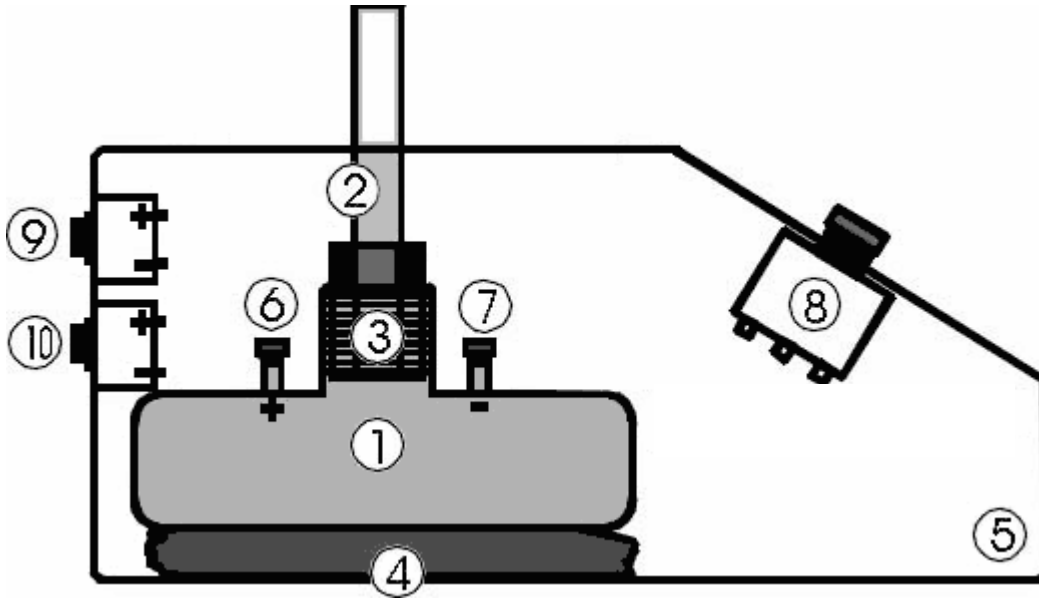


Yes, you can make your own if you're relatively handy with your hands. Only the most basic electrical knowledge is necessary. The parts are readily available if you have a hardware store nearby. The numbers in parentheses in the description that follows relates to the above diagram (i.e., (1) is the horn driver, (2) is the tubing, (8) is the foot switch, etc.).



Obtain a horn driver (1). It can be a used one from a pawn shop or garage sale (you'll often find the driver attached to a metal or fiberglass horn, such as those used in outdoor arenas), or a new one from a music store. It should handle a minimum of 50 watts RMS, if you'll be using it with an amp that produces around 20-30 watts. I recommend that you buy a small amp to use just with talkbox, unless you can afford a commercial quality driver that will handle 150 watts or so (such as those made by JBL). Otherwise, you're asking for trouble -- not just with a blown horn diaphragm, but possibly losing the entire output section of your amplifier as well.

Many of you have written me asking for an online provider of quality compression drivers to help in making a talkbox. Try [PartsExpress.com](http://PartsExpress.com) -- they have a fantastic selection of horn drivers and other components at prices that are much lower than what you'd pay at your neighborhood retailer.

Next, you'll need a 6 or 8 foot length of clear vinyl tubing (2). You can find this at a hardware store in the plumbing section. Medical supply houses can also provide you with surgical tubing, used for supplying oxygen. Either will work. You'll want an inside

diameter no smaller than 3/8", otherwise the tube will restrict the sound from coming out of the driver. A tube with an inside diameter of 1/2" should be right for most people. Keep the tube in a plastic bag (so it stays clean) until you're ready to continue.

You'll also need a pair of 1/4" mono jacks (9) and (10), a one foot length of heavy duty speaker cable, a tube of silicone caulk, and a foot switch (8). You can get most everything at your nearby Radio Shack store. The foot switch is harder to get. While Radio Shack does not have a push-on, push-off DPDT switch in their catalog, you can get one from PAIA or other kit building company. If you're not picky, you can get a toggle (i.e., flip) DPDT switch from Radio Shack for only a few dollars.

Find or buy a case (5) to put your unit in. Make sure that it is tall enough to accommodate the horn driver, and easy enough for you to drill holes for the switch, the two jacks, and the tubing.

