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How to Rejuvenate your Headphones

Presented by Tom Provost and Gary D'Amico
at the November 1996 NJARC Meeting

First, evaluate your headphones.

(1) Check your phones for continuity. Most high impedance phones are about 1000 ohms per phone. Since the phones are connected in series the resistance measured from wire to wire of the phone cord and should be around 2000 ohms. If the cord is bad you can make up something from modern materials or obtain an authentic replacement (See supplier list at the end.) Make sure that you wire the phones in series and observe the proper polarity relationship. If your phones don't have continuity - check for corroded joints, a bad cord or open coil windings. [Open coil windings are big trouble, as the wire is very fine and hard to replace, but not impossible. It is assumed that you have basic trouble-shooting skills. If not, get a friend to help. Ed.]

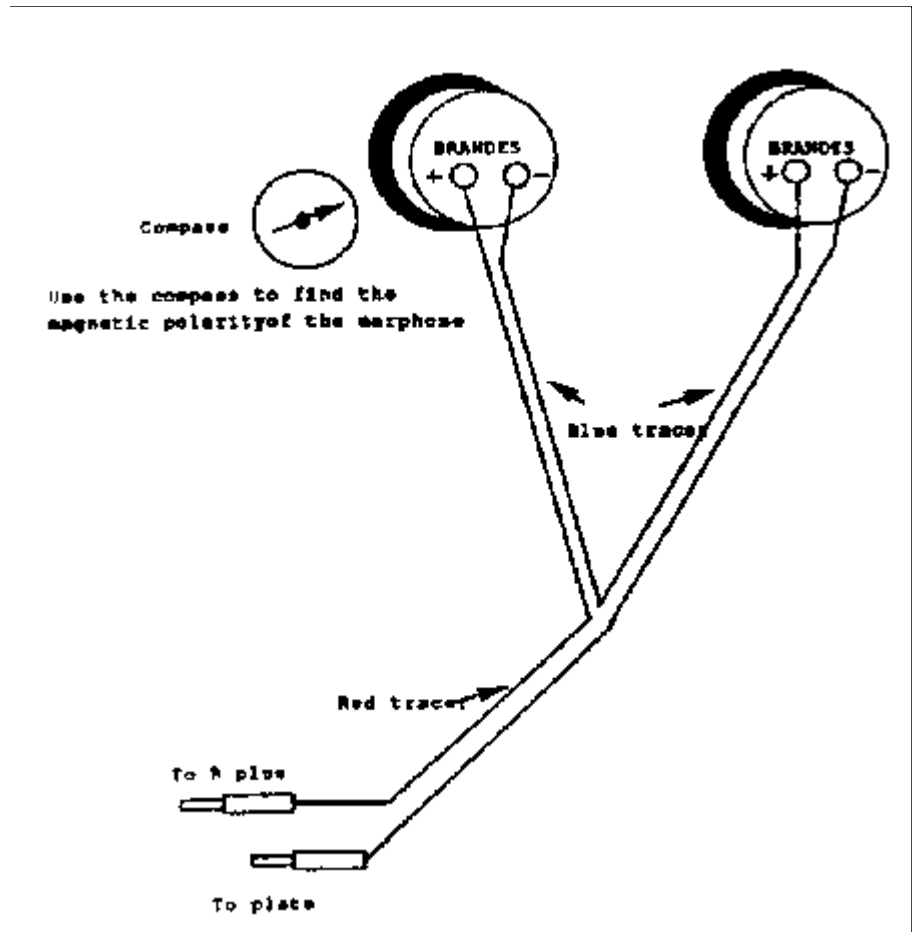
(2) Check the strength of the magnets. Remove the earpiece. Take the metal diaphragm and hold it over one the poles and attempt to lift it up and away from the magnet. A strong attraction is a sign of healthy magnets. Strength is relative, but a ballpark test of passable magnet strength is to suspend the metal diaphragm edgewise from the pole of the magnet. If it can hold up the diaphragm it's probably good enough to use. If it displays weak characteristics you'll have to remagnetize the magnet(s).

(3) Check the diaphragms for flatness, replace if not flat. (see vendor list)

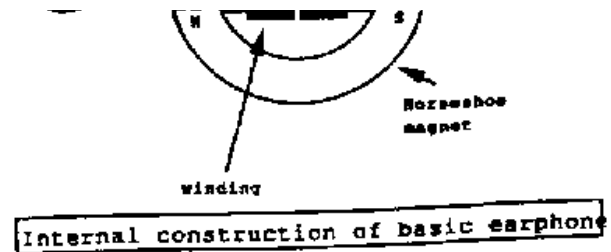
Re-magnetizing your phones

Two ways are being described:

