

Rewiring Front Speakers

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1976 Jaguar XJ-S

Background

For years my stereo would cut out intermittently. First, I replaced the speakers to no avail. I then replaced the stereo, only to have it still cut out. A few years later I took it to Circuit City to let the experts fix it. They convinced me to let them put in yet another stereo and new speakers, arguing that the wiring was probably OK so it had to be either the stereo or the speakers. Great stereo, but still cut out. Several times I did continuity checks but without success. Whatever gremlins were there were hiding whenever I looked for them. But, applying the Sherlockian process of elimination I decided to replace the wires. And, guess what, it fixed it!

It wasn't easy though, since the wires have to be pulled through from the interior of the door to under the dash. They are bundled with the wires for the door lock and window motor and pass through a two-part S-shaped, tubular rubber sheath to protect them from the elements as they pass from the car body to the door (See Figure 1). Getting the new wires through the boot is the biggest challenge.

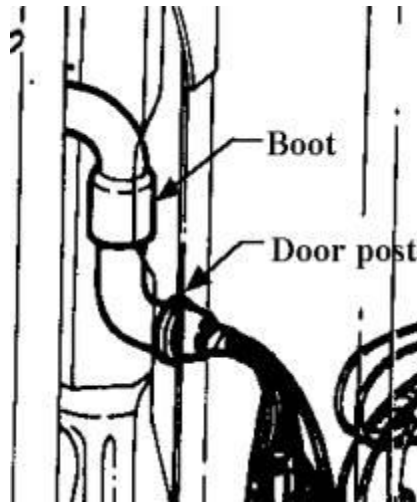


Figure 1 Door wiring boot

Materials

- About 16 feet of speaker wire, 8 feet for each side. After it's pulled through you will trim it to the proper length. I used 18 gauge.
- Two 2-foot lengths of 0.032" mechanics wire, folded in half. I will call these "pull wires" in the instructions below. (These are equivalent to what the electricians call a "fish tape.") The wire has to be stiff so when folded it can be

pushed through the rubber boot. But if it's too stiff it won't bend to make it around the corners. Ask your auto parts store for "mechanics wire."

- Rubber lubricant. I used a product called Sil-Glyde.
- Four female spade connectors, 2 large and 2 small, matching the speaker connection male spades. You might be able to carefully remove the ones from the existing wires. Otherwise go to an electronics supply store, or an auto electronics installation shop.

Preliminary Work

You will need access to the insides of the doors, under the dash, and behind the stereo, so you have some taking-apart to do--- removing the door panels, stereo and Underscuttle panels.

Disconnect Battery

This is not necessary, but since you will be poking around under the dash it's a good idea.

Remove the door panels.

Pop loose the chrome cap at the front end of the armrest and slip it rearward. Some have suggested wrapping the arm near the cap with thin plastic sheeting or the like to prevent scuffing the leather. Remove the large screw holding the armrest on. On the driver's side remove the mirror control. Remove the chrome door switch strike pad at the upper front corner of the panel. Then, using a special tool for the purpose or a large flat-blade screwdriver, pop out the door panel clips. There are two types, small blue plastic "arrow-head" clips along the bottom and up the rear edge, and larger metal barbed ones along the front edge and bottom where the carpet material is attached. The latter fit into nylon friction inserts in the door.

At this point the door panel is being hanging on only by a large steel hanger behind the armrest near the middle of the panel. (The early XJ-S like mine have two such clips.) You have to slide the panel up to clear this hanger, then pull it gently towards you and free of the door. Be careful though, as it's still connected by the speaker wires, and by the puddle light wires if you have them. (You may have to disconnect these wires before removing the panel, depending on how long the wires are.)

Disconnect these wires and the panel is off. Repeat at the other door.

Remove the Stereo

For this task you should consult the installation instructions for your stereo. I have a "theft proof" Sony unit that requires a special key to release it before it will slide out. I had lost my key so had to go back to Circuit City to have it pulled. I later ordered a replacement from Sony.

Remove the Under-scuttle Panels and Side Panels

The under-scuttle panels, that form the top of the footwalls, are held in place by two or three screws along the front edge and one at the back. On the driver's side you will also have to disconnect the wires to the panel lights rheostat. If you have an early car like mine you will also have to remove the odometer reset cable from where it attaches to the Under scuttle.

There are side panels on both sides of the footwalls. The ones on the inboard sides are held in place by the AC footwell diffusers, attached with two screws. The panel on the outboard side is attached with two screws near the floor. You will need to remove both panels to gain needed access for the job. Also, unscrew the relay mounting plates where they are attached behind the outboard side panels.

Attach Connectors

It's a good idea to attach the speaker connectors to one end of your speaker wires before pulling them through. This way you can do your soldering work at your workbench instead of on your knees beside the door.

