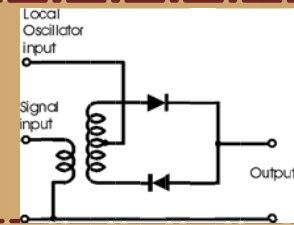
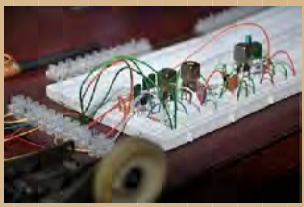


Make A Radio!

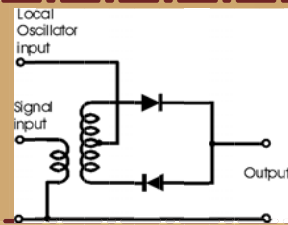


Ian Scott ZL4NJ,
Terry Thomas ZL4TAE

29 March 2017



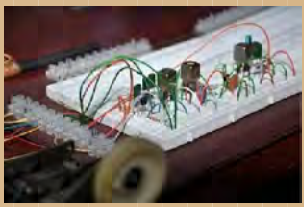
Make A Radio!



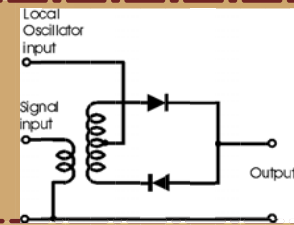
ZL4AA Super Contest

Make Any Type of Radio... Start Today

- ★ **Crystal Set for AM – Medium Wave, Short Wave, Home Made Diodes?**
- ★ **Tuned Radio Frequency (TRF) – Medium Wave AM, Short Wave AM.**
- ★ **Superhet, Any Frequency – Medium Wave, Shortwave, VHF, UHF, uWave**
- ★ **Direct Conversion for Sideband – Double Sideband (DSB) or SSB**
- ★ **Super Regenerative Receiver – Slope Detect FM Broadcast Radio**
- ★ **Microwave Energy Detector – Measure Leakage from Microwave Ovens**
- ★ **Light Wave Receiver – Could use Pulse Width Modulation (PWM)**
- ★ **Software Defined Radio (SDR), USB Dongle, HF → UHF Converter**



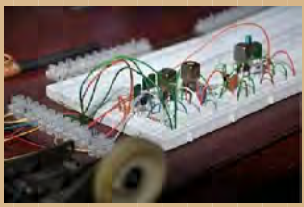
Make A Radio!



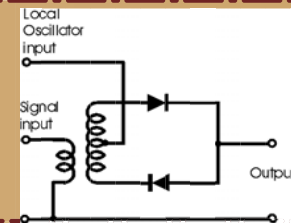
ZL4AA Super Contest

Short Demos – Terry [Crystal Set](#) – Ian [TRF](#) – April 5
Progress Check – Construction Night - April 12, 2017
“Best” Radio Judging - [Prizes](#) - May 3, 2017

- ★ Contest Goal is to Make Use Of Anything at Hand – Be Resourceful
- ★ Contest Goal is NOT to make an Ultimate Performance Radio
- ★ Radios Will be Judged [Relative to Type](#) – TRF Compared to Typical TRF
- ★ *First Prize Winner Gets a Box Of Chocolates!*



Make A Radio!



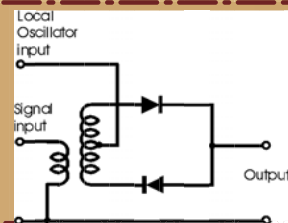
ZL4AA Super Contest

Five Categories, Judged on Scale 0 to 5

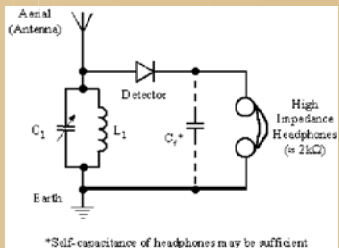
- ★ *1. Resourcefulness – e.g. Home Made Capacitors, Diodes, Tunable Inductors*
- ★ *2. Creativity – Is the Radio Novel? Imaginative? Unusual Use Of Materials?*
- ★ *3. Construction Quality – Is the Wiring Tidy? Are Components Well Soldered?*
- ★ *4. Performance Relative to Type → Crystal Sets Compared To Similar Designs*
- ★ *5. Popularity – Club Members Get To Vote For Their Favorite Radio!*



