

Ferrite Core Crystal Radio Sets

AI Klase – N3FRQ

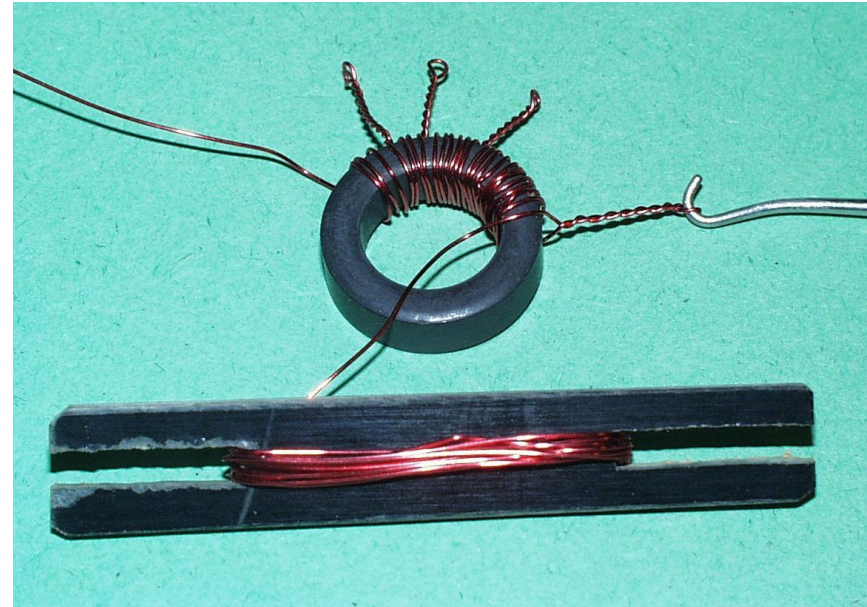
Rev. .0.5

7 Sep 2025

Ferrite Cores

Another approach to coils

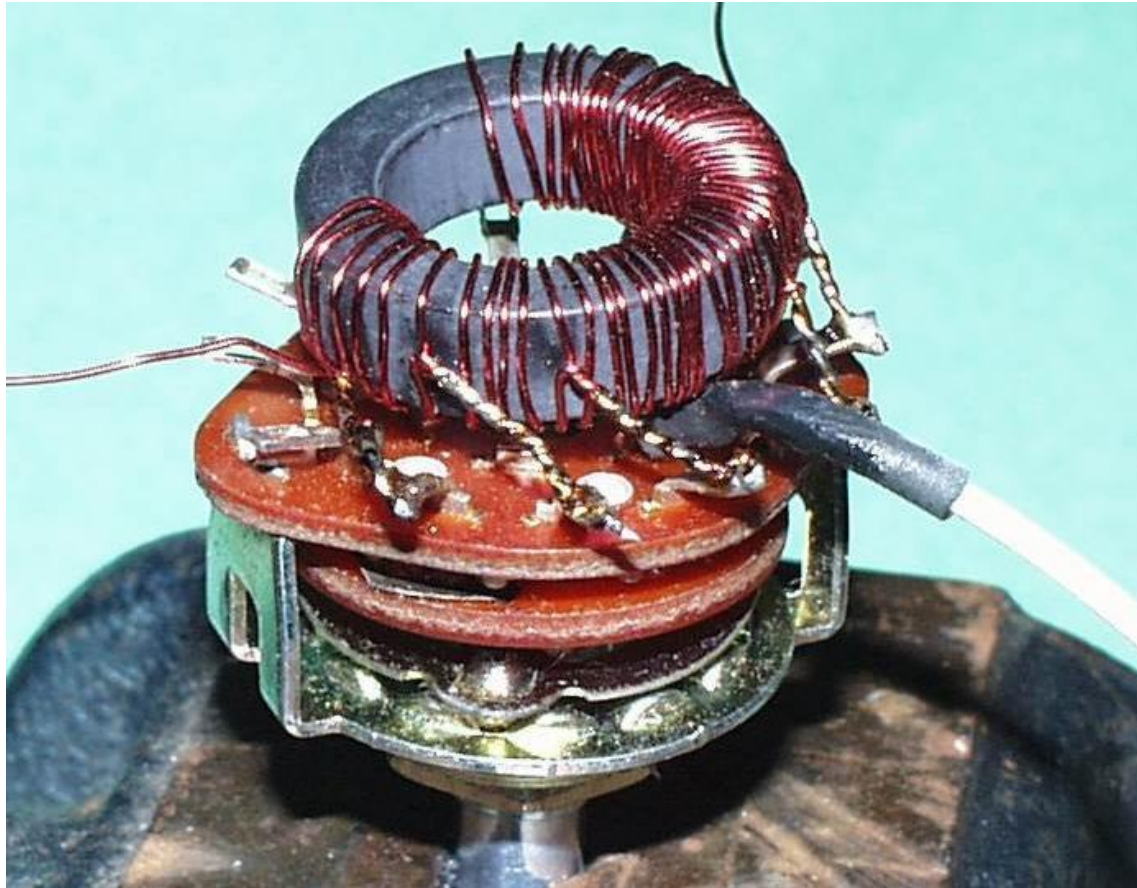
- High inductance in a small space.
- Magnetic field is contained.
 - So, you don't have to worry about nearby conductive objects.
- Reasonably high Q: 200-500
- Inexpensive
 - FT-82-61 toroid cores
 - 3 for \$10 on Amazon
 - Minimal wire required.
- Easy to make
- [Helpful Inductance Calculator](#)



