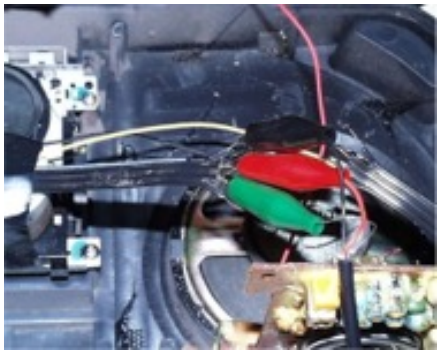
http://www.deathlord.net/BoomBoxAmp/boom.htm

BoomBox AmplifiER

Getting Started Boombox Amplifier

Difficulty Rating: 



For years I imagined that my old, broken boom boxes I had laying around could be used as an amplifier somehow for my halloween animatronics who were begging quietly for a bigger voice. But just how, I really didn't know. So for the 2003 year Haunt X VII sent out the challenge for someone to prove to us how to come up with a "universal" hack that would turn a cassette player, radio or CD player boombox into a stand alone amplifier that could be used to amplify up the weak signal you typically find coming out of little digital sound recorder playback devices such as the Mimic Machine I have referred to numerous times or the headphone-out of a portable CD player. The challenge sadly was not met and in 2004 the call went out again for the same challenge, only this time a bright young man named Bryan Patterson stepped up and said he had a way that worked on both radios as well as players, such as CDs. Once he delivered the goods at the free seminars at Haunt X VIII and proved his hack would work, he became our Grand Prize winner of the show and was inducted as our first member into the How-To Hall Of Pain.

In h is own words, here's how he did it.

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Bryan Patterson 2-17-04;

"In this first picture I show you what to look for. This type of radio is the simplest to modify into an amplifier if you are looking to use a radio boombox. However, if you have a radio with a single PCB, (printed circuit board) you can still use this same process. It is just a bit harder to determine where to tap into. More about that later.

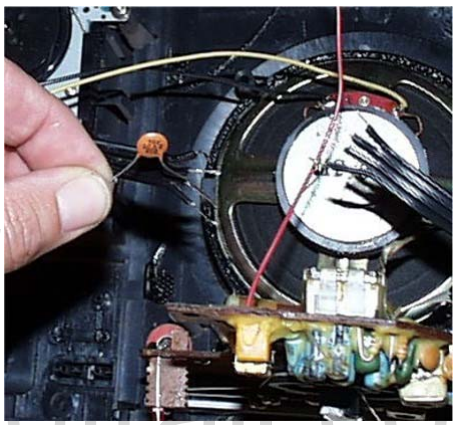
For the simplest project unit, look for radios that have a separate tuner board in them. You can identify this type of radio without taking it apart.

How? Simple, just look for radios with the tuner dial on the opposite side of the selector switch and volume control. Many radios with the dial type tuner will be set up this way.

For our first way to make this old boombox into an amp, we will be using the part previously used by the radio.

Make sure the unit is unplugged, take the batteries out and remove the case. It should look something like this inside. Note that the tuner and amplifier are separate circuit boards. The tuner should have a few wires coming off of it. one probably being the antenna. This one we don't need to worry about. Look for any other wires that go from the tuner board to the amplifier board. They maybe individual wires or a ribbon cable like this one has. Cut these wires and bare the leads going to the amp. and make sure they don't touch anything when you turn the radio back on.

Using a non polarized .1uf (.1 micro farad) or larger capacitor, touch the ends of the wires you just cut. Listen to the speakers for noise when you touch them. You are using yourself as an antenna to pick up the 60 hz cycle from the lights in your house, (among other signals) which sends a white noise signal to the amplifier. Note that the use of the



capacitor is just an option. Simply using your finger or a needle would work, but the capacitor makes it easier to hear the sound. When you find which wires make the noise you have found the right ones. You should be able to determine the left and right channels on a stereo unit. These are 2 of the 3 wires you will be tapping into.

Now that we have found the left and right channels we just need to find the audio common wire. In some cases it could be the same as the common ground which seems to be so in this case.

More than likely you will find the common on the same ribbon cable. To figure out where to connect the common, I recommend making a test cable (shown in this photo). The test cable is just an audio cable cut and striped at one end. (I attached alligator clips to the end of mine) Making sure the stripped wires are not touching anything as you plug it into your audio source. take the bare ends and temporarily attach the two insulated wires to the left and right channels.

