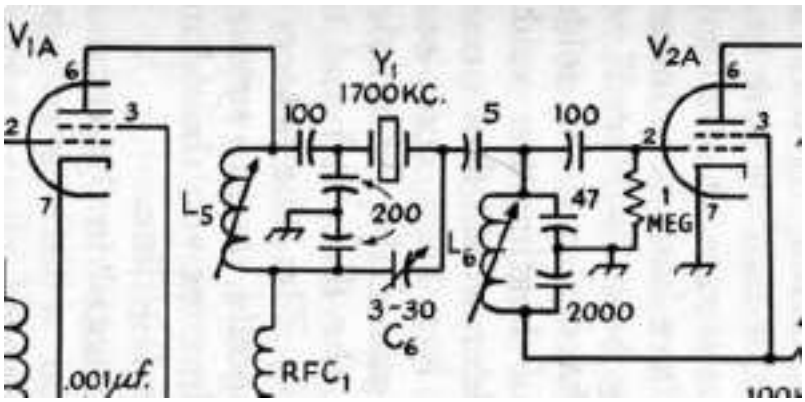
I was reading an 1963 ARRL Handbook re discovered the receiver design "Simplex Super Mark II". A superheterodyne dual-band receiver, for 40 and 80 meters, three valves, a 1.7 MHz crystal as a medium frequency filter. The basic element of a set of possible constructions for a complete station with contained costs, at the time. The 60s, the time of my parents.

This schematic pattern catches the eye because of its simplicity and completeness. After a brief internet search it allows me to see that many of my peers OM have built faithfully following in the instructions and then they got a great receiver, as Tom "Bignick" KC9KEP explains in his website (www.bignick.net).



For OM played like me it is as if to sound the gong dazed boxer: I want to spoil a bit 'of tin. It's Sunday, time is short, so I dwell on the most critical point: the crystal filter.

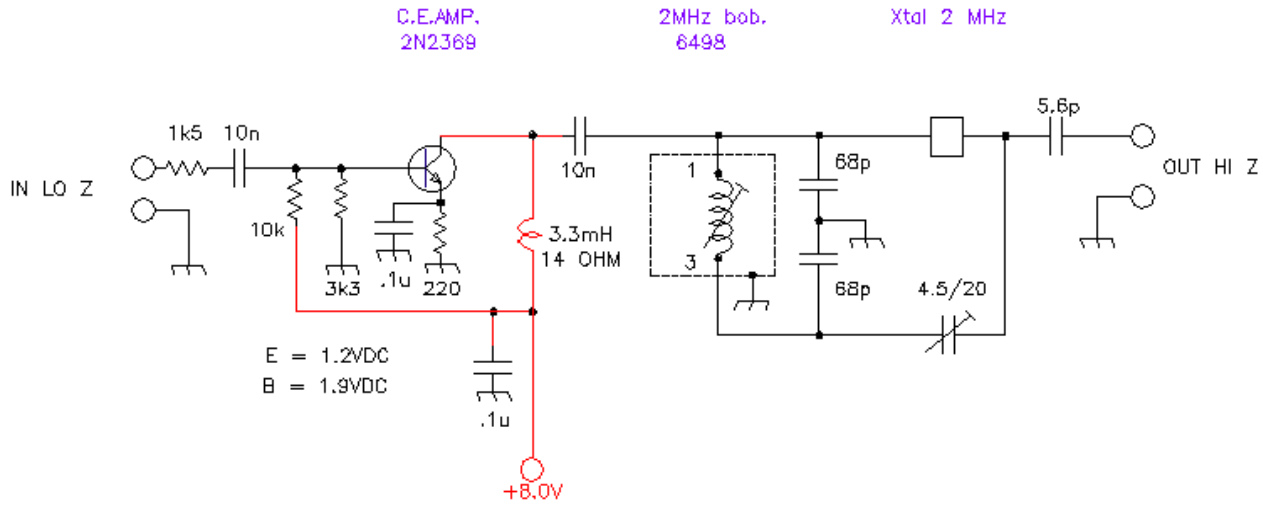
A brief look at my box of crystals, there is not a quartz 1700, and even by 1600 or 1750. But I own 2000 or even 2500. I decide to do some testing with 2000 and an amplifier BJT. I'm interested in assessing how effectively the circuit works and how to selectively adjust the trimmer.



Looking at the original schematic, C6 in fact it should serve to balance the parallel quartz capacitance, placing a signal in phase opposition of equal amplitude, eliminating the signal that bypasses the high Q series LC circuit within the quartz.