Here's the secret of the entire process: inserting the tubing into the driver. While you can go to a plumbing supply firm and buy a series of reducers to thread onto the driver and slowly get to the size of the tube, keep in mind that this adds cost to the project and may also make it too tall to fit in the case. A far simpler method is to use adhesive weatherstripping foam. The best type of foam is not too thick. The author obtained a lifetime supply of great material from Boeing Surplus Sales.

Wrap the lower 2" of the tube (2) with enough foam so that you can just barely force it into the throat (3) of the compression driver (1). The foam will expand and make a very snug fit. Be careful not to insert the tube so deep into the driver that it forces the protective mesh screen against the diaphragm. This will severely restrict air flow, not to mention causing damage to the driver.

If you can't wait to hear how it will sound, attach the speaker cord to the (+) and (-) terminals (6) and (7) of the driver (2) and connect it to the speaker output of your amp. Use a 1/4" male plug for this. The plug tip lug plug goes to the (+) of the driver, the sleeve lug on the plug goes to the (-) driver terminal.

Clean the end of the tube that will go in your mouth with something like Listerine, Scope, or some other mouthwash that kills germs. I wouldn't recommend using a bathroom cleaner product, since the contents are probably poisonous until it has dried. Fire when ready!

Once you've made sure the driver and tube works, you can spend some more time getting the talkbox ready to go. With an electric drill, drill holes in the box for the two jacks (9) and (10), the switch (8), and the tube (2). The tube will likely come out of the top of the box. Placement of the other holes is up to you. (Tip: you can purchase a tapered reamer at Radio Shack, Sears, or other store to make the hole bigger once you've got it close to the correct size. If there are any sharp edges, use a round file to smooth them.)

Connect the (-) side of the driver (7) to the (-) sides of both jacks (9) and (10), using the speaker wire. You can separate the speaker wire (also called zip wire) into two pieces before you begin. The solder tabs on the jacks (9) and (10) will likely not be marked with a (-) or (+), so use the tab that is electronically connected to the barrel (shield side) of the plug when it is inserted into the jack.

If you don't like having to resolder everything, test your connections before you make them permanent! Use a continuity tester (a simple light bulb and battery will also work) to check your connections to make sure that you're connecting everything properly. Be sure to strip approx. 1/2" of insulation from the end of the wire before soldering it!

Solder the connections to the jacks. Wrap any exposed wire with electrical tape and/or wire nut. You will usually not have to solder to the driver terminals (6) and (7), since most are spring-loaded.

Wire up the "amplifier" jack: Use a short length of wire to connect the (+) terminal to the middle tab on the switch. Solder.

Wire up the "speaker" jack: Use a short length of wire to connect the (+) terminal to the lower tab on the switch. Solder.

Using another length of wire, insert one end into the spring-loaded (+) terminal on the driver. The other end of the wire is soldered to the upper lug on the switch.

NOTE: If your switch has two upper, middle, and lower lugs, solder the last three connections to the same side (i.e., all on the left side, or all on the right side).

Use diagonal cutters to snip off any exposed bits of wire. Cover any areas that might touch (such as if you have low clearance between the talkbox driver and the lugs of the switch) with electrical tape.

Stop and test. Connect it up to your amp. With the toggle switch in the upper position, the internal driver should work. With the switch in the down position, the amplifier output should go to your speaker cabinet. If something doesn't work, recheck your connections step by step.

Attach the jacks (9) and (10) and switch (8) to the box. Use the lock washers supplied with the jacks and switch to ensure a tight fit. Thread the free end of the tube (2) through the hole in the box (from the inside out), making sure that you don't scratch the tube too much as you pull it through.

Place a generous amount of silicone sealer on the bottom of the box (4) directly under the area where the driver will go. When it dries (cures), the silicone sealer will not only hold the driver in place, but will also act as a shock absorber to protect it when it is moved from gig to practice studio. Follow all manufacturer directions carefully. This stuff will stink for awhile and cure in 24 hours.

While the silicone sealer is still wet, place the driver (1) in the box and press it down into the uncured silicone sealer (4). Push any kinks in the clear tubing out through the hole in the top. Make sure that there are no kinks or bends in it.

Squeeze out additional silicone sealer all around the bottom of the driver to secure it (once it dries).

Let it sit overnight. The silicone sealer emits fumes that smell like vinegar. Place it in a ventilated area while it cures. The next day, finish assembling the box.

Use a typewriter or label printer to identify the switch positions ("Talkbox/Speaker") and the jacks("To Amp", "To Speakers"). You might also want to place a label to identify the driver impedance (i.e, 8 ohms) and wattage rating in case you forget at some point in the future.

Connect everything up, turn it on and jam away!