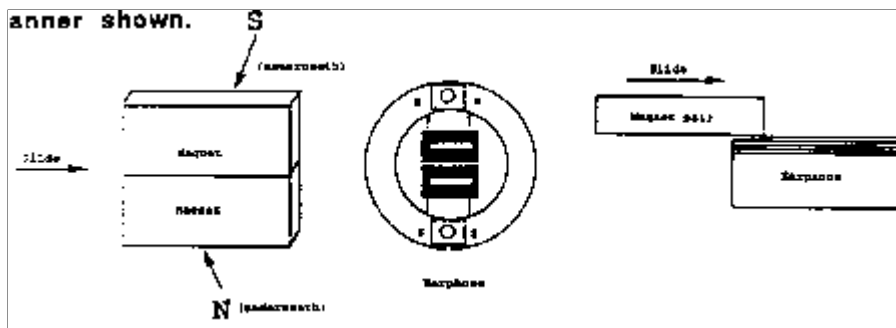
- Rubbing the magnets with another strong magnet
and
- Placing the weak coil magnets within a homemade electromagnet to reenergize them.



First, using a magnetic compass identify the magnetic orientation of the earphone. You want to retain and enhance this magnetic identity. Using the compass find the pole that attracts the north indicating pointer (the arrow end is actually the south pole of the compass needle), mark the phone with a pencil, indicating that this is the north pole of the earphone. (Remember like poles repel, unlike poles attract.) Also mark the magnets themselves, inside the earphone with a permanent marker.



Method (a.) Using permanent magnets (without disassembly of phones)

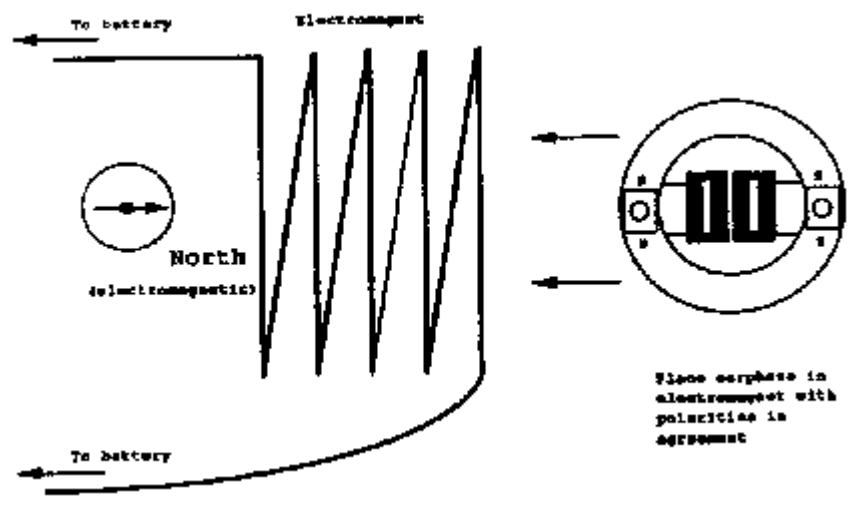


Remove the covers and diaphragm from the earphone. Identify the pole of the earphones and mark them. Identify and mark the poles of the two strong magnets with permanent marker. Radio Shack sells ceramic magnets, 64-1877 @ \$.99 each, that are fine for this job. Orient the magnets side by side so that you

have a North and a South facing as shown. Think of them together as a horseshoe magnet. Place the North and South of the ceramic magnet against the *opposite* polarity of the phone pole piece. Slide the ceramic magnet pair across the earphone 10 or more times, in the manner shown.

Method (b.) Using an electromagnet and a 6 volt gel cell battery (this produces stronger magnets)

Identify the poles of the earphone and mark them. Wind about 20 turns of #18 (or thereabouts) insulated wire in a shape such that the phone (without the screw on cover and diaphragm) can be placed inside the winding. Using your compass momentarily connect the winding; (just a "tap" is what's needed) to the gel cell battery and observe the magnetic polarity of the electromagnet. Mark the leads and the winding showing the electrical and magnetic polarity so you can reproduce it. Now remove the cover



and diaphragm from the weak earphone and place it inside the electromagnet winding with the poles of the electromagnet and the earphone matching (both north poles to the left etc.) Connect the winding to the cell, in the same manner, tap, tap, tap. Do it about 6 times. Check the earphone polarity. It should be the same as you marked it. Check it with the diaphragm for hanging strength. It should be much stronger.

The headphones used for this example were Brandes, a common type. With the ideas shown here you should be able to adapt the techniques to other types.

Suppliers of headphone parts

**Playthings of the Past
9511 Sunrise Blvd. #J23
Cleveland, Ohio 44133**

**Modern Radio Labs
P O Box 14902
Minneapolis, MN. 55414-0902**

Of course, the live talk and demonstration was much better. Plan to attend the next meeting. Visitors are always welcome. Ed.

[Please visit the New Jersey Antique Radio Club's web page for more on radio.](#)
