Aurel radio electronics

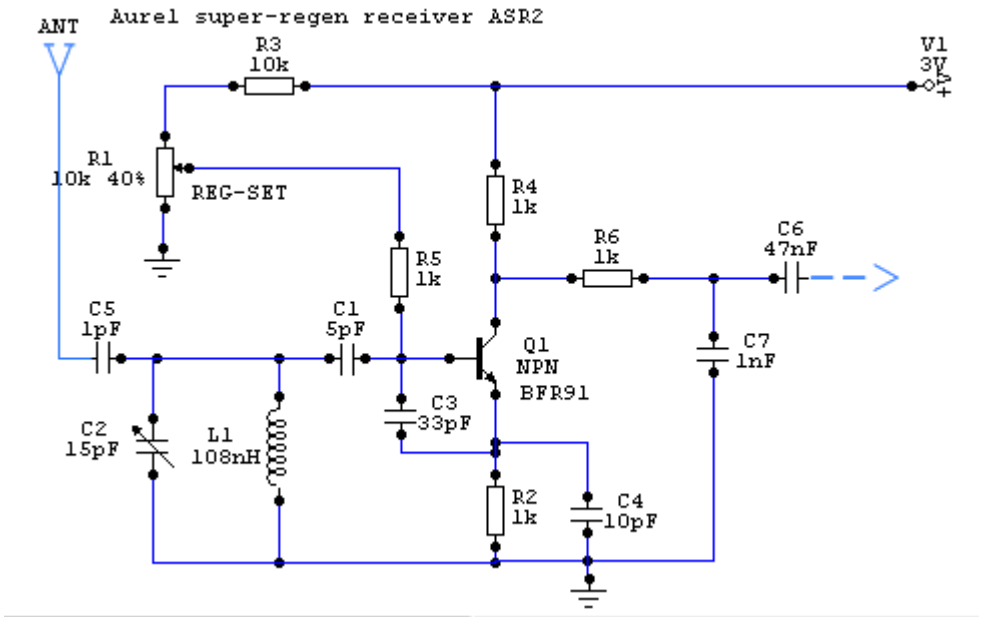
Welcome to my radio hobby builder site!

This site is in first place created as site for my hobby programming creations...
BUT...because hobby PC programming is this days not very popular or there is no interest,
i decide to present here my hobby work in radio circuits.
So i will show circuits which i build and which are tested that work as is expected.
All circuits are created with bipolar transistors.

1.First circuit is simple super regenerative receiver with one RF transistor.
I must say that all receivers i tested with one small audio amplifier who drive 5W speaker.
So i don't use headphones in my experiments.

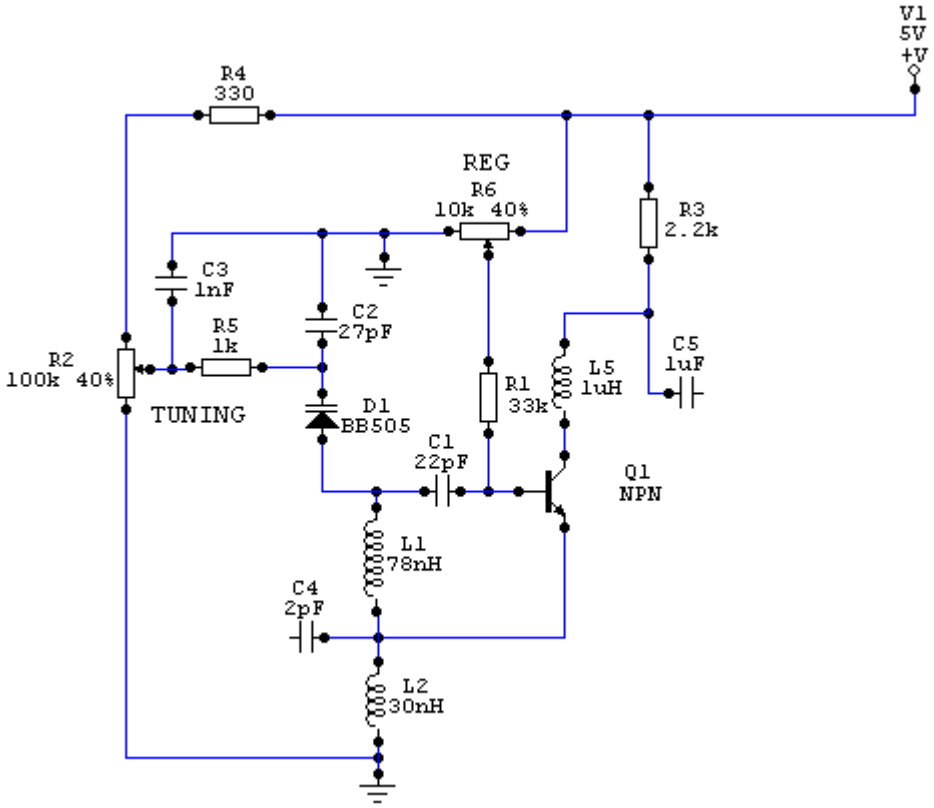
With R1(200k) you can set level of regeneration,so set it just before circuit start to oscillate.This simple
receiver have LC tank for standard FM range from 88-108MHz,tuning is with C2 trimer capacitor.If you have 15pF
trimer cap you must add in parallel to this trimer ..ceramic capacitor of 20pF to cover whole FM 88-108