- You need to know what magnetic material you have.
- Mix-61 for the broadcast band
- Improvise a bobbin for easy winding.

Ferrite Cores

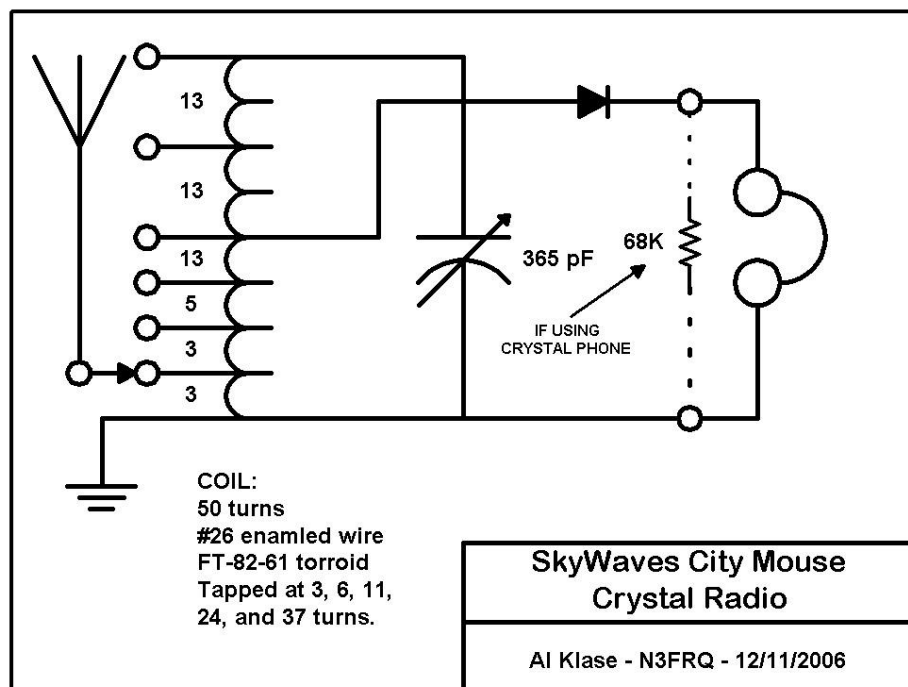
- A tapped coil can be mounted directly to it's switch.



