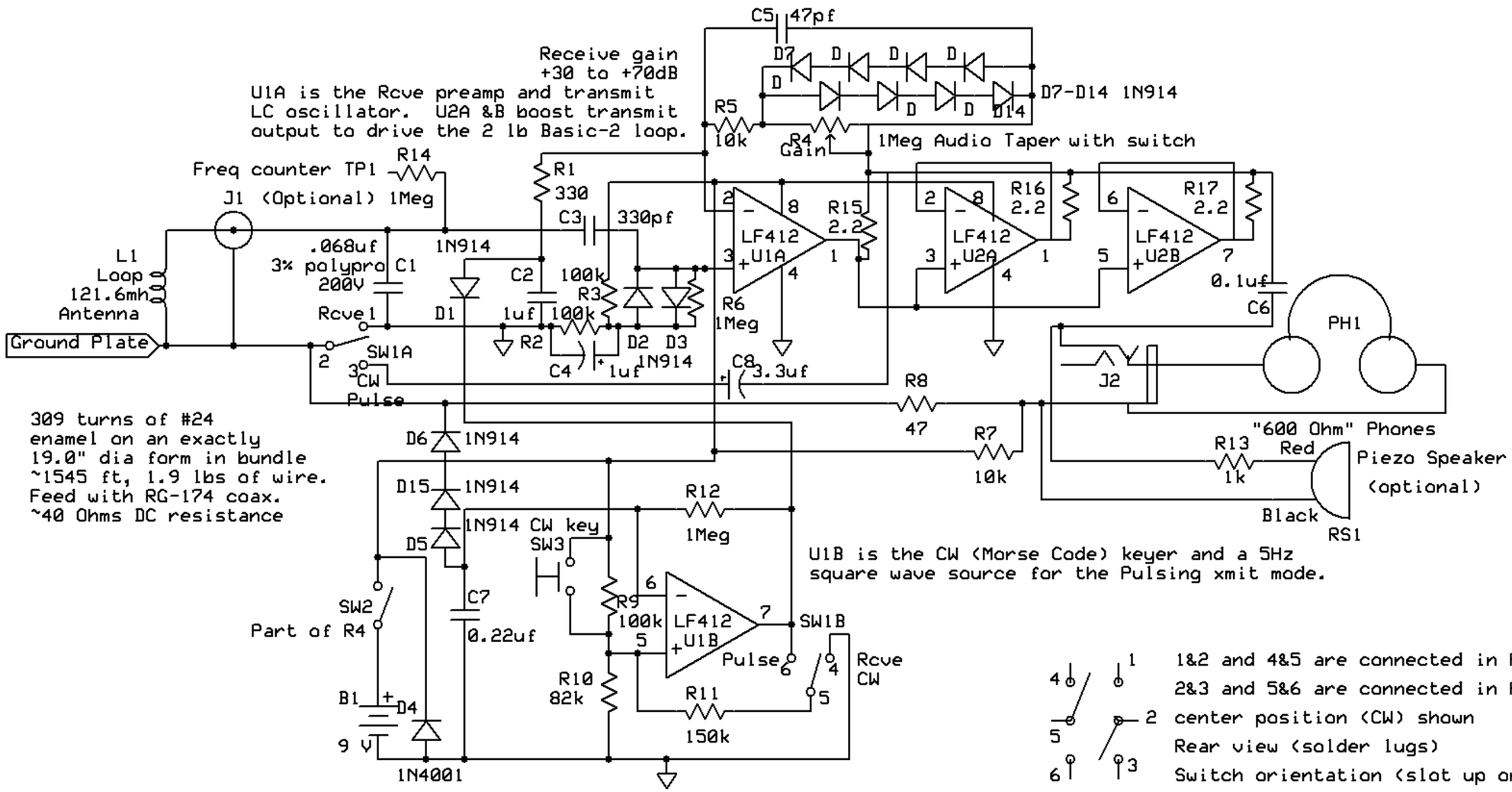
Basic-2 1750Hz Cave Radiolocator and CW Communicator V2.1



1&2 and 4&5 are connected in Rcve mode.
2&3 and 5&6 are connected in Pulse mode.
center position (CW) shown
Rear view (solder lugs)
Switch orientation (slot up or down)
makes no difference.

NOTES:

1) Wires that cross are not connected to each other. If the LF353 is used, R15-17 must be raised to 10 Ohms.
2) SW1 is a 3-way on-on-on toggle switch such as DigiKey CKN1132-ND. CW is the center position.
3) The loop antenna is connected with 5 feet of RG174 coax and an RCA phono plug.
4) Crystal headphones can be used by shunting them with 470 Ohms. This is highly desirable to reduce audio feedback problems.
5) The loop is 19" diameter random wound in a groove on a form of your choice with ~309 turns of #24 enamel wire (1545 ft, 1.9 lb).
6) For 2 units to be on the same frequency (ie work together) without any special tuning, the C1 caps in the two radios must match within 1% and the two loop windings must be identical diameters with exactly the same number of turns.
7) Transmit output across L1 is ~60V rms (45mA, ~100mW). Mag Moment is 2.6 Amp-Turn-Mtr squared, 8dB more than the Basic-1.
8) Battery current is 8mA rcve and 28mA key-down transmit. Estimated life is roughly 1.5 days pulsing xmit and 3 days rcve.
9) The frequency of operation is determined by L1 and C1. 1750 Hz is optimum for the Telex 610 headphones, which are roughly tuned to this freq with C6. Smaller loops will drastically reduce range as will less weight of wire.
10) Note that both the headphone and loop connectors must be isolated from ground if a metal box is used.
11) Keep headphones at least 2 feet from the loop to prevent feedback during rcve.
12) Body coupling between headphones and loop, can cause feedback during receive. A grounded metal plate on the box or loop (for your hand) will help.
13) The Basic-2 circuit is identical to the Basic-1 except for the additio of U2, D6 and R15-17. Also, the Basic-1 must use its own loop (L1) and tuning cap (C1), as it does not have the power to drive the Basic-2 loop.

Thru-the-Earth Radiolocation		
Basic-2 Simple Radiolocator		
Brian Pease	Rev 1.4 7/06/2012	Page 1/1