2.Second receiver is simple s-regen receiver with Clapp oscillator.



In this circuit you must set proper regeneration with potentiometer R1
Resistor R5 must be in range from 10k to 56k,this depend on transistor you use.(NOT 1k);
Also ..you can use +5V from any power supply chip like LM7805.

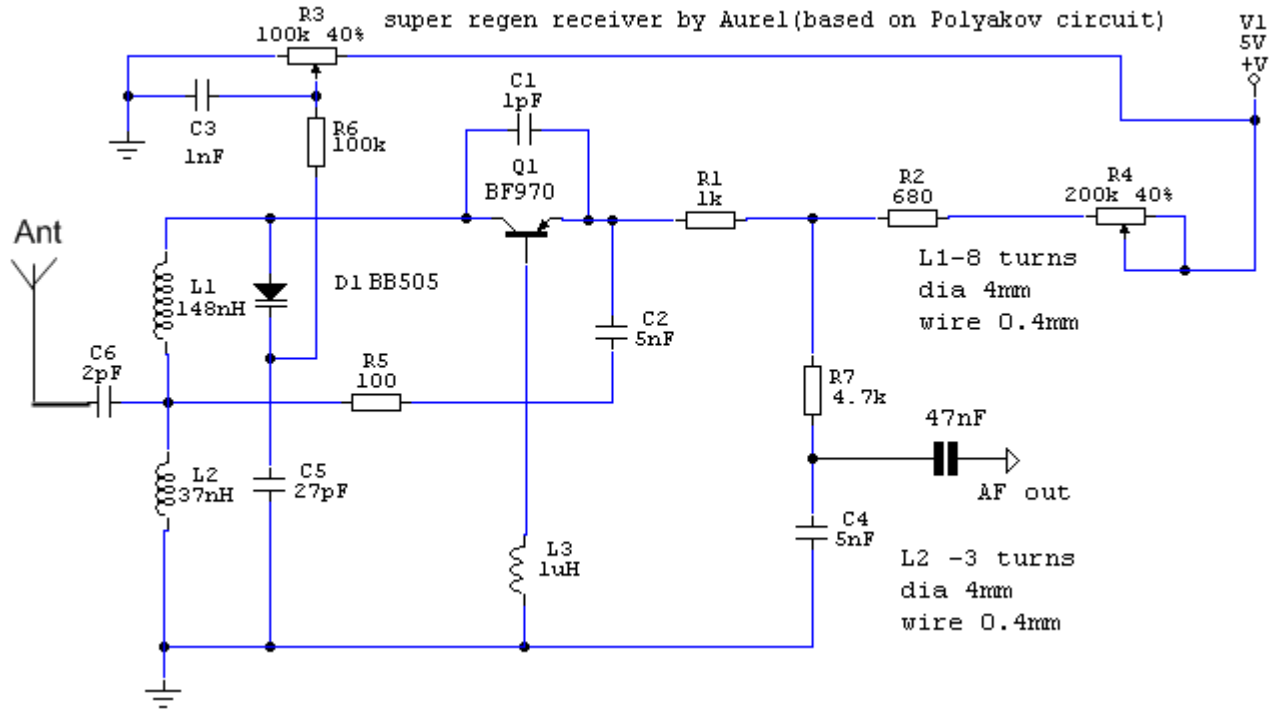
3.Next FM super-regen receiver is with Hartley oscillator and with varicap diode tuning which give
better stability of tuning.