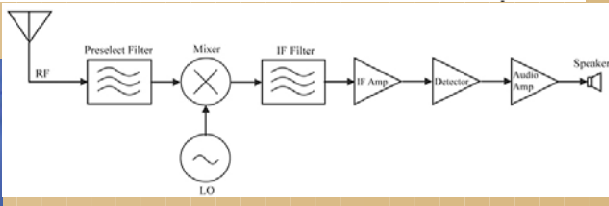
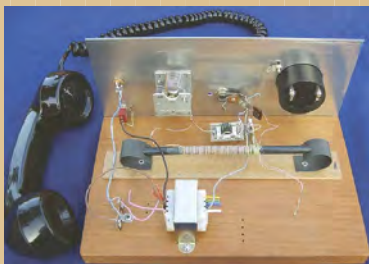
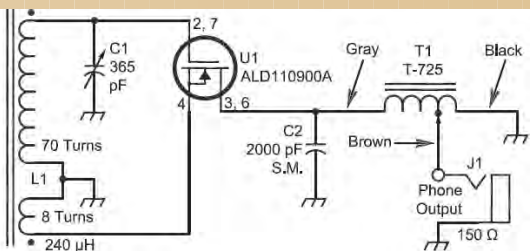
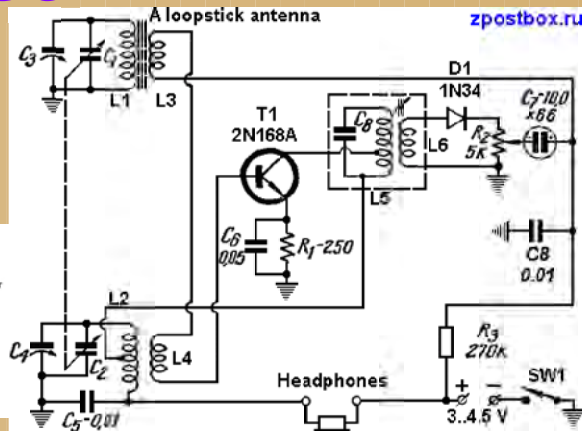
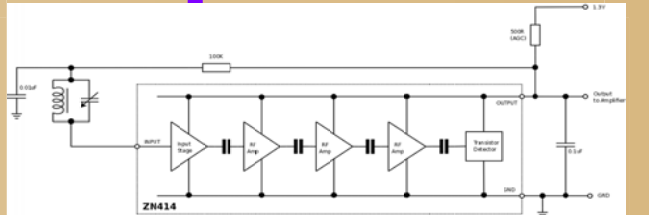
Make A Radio!



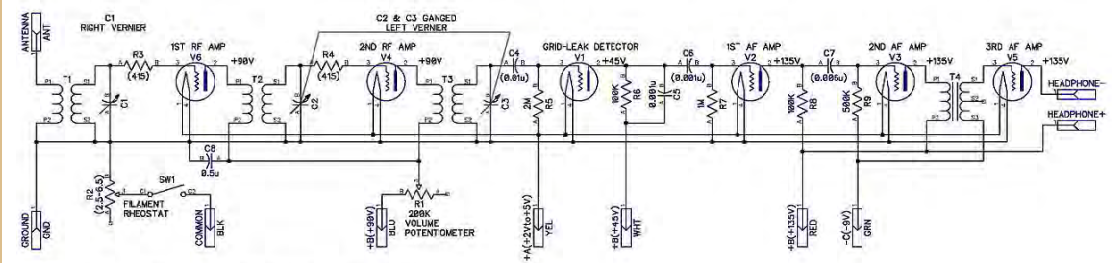
ZL4AA Super Contest



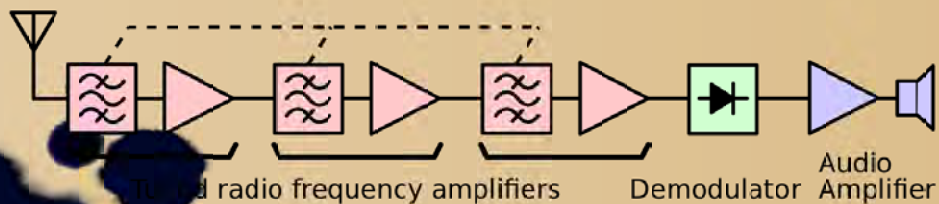
*Self-capacitance of headphones may be sufficient

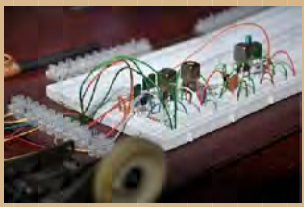


TUNED RADIO FREQUENCY RECEIVER

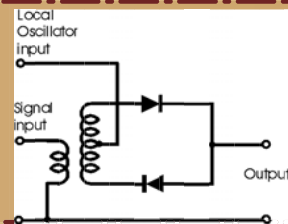


NOTES:
VALUES IN PARENTHESIS ARE MEASURED, OTHERS ARE AS MARKED ON THE COMPONENT
ALL TUBES ARE "91A" TRIODES





Make A Radio!



ZL4AA Super Contest

- ★ Tuned Radio Frequency (TRF) Used To Be Inferior to Superhet Architectures
- ★ Edwin Armstrong Filed a US Patent For His Superhet Invention ~ 1919
- ★ Armstrong Was Responsible for 42 Patents; Regenerative, Super-Regenerative, Super-heterodyne Receivers, Frequency Modulation etc...
- ★ However Modern Components Suggest a TRF Come-Back!
- ★ Complex Mechanical Tuning is Replaced By Hyper-Abrupt Varicap Tuning
- ★ Multiple RF Amplifiers with Multiple Tuned Circuits now Very Feasible
- ★ **Comparable Sensitivity and Selectivity is Readily Available Now**
- ★ **Unlike Superhet Receivers, TRF Designs Have No Spurious Responses**



EDWIN H. ARMSTRONG
1890 - 1954