Build Small Radios



- City Mouse, ca. 2006
- Ferrrite version of the [Pretty Good Xtal Set](#)

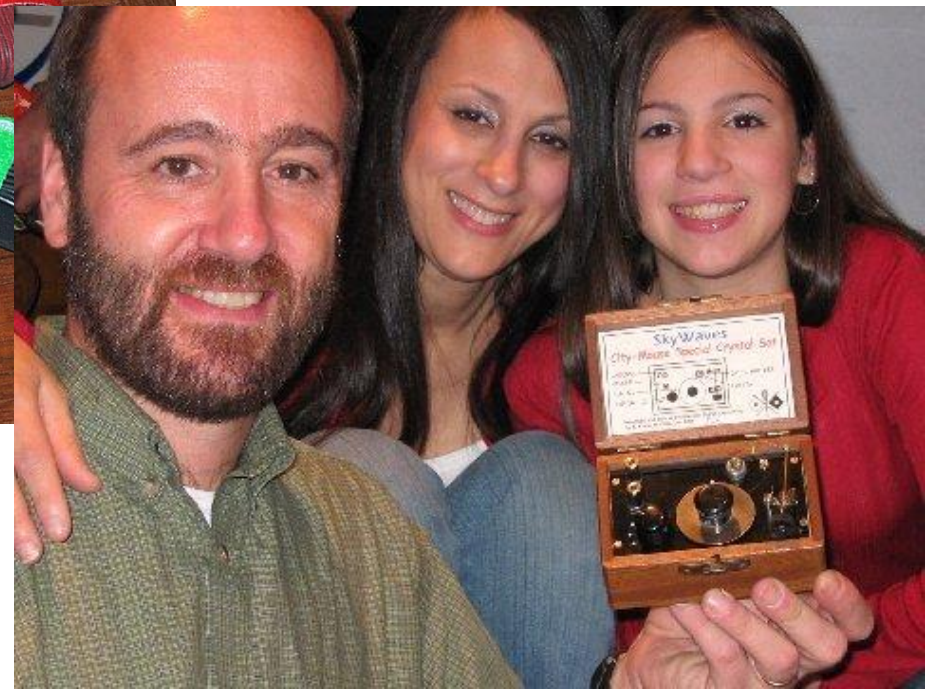


CRYSTAL SET MOBILE

City Mouse



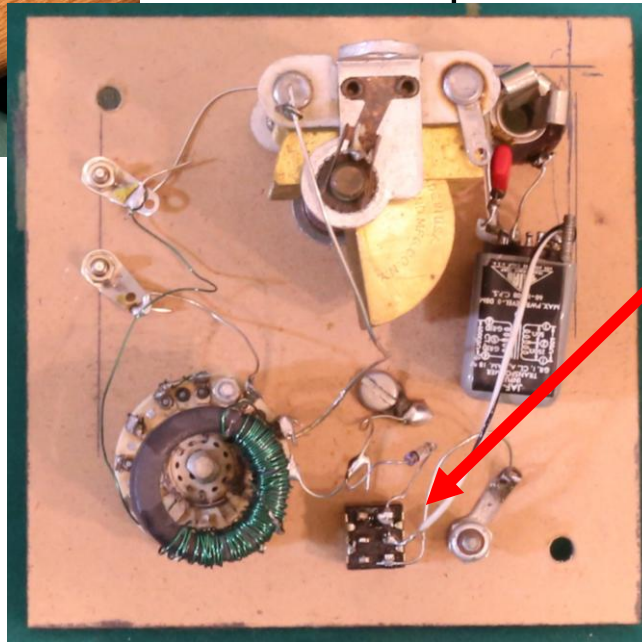
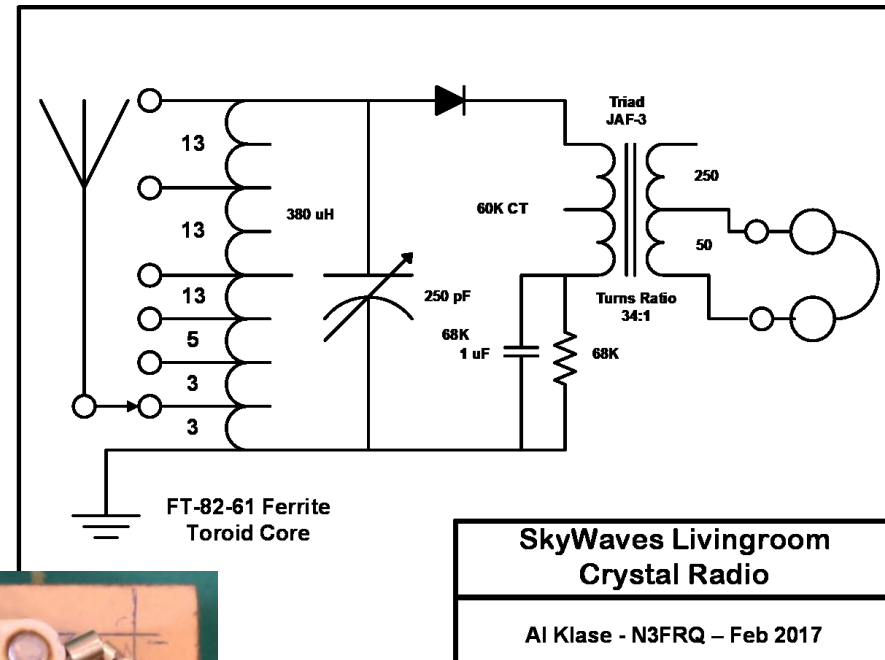
Christmas Present