The non insulated wire is your common and you will use it to probe around till you hear your audio source through the boom box speakers. Once you locate the 3 leads going to the amp. we will be using, replace the batteries or plug the unit back in to the wall. Use caution not to touch the transformer or power supply. Switch your selector to RADIO.

With the two units now connected with your test patch cord, turn on your audio source and press play. This test proved successful in using the cable that went to the amplifier from the radio. In the next picture we will show you how to use the other sources of your boombox if a radio isn't present or just unavailable.

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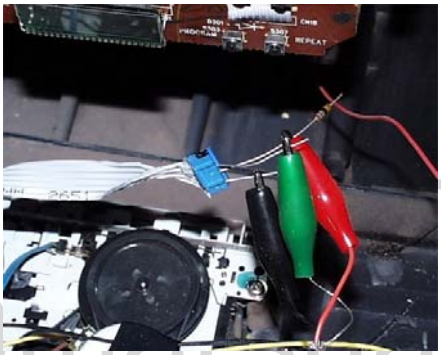


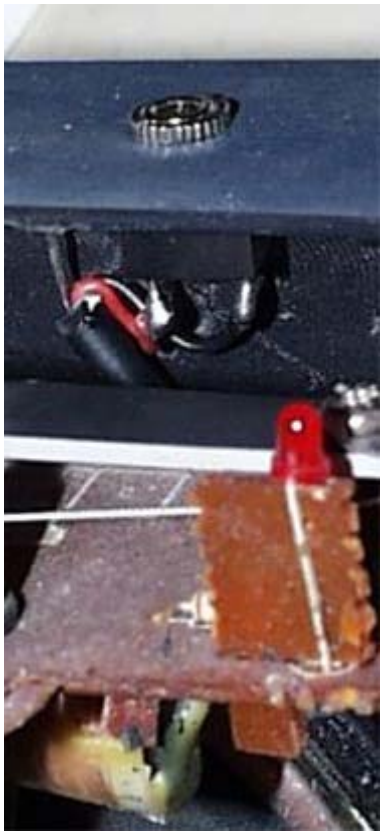
Here is a picture of how I probed wires into the CD player cable of the same boom box. The resistor you see here is merely being used as a piece of wire to reach inside the ribbon connector and has nothing to do with accessing the amplifier.

I used the same process here to get my audio source to play when the boom box's selector switch is flipped to CD. As long as your box has a sound source (DVD, tape, radio, etc.) it will have a cable cluster going from that to the amplifier. So you can see this is a pretty universal technique.

When you are addressing a boombox with only a single printed circuit board as mentioned at the start of our how-to, you can still use this same process to find your link to the amp, but it is just a bit harder to determine where to tap in and could be considered an "advanced" technique. Most PCBs will be designed with its "components" in groups. Although do keep in mind this is not always the case. To do this, you will use the capacitor to probe around the wires between the tuner and the preamp end of the PCB. Without experience it is a bit of a guessing game. When you think you found the left, right and commons you will need to break the PCB "trace" that interconnects the single input with the others that may be integrated together. To do this you can use a hobby knife to slice the copper trace on the circuit board. You can now solder your wires to the board on the preamp side of the cut. It is necessary to cut these traces in order to keep the radio tuners signal from playing. Just like when we cut the wires on the demo boom box.

You've done it!! Now all that is left to do is make the connections permanent. One way to do this is to drill a hole in the case of the boom box and run your audio test cable through and solder directly to your predetermined connections. After soldering the wires, they must be individually insulated by either wrapping them in electrical tape or heat shrink tubing. The cable is now ready to plug into your external audio source.

Another suggestion is the addition of an audio jack to the boom box.



Pictured here are a few different ways you can add an audio jack to the casing of your boom box.

Take a section of audio cable and solder the wires to your left and right channels as well as your audio common as described above. After soldering the wires, they must be individually insulated by either wrapping them in electrical tape or heat shrink tubing.

On the other end of your section of audio cable, solder the wires to the audio jack. The audio common wire from the cable will be soldered to the tab on the casing of the audio jack. Solder your left and right channel wires to the remaining two tabs. Then simply drill a hole into the boom box or radio casing and install the jack in the hole. Make sure your jack is mounted in an area of the boom box where nothing will touch the exposed connections. You're done!

...Bryan Patterson

And there it is. Congratulations to Bryan for this super handy hack and becoming the first person inducted into the How-To Hall Of Pain and becoming the very first person to also become an honorary member of Creep Crafters! Let us know if you have any trouble using this technique on your boom box!