WIRING

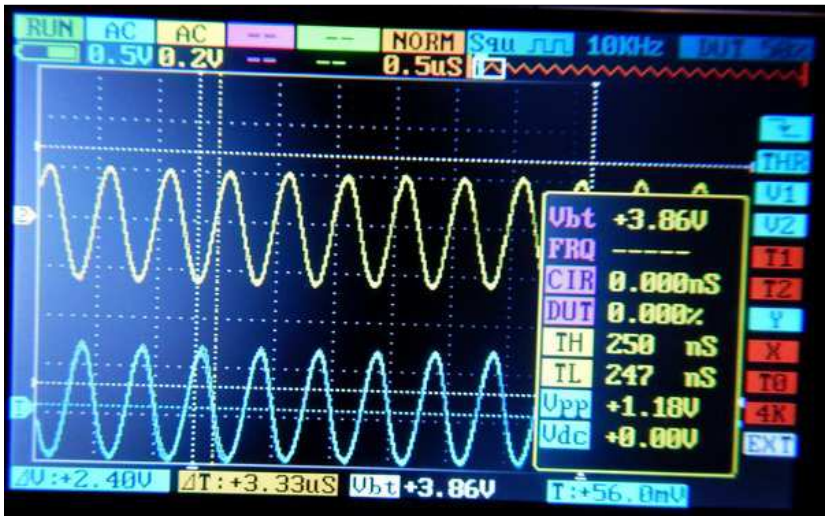
Power supply is 8.1 Volt, consumption 5 milliamps. The power dissipated by the 2N2369 is approximately 35 mW and with a thermal resistance junction-environment of 486 ° C / W leads to an increase of 17 ° C of the junction with respect to the environment.



The coil used is labelled 6498, purchased new old stock, base 7.5x7.5 mm and leads spaced 2.54. It should be a type which was already used as a local oscillator in domestic receivers.

The amplifier transistor is biased with 5 mA collector.

The output is high impedance, to be adapted to the circuit which will follow. The input impedance measured without regard to the reactances is about 375 ohms, excluding R 1k5 showed in the diagram.



The above figure shows the extent of the collector (blue) and high-impedance output (yellow). To easily see the signal I have driven the amp using the function generator with the strongest signal before the saturation. The oscilloscope is a mini DSO203. (Convenient because it stay also in her purse, Xantippe would say, but one have to well understand it before a profitable use; with Tek traveling is like executive class...).

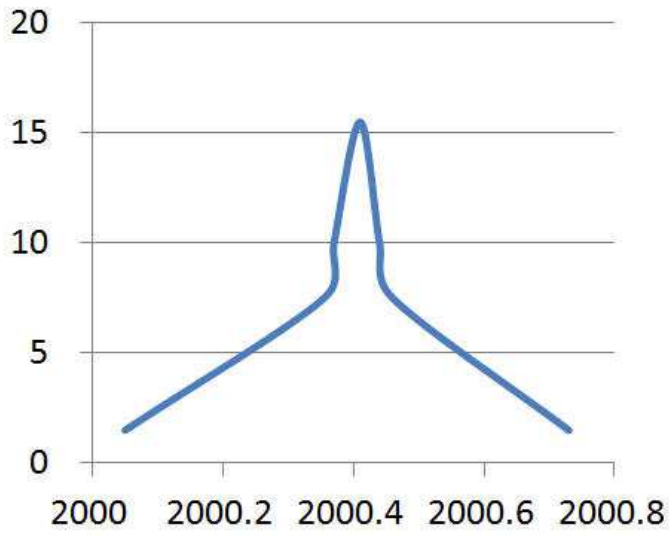
The first impression of this circuit is good. But let me say in particular.

I placed the generator frequency slightly outside the pass band and calibrated the trimmer capacitor for the minimum signal. Since minimum amplitude and minimum trimmer coincides I corrected with a capacitor of 4.7 in the series, getting the minimum with more difficulty but it is inside the useful trimmer range.

The L setting is done for the maximum, with generator frequency at the middle of the passband.

The measures I give these (very synthetic) results, see figures.

frequenza kHz		
2000.05	1.5	Vpp
2000.36	7.5	Vpp
2000.37	10	Vpp
2000.41	15.5	Vpp
2000.44	10	Vpp
2000.46	7.5	Vpp
2000.73	1.5	Vpp