My Livingroom Set



- Makes use of dollar-store earbuds.
- 20-foot indoor antenna works well here in “city-mouse” territory.

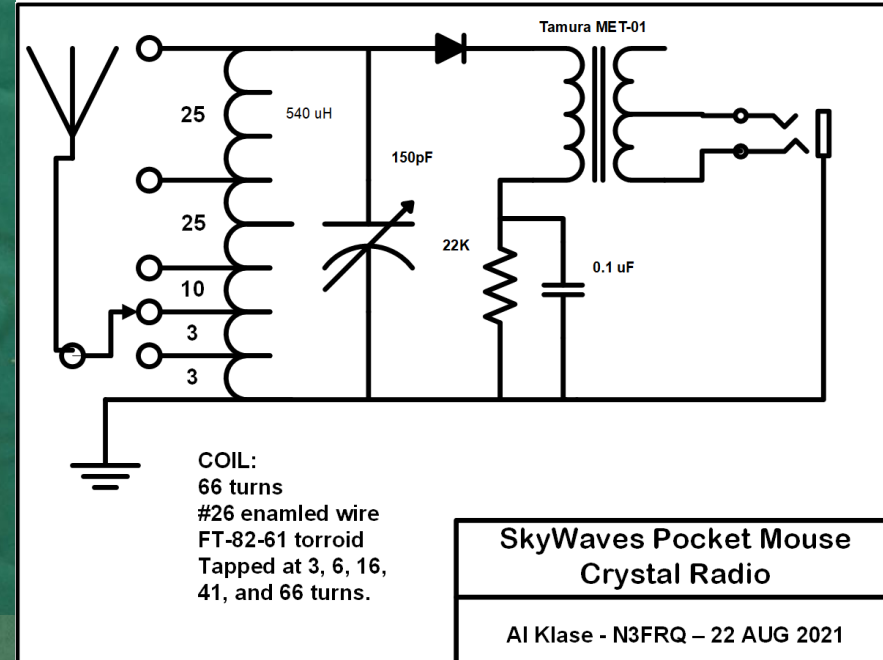


Cheater switch selects germanium diode.