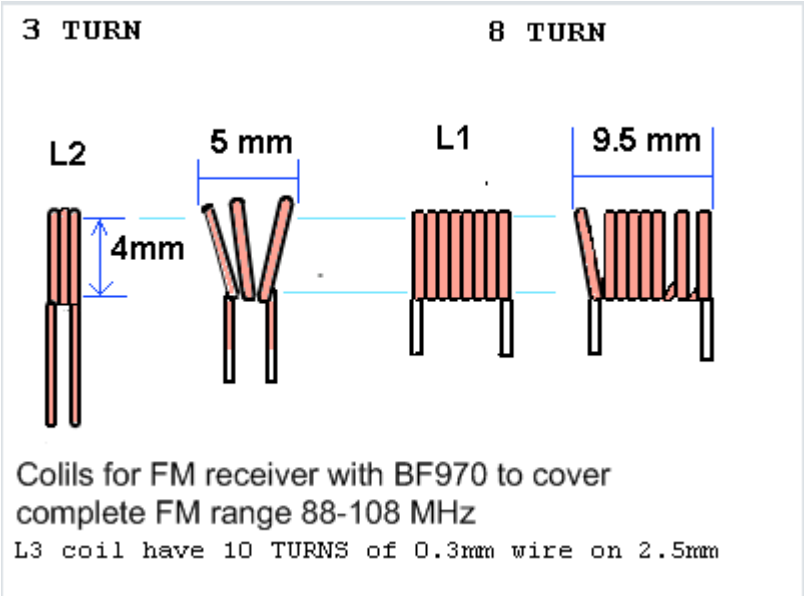
As you can see ..with R6(REG) you can set regeneration when you hear hiss.
First you must connect antenna on C4(2pF) capacitor,then with pot R2 you can tune station.
Audio signal you can get from C5(10nF-1uF).
Coil L1 have 8 turns ,dia 4mm,wire 0.5 mm
Coil L2 have 3 turn,dia 4mm,wire 0.3-0.5 mm.
For RFC coil L5 you can use 0.2-0.3 mm insulated wire and wind 24 turn dia 4mm(cca 1uF).
To cover FM from 88-108 you must easy strech coil L1.
Transistor are:
BFR 91A,BF199,N9018,C3355...
This circuit require power chip like LM7805 for good stability ,or you can use transistor as voltage
regulator with zener diode(ZD 5V1).

