



# DIY TELEPHONY

## THE DISEMBODIED VOICE OF JUDY GARLAND SPEAKS!



How to make a Ghost Phone.

By Greg MacLaurin

Currently, I'm obsessed with analog telephones. I don't know why. My last obsession was with the severed hands of mummies, but let's not get into that. Today it's phones. And these Ghost Phones are fun. The idea is simple: hide an MP3 player and its headphone inside an old analog telephone, and you can listen to someone talking to you!

But before we start unscrewing things willy-nilly, let's take a moment to find out about analog phones and how they work. (I hate reinventing the wheel. I'm all into research.) [Privateline.com](http://Privateline.com) has a good history of telephone technology, and HowStuff-Works has a technical overview at [howstuffworks.com/telephone.htm](http://howstuffworks.com/telephone.htm). Remember, these are just starting points. Please do your own research; you'll

learn something amazing in the process.

Now that you've become a font of information on analog telephones, you're ready to modify one. Here are my instructions for making a Judy Garland Ghost Phone.

### 1. Record audio and load the MP3 player.

**1a.** Decide which ghost you want to summon. Think of who the ghost is, and who they're talking to. Set a scene. All my Ghost Phones are first-person: the ghost totally monopolizes the conversation, and never lets you get a word in edgewise. Even though the ghost might ask a question, they either answer it for you or they just continue talking.

## MATERIALS

Rotary telephone

Speaker from an MP3 player headphone with cord  
MP3 player playing a 30-minute, custom-edited monologue

Female insulated spade lugs (2) for earpiece

Male spade lugs (2) for headphone jack

Electrical tape to insulate connectors

Tape to cover the hole in the bottom of the phone

Audio files [Counterpoint-music.com](http://Counterpoint-music.com) sells a

2-CD set of Judy's self-recorded notes for her unwritten autobiography.

## TOOLS

Screwdriver

Wire cutter/stripper/spade lug crimper all in one!

Saw, Dremel, or metal shears

First aid kit

## PROPS (OPTIONAL)

Telephone table white metal with custom, garishly upholstered padded seat

Vodka bottles (3) 1qt Gordon's and 1pt Seagram's (2)

Tonic water can

Drinking glass, 8oz with garish gold and black pattern

Glass pill bottles (10) with custom labels in 3 types:

Los Angeles (Mayer Drug Co.) (2)

New York (Luft Drug Store) (2)

London (Palladium Drug Co.) (6)

Large scarf in garish black and colored print

**1b.** Obtain or record your audio. The audio should be longer than your audience's attention span. The Judy phone has 30 minutes of audio. You don't want your audience to hear a repeat; that's just sloppy dream sharing. Also, it might be nice to filter the audio so it has the same limited frequency range of a telephone, but it's up to you.

**1c.** Get a small, cheap MP3 player, one that's simple, tiny, and has less than 1GB (Figure A). Find one at a thrift store or on eBay. Avoid proprietary devices, like Sony's or Apple's, that force you to download software to use the device.

**1d.** Load the MP3 file onto the player (it helps if the only file on the player is your Ghost Phone audio), set the player to permanent loop/repeat, press play, and you're set.

## 2. Replace the speaker in the earpiece.

You don't want to use the existing telephone speaker because speaker technology has advanced considerably over the past 10 or so years. Also, the analog telephone speaker's impedance doesn't match an MP3 player's.

**2a.** After you remove the telephone's earpiece, you'll see that the speaker is screwed into the wiring by 2 spade lugs. Remove the screws and toss the speaker.

**2b.** Take the headphones that work with your MP3 player and break off 1 earpiece, keeping about 3" of the wire pair. Strip ½" of insulation from the end of each wire.

**2c.** Crimp 2 insulated female spade lugs onto the speaker wires (Figure B), then plug the male and female spade lugs together (Figure C). No bare wires should be visible. Check for shorts. Wrap it up with electrical tape.

## 3. Connect the audio plug to the telephone's terminal strip.

**3a.** Take what remains of the broken headphones, and cut off the wires about 12" above the plug.

As you can see, the sleeve for the headphone wires contains 3 conductors: left, right, and common. You need to join the left and right wires.

To find out which is which, plug the audio plug into the MP3 player and join 2 of the 3 wires together. Take these 2 conductors and touch them to the speaker. If it plays, then permanently twist the wires together. If not, untwist and try another combination. Still not working? Untwist and try the third possible combination.

**3b.** Once you've figured out the wiring, crimp on male spade lugs.

**3c.** Take the cover off the phone and look for the main terminal strip. It's under the handset cradle. I'm pointing to it with my favorite yellow screwdriver (Figure D).