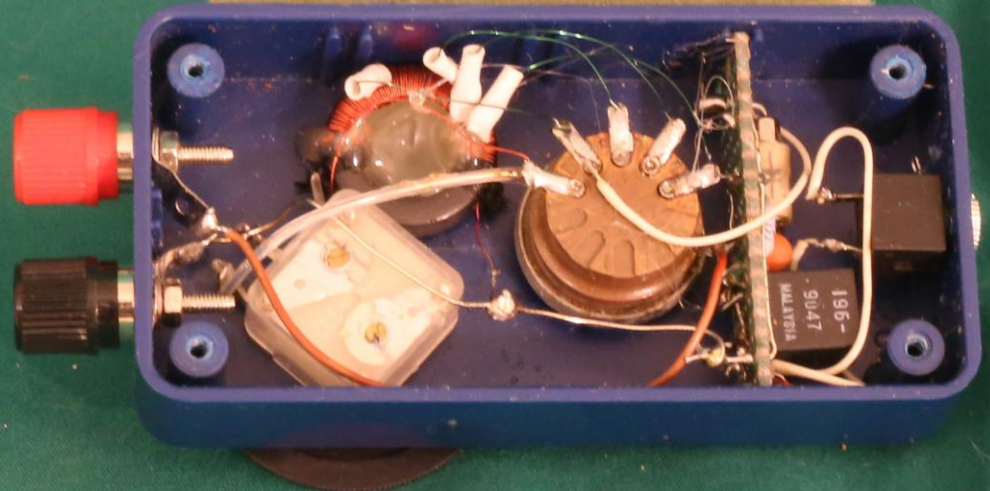
HOME BREW DETECTOR STAND

This set does well in this [PERFORMANCE COMPARISON](#).

The Skywaves Pocket Mouse



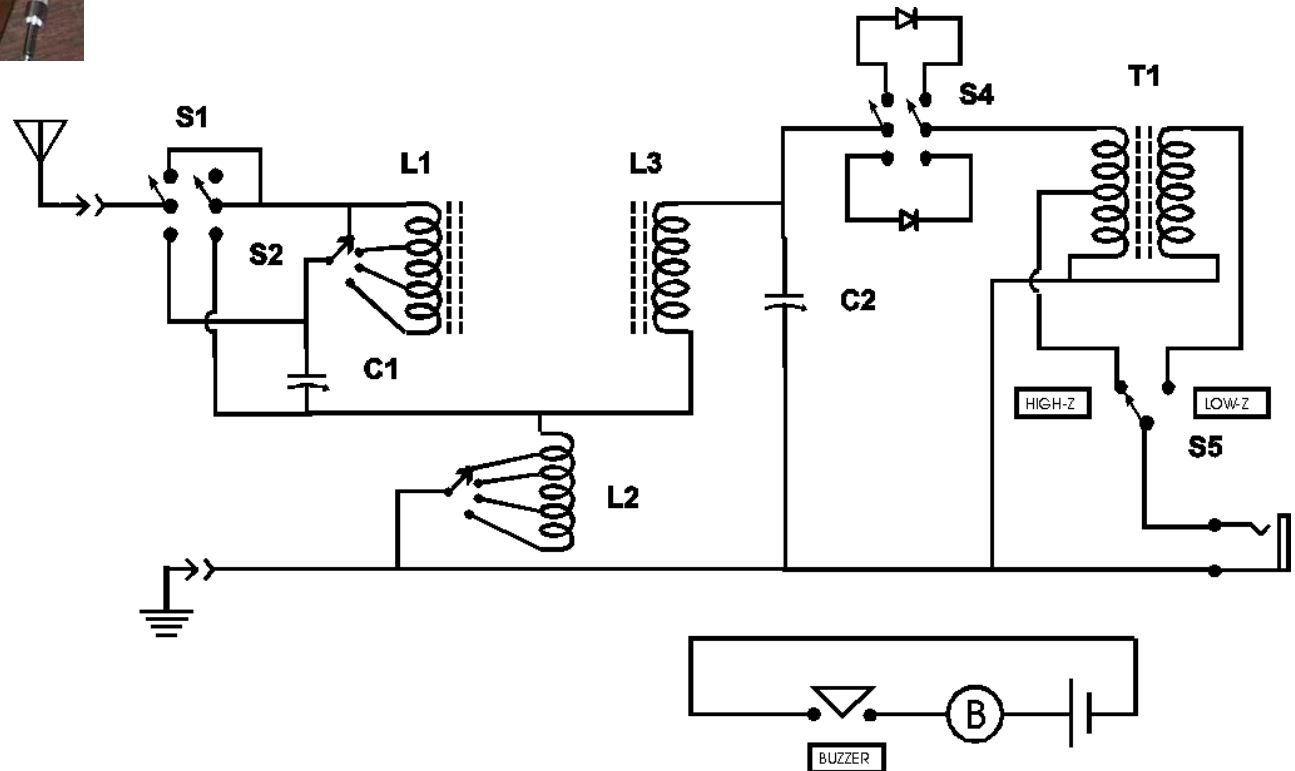
TRAVELING WITH A
CRYSTAL SET





SkyWaves HP-002

Double-Tuned with ferrite cores
Ca. 1999



HP-002

Inside



HP-002 Performance

2006 NJARC DX CONTEST LOG

NAME: Al Klase
ADDRESS 22 Cherryville-Stanton Rd.
Flemington, NJ 08822
PHONE [REDACTED]