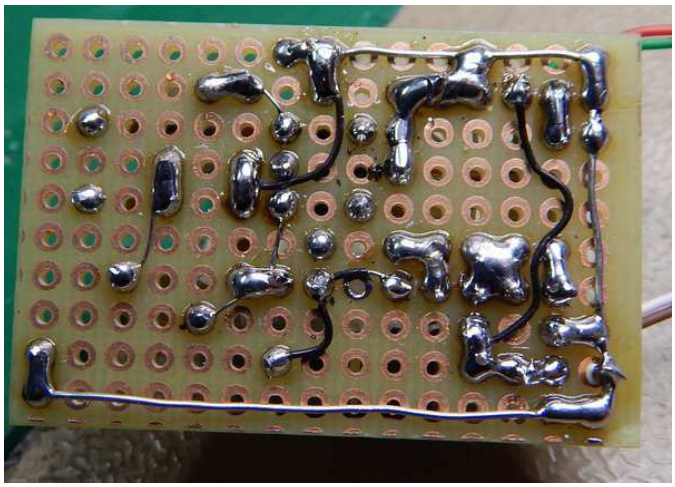


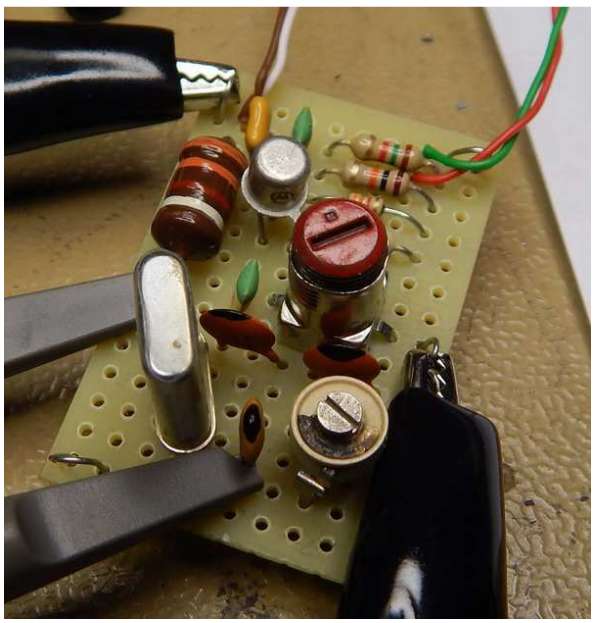
I took the values at 0.7, 0.5 and 0.1 of the maximum peak. Excel makes this strange bell, the curve is actually monotonic.

Even without much detail is evident that the filter is good for the CW, for the voice it is a bit 'too tight. It's all inside a khz. I have to continue build the circuit to understand how it translates into true listening.

REALIZATION

Pre-drilled on the circuit of 40 X 25 mm. There are no fixing hardware, the use is for testing.

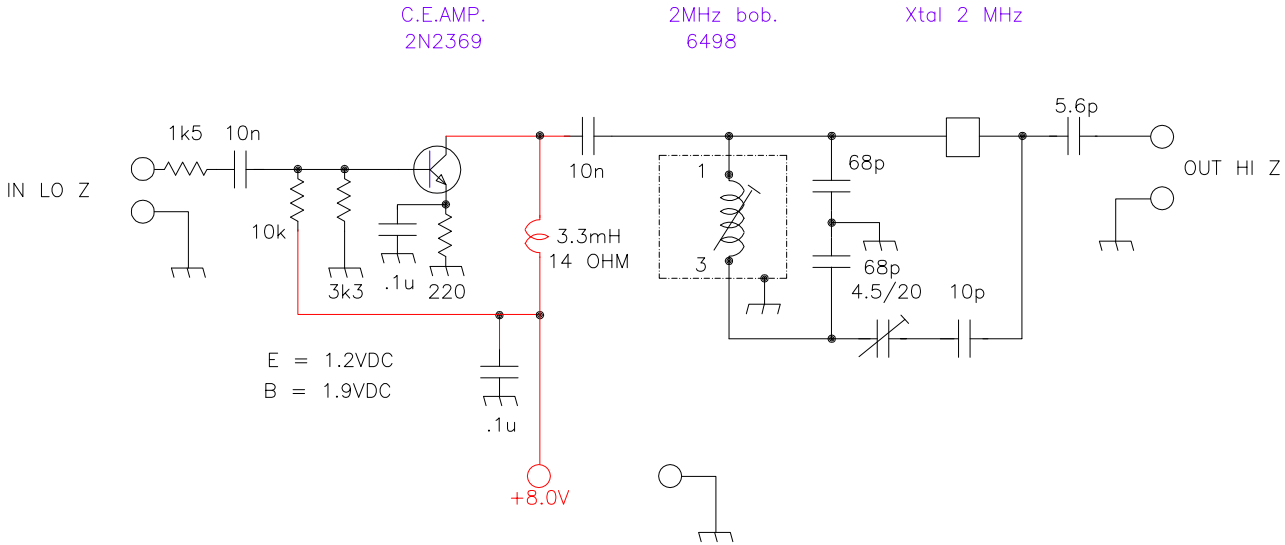


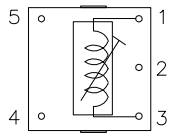


Buon divertimento, Alessandro Frezzotti

AMPLIFICATORE FREQUENZA INTERMEDIA 2MCS

ANNO 2016 — SCHEMA ELETTRICO — per test





NOTA4
DISEGNO NON IN SCALA
C IN uF DOVE NON INDICATO
R IN OHM DOVE NON INDICATO

FILE: amp2mX_0.DWG

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