**NOTE: All phones are not the same, so some experimentation may be in order.**

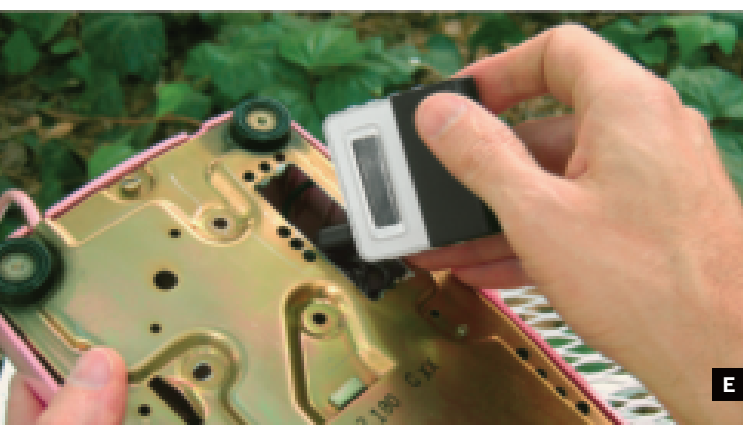
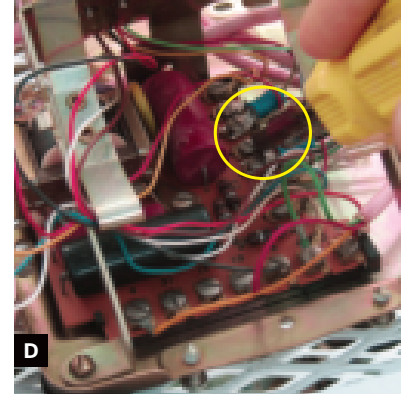
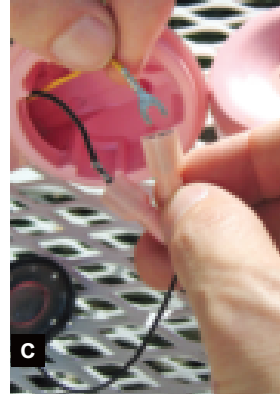
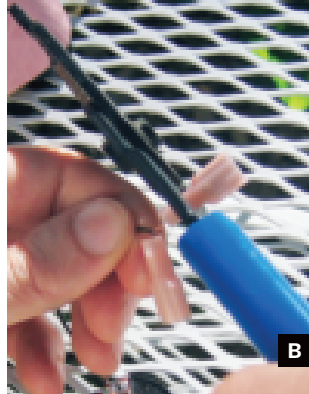


Fig. A: Copy your audio file to a small, cheap MP3 player. Fig. B: Crimp 2 insulated female spade lugs onto the speaker wires. Fig. C: Plug the male and female spade lugs together. Fig. D: Take the cover off the

phone and look for the main terminal strip under the handset cradle. Fig. E: Cut a hole in the metal base of the phone so that the MP3 player can be hidden inside. Fig F: Create a mysterious scene.

**3d.** To add realism, we want the voice to cut off when the handset is placed in the cradle. Trace the 4 wires from the handset (2 for the earpiece, 2 for the mouthpiece), down through the cradle switch and on to the main terminal strip.

You can use either a multimeter or trial and error: turn the MP3 player on, touch your 2 MP3 male lugs to the 4 handset wires on the main terminal strip, and listen for which 2 wires on the terminal strip are for the earpiece. Screw the lugs into the terminal strip.

**3e.** All that remains is to cut a hole (with a saw, Dremel, or metal shears) in the metal base of the phone so that the MP3 player can be hidden inside (Figure E). File down the sharp edges and cover the opening with duct tape.

You're done! The MP3 player should play through the earpiece when the handset's lifted from the cradle.

Yes, the MP3 player must run constantly. It might be possible to connect a switch so that the player turns on when the handset is lifted from the cradle, or perhaps you can give the phone a remote switch. How about hooking up a motion sensor so that it automatically turns on when someone gets within proximity?

Another thing I like is to take the existing wall cord from the phone and rip and shred it about 12" from the phone itself. It makes it all a bit more mysterious. And I am all into mystery.

## 4. Create a scene.

Finally, since I'm into creating mysterious environments and making art projects far more interactive, I try to create scenes for the phones: a specific table that the phone rests on, appropriate props around it. Things that enhance and deepen the story of the ghost talking to you on the phone.

It's more than just a phone with a dinky MP3 player inside. It's a strange dream, shared. And it's wonderful that I can share this one with you!

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Greg MacLaurin ([gregagogo.com](http://gregagogo.com)) is an artist and concept designer in Los Angeles, whose work for Walt Disney Imagineering, Universal Creative, and other theme park design companies is challenging and fun, but is usually so secret he can never talk about it.