RECEIVER: Skywaves HP-002 Xtal Set + wavetrapp
ANTENNA: 65-Ft. 3-wire flat-top at 30 feet
CATEGORY: A

DATE	TIME	FREQ	LOG	CALL	LOCATION	DX	COMMENTS
1/20/2006	19:45	940		CBM	Montreal	364	
1/20/2006	19:46	900	51	CHML	Hamilton, ON		354
1/20/2006	20:00	670	29	WMAQ	Chicago	708	
1/20/2006	20:10	1000	59	WMVP	Chicago	708	
1/20/2006	21:05	570	15	R. Reloj	Cuba	1279	
1/20/2006	21:33	1370	81	WXXI	Rochester		265
1/20/2006	21:42	1520	86	WKBW	Buffalo		299
1/20/2006	21:49	1100	66	WTAM	Cleveland	397	
1/20/2006	21:51	1140		WRAV	Richmond		255
1/20/2006	22:04	720		WGN	Chicago	708	
1/20/2006	22:40	650		WSM	Nashville	736	
1/20/2006	22:44	760		WJR	Detroit	482	
1/20/2006	22:59	530		RVC	S. Caicos	1309	Radio Vision Cristiana
1/20/2006	23:10	890		WLS	Chicago	708	
					Total:	7399	