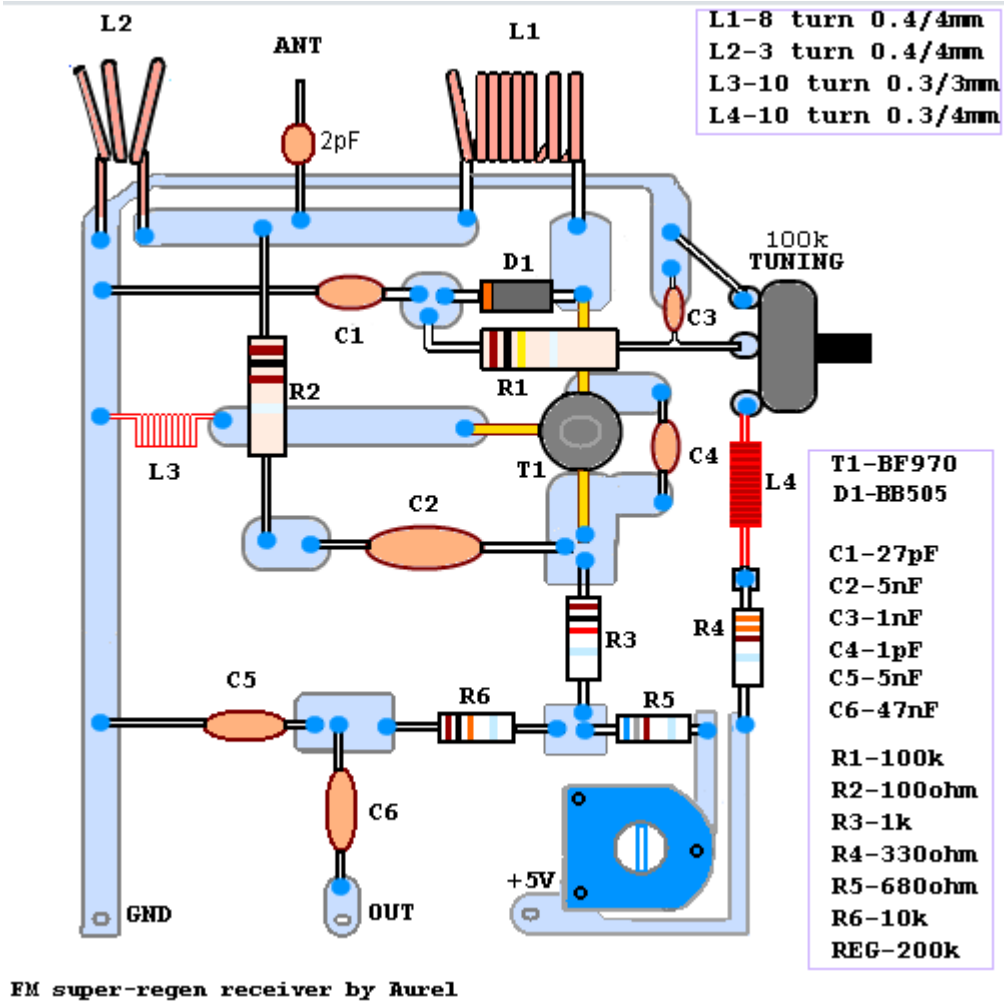
AUREL POLIAKOV SUPER REGEN

After some more experimenting with this circuit i have made 3 version where i
connect 'squelch' blocking cap 5nF from emiter to coil tap.
On this way reciver oscillate far stronger or better regenerate .
I also think that original or my first version work as regen or synchro detector because produced sound have better quality than last version.
Last version is typical super-regen .
What is advantage or disadvantage of versions?
In last version i have used coil from TV tuner and stability is far better (i left circuit to work
about 3h on one station and there is no frequency shift at all)
sound is not clear like in first version and is with more hiss.
Also with 3 version(last) i can pick up almost all stations like with comercial FM portable radio.
here is last schematic and some images:

