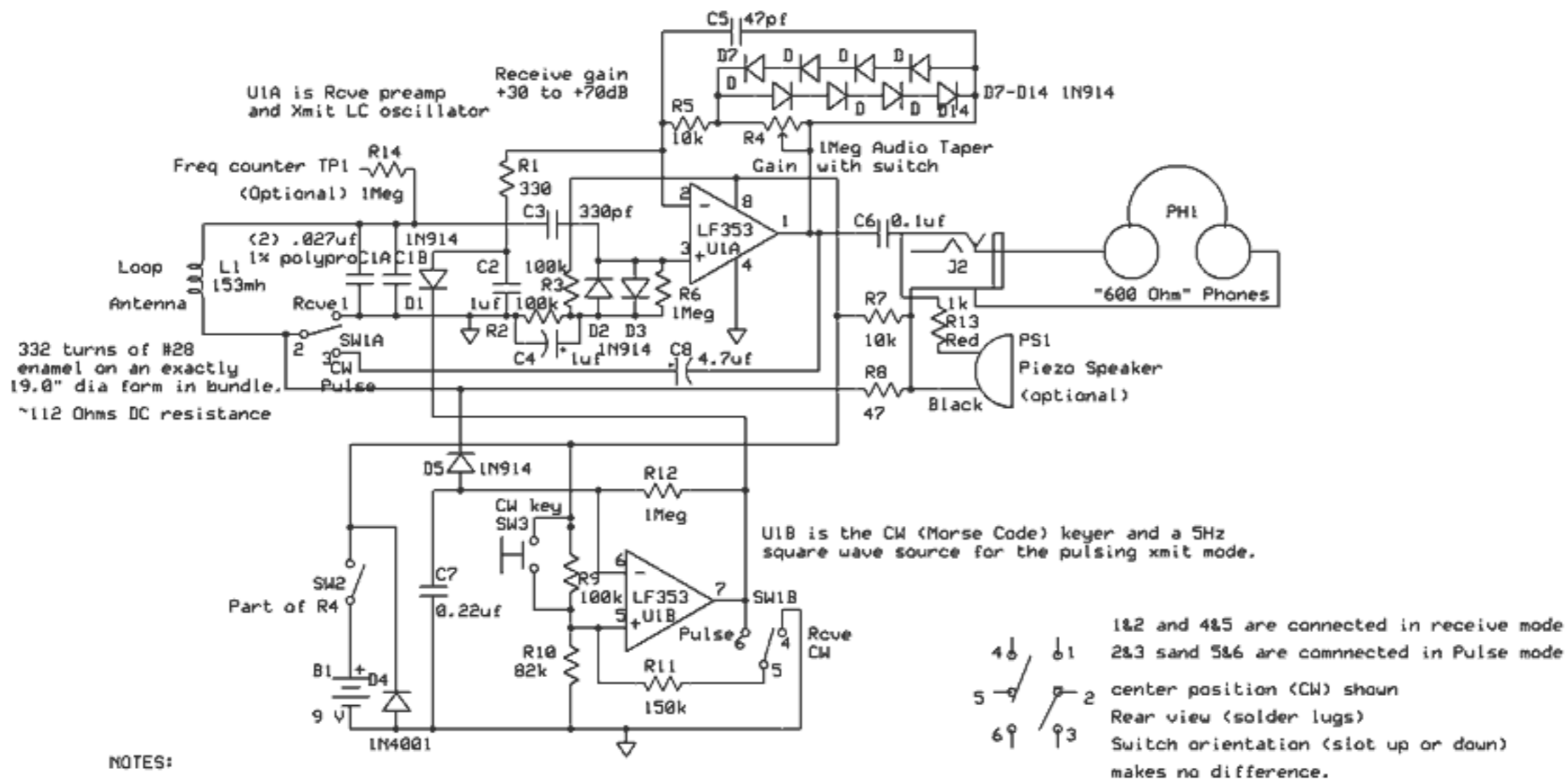


Basic-1 1750Hz Cave Radiolocator and CW Communicator



NOTES:

- 1) Wires that cross are not connected to each other. Part numbers match the Basic-2. J1 and PH1 not shown.
- 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 or 1/8" phone plug.
- 4) Crystal headphones can be used by shunting them with 470 Ohms. This is highly desirable to prevent audio feedback problems.
- 5) The loop is 19" diameter random wound in a groove on a form of your choice with ~400 turns of #28 enamel wire (2000 ft, 1 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) Transmitter output (with the LF 412) across L1 is ~30V rms (17mA). Mag Moment is 1 Amp-Turn-Mtr squared.
- 8) Battery current is 3mA rcvr and 10mA key-down transmit. Estimated life is 3 days pulsing xmit and 7 days rcvr.
- 9) The frequency of operation is determined by L1 and C1. 1750 Hz is optimum for the Telex headphones, which are roughly tuned to this freq. Smaller loops will drastically reduce range as will less weight of wire.
- 10) Note that both the headphone and loop connectors must be floating from ground if a metal case is used.
- 11) Keep headphones at least 2 feet from the loop to prevent feedback during rcvr.
- 12) U1 (LF353/TL082) is at Radio Shack but LF412 gives more beacon power.
- 13) The piezo speaker allows use of the underground unit without headphones.

Thru-the-Earth Radiolocation Basic-1 Simple Radiolocator