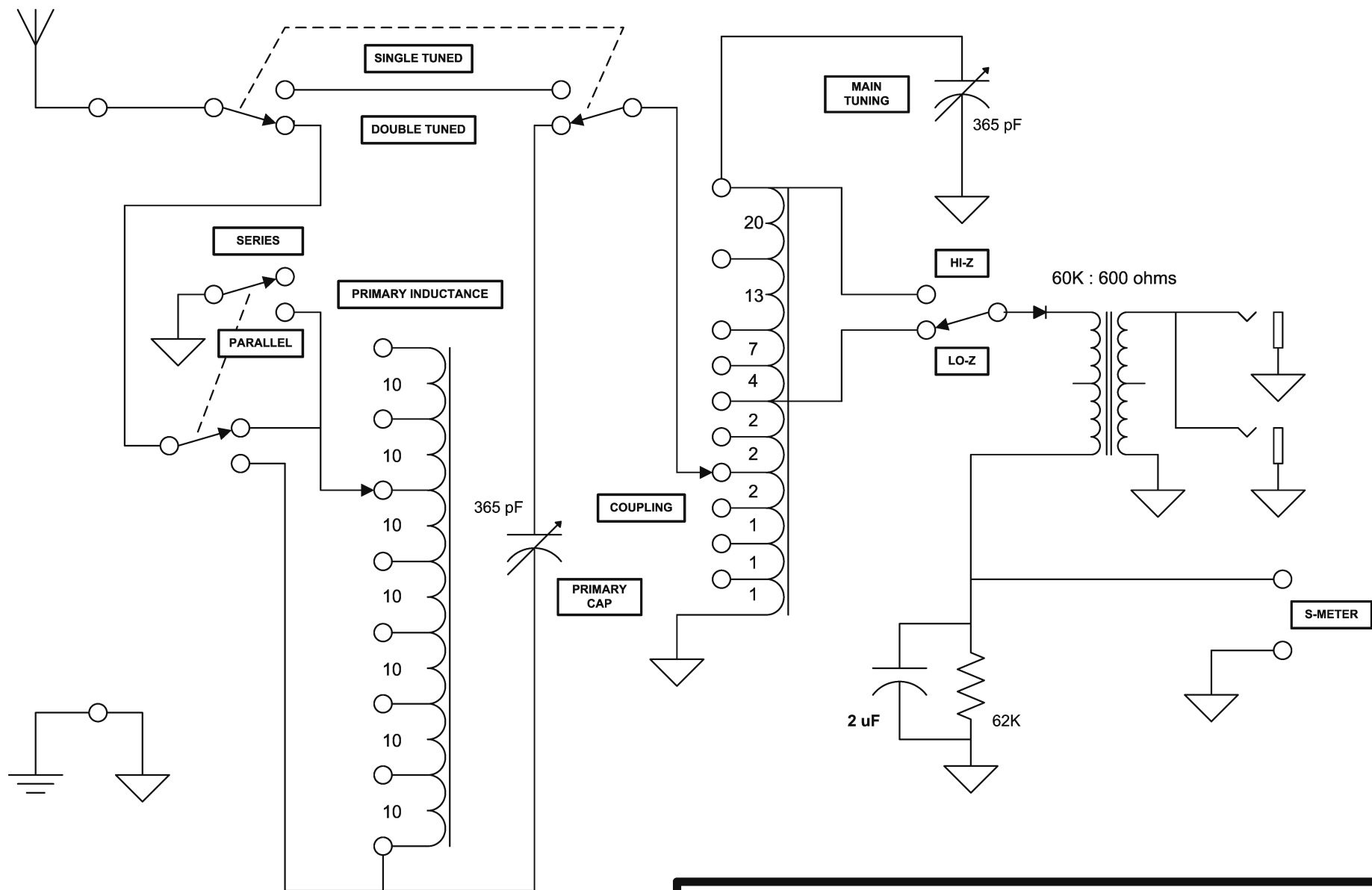
Skywaves Portable

ca. 2010



Repurposed Plastic Tackle Box

<http://www.skywaves.ar88.net/xtal/Traveling/Traveling%20with%20a%20Crystal%20Set.pdf>