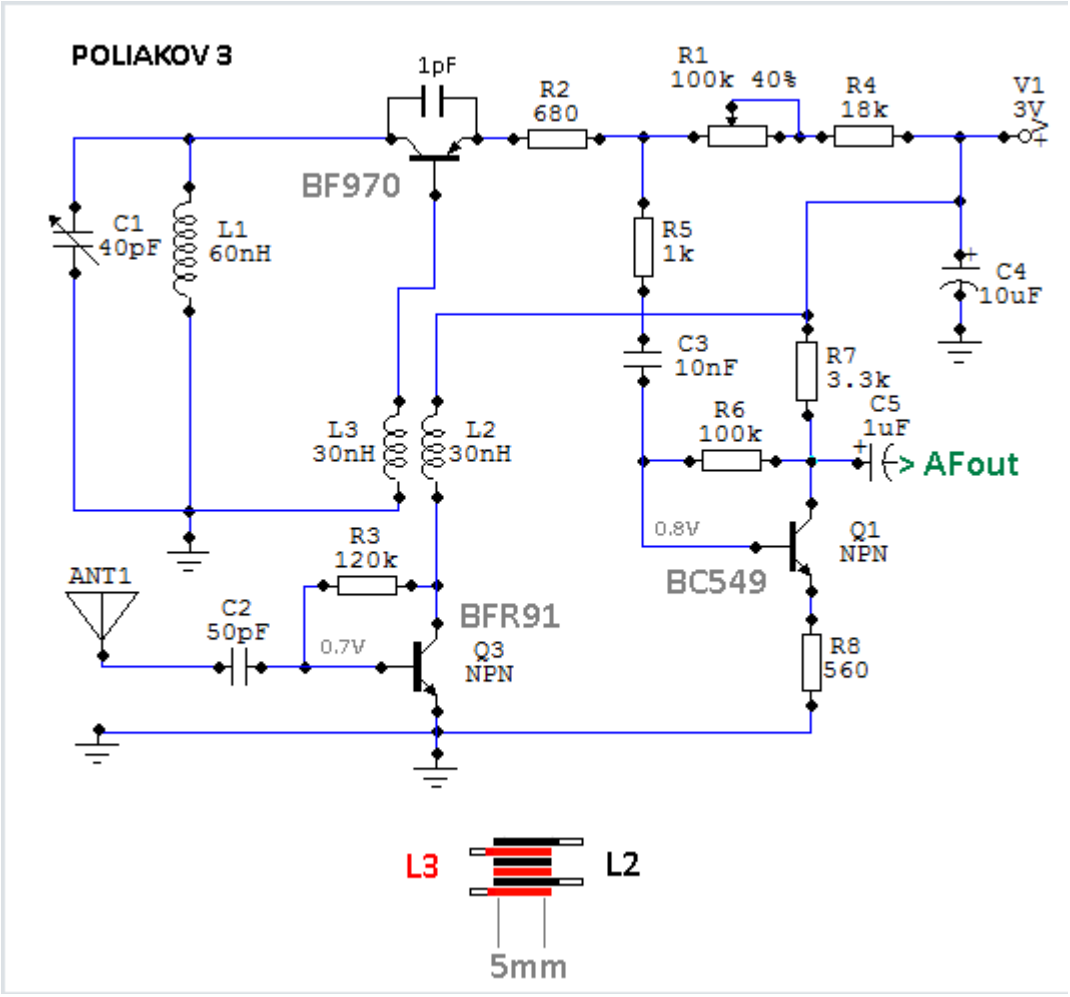


here is pcb connections;
or you can do it as soldering islands so called manhatten style





Then here is version called POLIAKOV 3 with premaplifier:

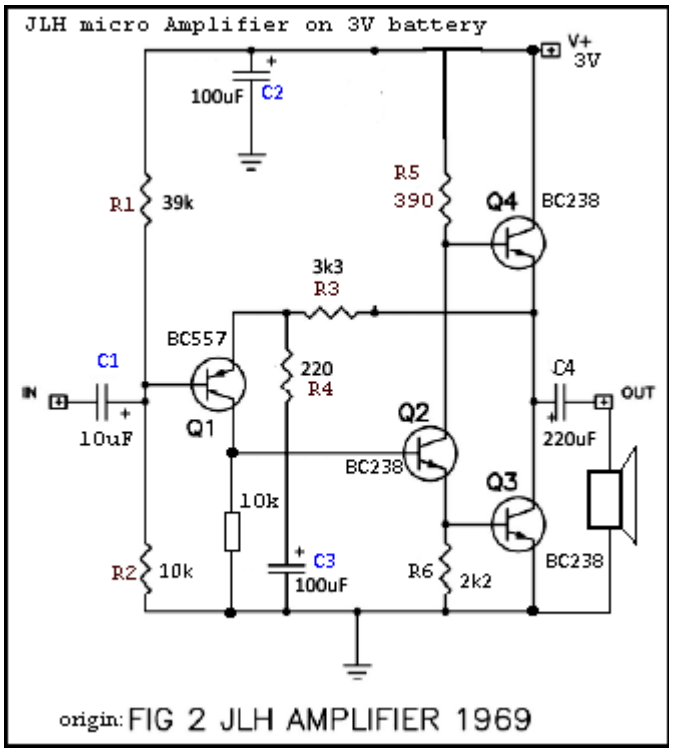


SMALL JLH69 based amplifier on 3V .....

In my research for best small amplifier build with transistors i stoped on JLH 1969 design .
Amplifier is orginaly build for +40V power supply and is CLASS A Amplifier.
But because I am curious and i need small amp which can work on just 3V and must drive mini speaker of 0.5W - 8 ohm.
I have tried many circuits with standard push-pull topology but no one of them
work as i need on 3V battery.

So tried this one and work very good with very clear sound.
Amplifier pruduce cca 250-300mW without problem on my small speaker and i am very happy about that.

Current is up to 20 mA which is normal for class A amplifier.



As you may see...circuit is very simple to build and you can use almost any small signal
transistors for audio signals.

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