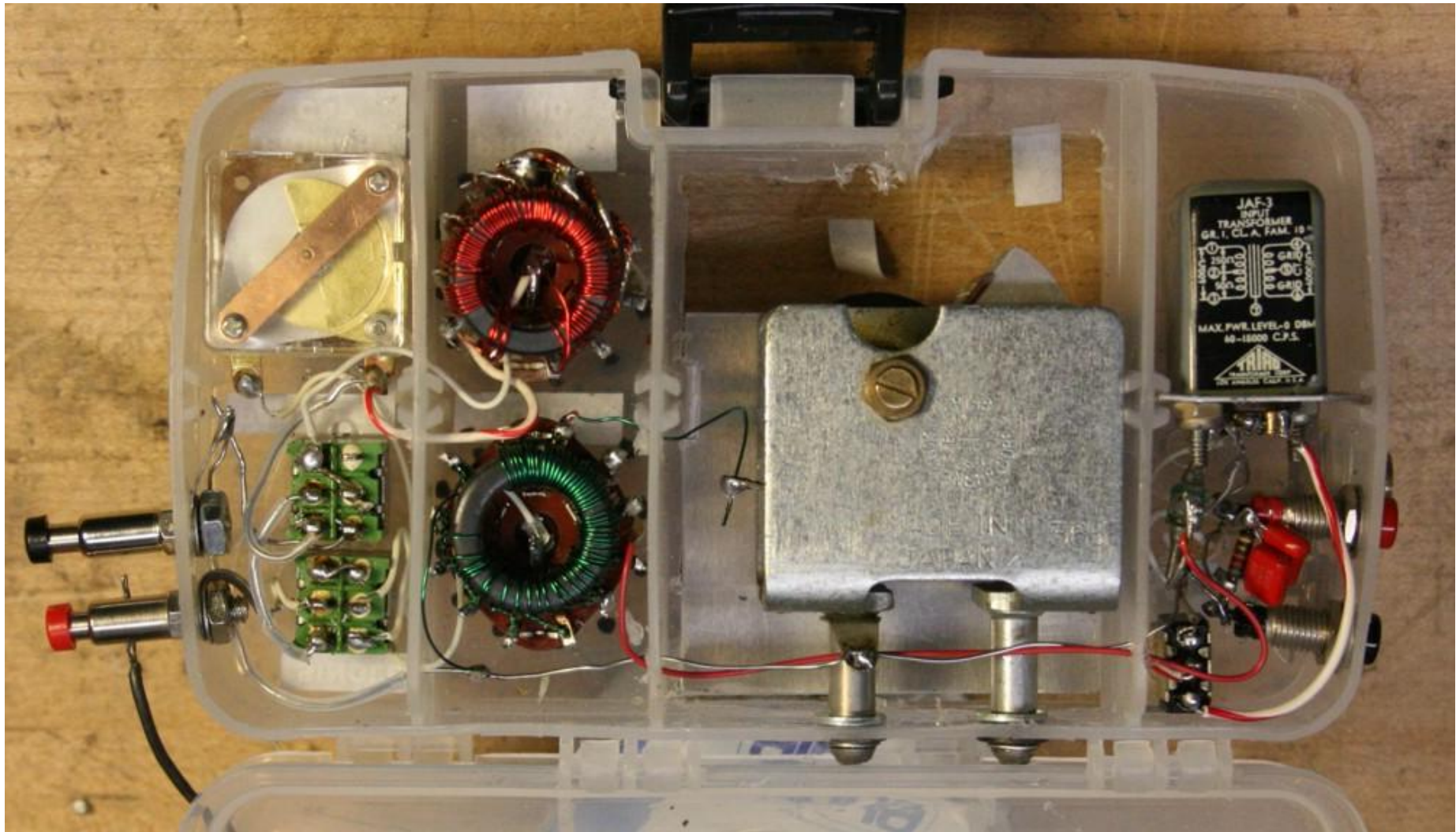


Both coils;
#26 wire on FT-82-61 cores.

**SkyWaves Portable
Research Crystal Radio**

Al Klase - N3FRQ – 3/9/2010

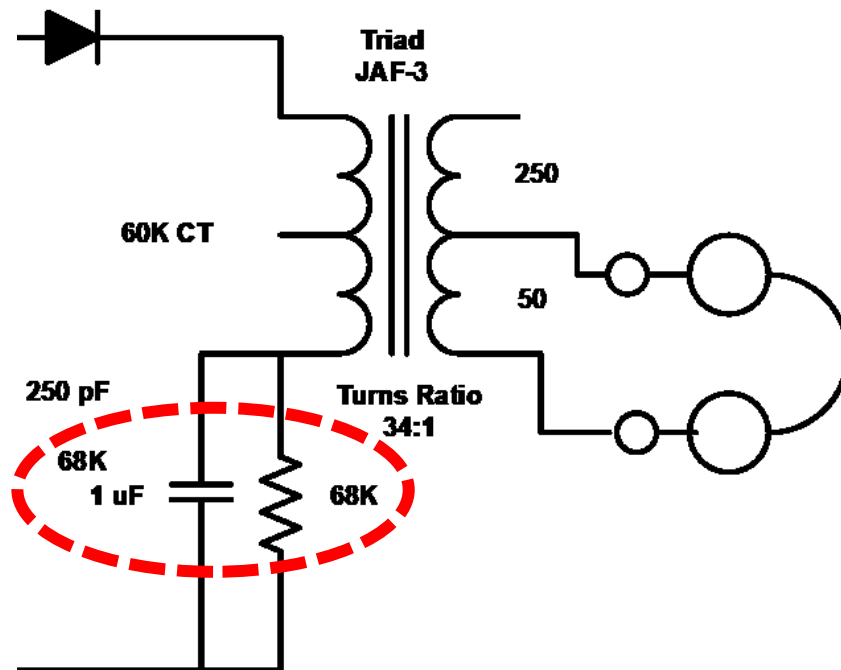
Skywaves Portable - Back



[illegible]

The “Benny” Resistor

- Pointed out by the late Ben Tongue, captain-of-industry, electrical engineer and crystal-set maven.
- The DC resistance of a matching transform primary is much smaller than the AC impedance.
- The heavy DC load on the diode detector causes distortion and loss.
- Bypassed resistor in series with the primary solves the problem.



Ben Tongue on Crystal sets



Ben (left) supervising PGXS check out at our 2006 clinic.

More Crystal Set Info

See my web site: <https://www.skywaves.ar88.net/xtal/xtal.htm>