When attaching the connectors pay attention to the marker threads in the speaker so you can be sure to get the polarity the same at both speakers. I am told it does not matter which terminal is plus and which is minus, just so both are the same. If you have rear speakers, you should look at how they are connected first. Of course if you are sure the speakers are hooked up correctly to start with, just do it the same way.

Pulling the Wires

Even if you have skipped reading the previous sections (surely, everybody knows how to remove the Under scuttle!) you will need to read this section.

As stated earlier, the challenge is to get the new wires through from the car body to the door. Here is the procedure that worked for me. Actually, I did it twice. The first time was for the speaker wires, and the second was for puddle light wires when I retrofitted later model door panels with this modern convenience to my '76, which didn't have them. I will admit that I struggled with this for a couple days before getting it right, but now it works great!

Overview

Before describing the step-by-step procedure for pulling the wires, let me give you an overview. Basically, you need to get a "pull wire" through from the door cavity to where the door wire bundle emerges under the dash. However, I was unsuccessful in getting a pull wire all the through the tortuous path in one go. For one thing, there are two right angle bends in the rubber boot (See Figure 1). You can get a pull-wire through one bend, but it will kink up if you try to push it through the second. In addition, the point where the wire bundle emerges under the dash is behind a body-stiffening member, behind and somewhat above where the relay is mounted behind

the outboard footwell side panel. Therefore, you have very poor access for working anything through from that end.

To get around these problems I devised a three-stage process. At each stage I work one pull wire through (in the most convenient direction for doing so), then use it to pull a *second* pull wire through to the point where I want to pick up the speaker wire. This second pull wire is used to pull the speaker wire through. The stages are:

1. From the door through the top half of the rubber boot.
2. Through the lower half of the boot.
3. Through the doorpost into the under-dash area.

It's not as complicated as it sounds. Once you understand the process it's easier to do than to describe.

Step-by-Step

First, use a flat-blade screwdriver (or perhaps the tool you bought to pop out the door panel clips) to free the lower end of the two-piece rubber boot between the door and the car body, where it fits into the doorpost. See Figure 1. This is a bit difficult because you have to apply serious pressure, poking radially inward close up against the doorpost, while prying out to pop it loose. You have to be careful not to ruin the boot because the part is not easily available. Technically, it's part of the harness rather than a separately listed Jaguar part. Once the bottom is free, pull the boot in the middle it free up some slack in the wire bundle and separate the two halves of the boot in where they slip together. It is *not* necessary to free it at the top where it fits into the door.

Now it's time to use the mechanics wires and Sil-Glyde. Fold a 2-foot length of the wire in the middle so you have 1 foot of doubled wire, making a "pull wire." Lubricate it near the loop where it is doubled, and bend it a bit. Not a sharp bend---just enough to help it get started sliding around the bend in the boot as you push it through.

Looking into the door cavity you will see that the wire bundle disappears into the front edge of the door cavity through a grommet. The grommet is not part of the boot, but since it's aligned with the boot the wire will pass directly into the top end of the boot if you push it through the grommet. So, working from inside the door cavity, poke the pull wire into the grommet adjacent to the wire bundle. Gently slid it in, and at the same time use your other hand to feel it as it enters the boot between the door and the car body. Soon it will reach the bend, where you will have to massage the boot and guide the wire as you push it along. Once through the bend it goes easily and will soon emerge at the opening you created between the two halves.

At this point you need a second pull wire, made just as the first. Loop it through the first where it protrudes from the boot, so the two looped ends are linked. Then pull on the first pull wire so as to pull the second one through the boot and into the door

cavity. Remove the first pull wire from the second and lay it aside, since it has served its purpose for now.

Now you are ready to pull your speaker wire through the first section of boot. Slip the end of the speaker wire (the end without connectors) through loop in the pull wire, fold it over 3 or 4 inches, and tape it so it won't pull loose when you are pulling it through. Don't use too much tape, as the thinner the bundle the easier the pull will be. Lubricate the speaker wire with the Sil-Glyde. Then gently pull it through the boot, leaving a foot or so in the door cavity, You want enough not only to reach the speaker but also to allow you to attach it to the speaker before installing the door panel, although not so much as to get tangled in the window lift mechanism. Free the pull wire from the speaker wire and set it aside.

As before, lubricate one of the pull wires and work it through the lower boot section until it emerges at the end that you pulled out of the door post. Now, loop the second pull wire through the first and pull it back through the boot to the center joint where the speaker wire is. Remove the first pull wire and set aside. Attach the speaker wire as before, lubricate it, and pull it through.

The final stage is to pull the wire through the doorpost to the under dash area. The procedure is exactly as before, only a little easier since you aren't pushing it through the boot. Work the pull wire through the hole in the doorpost. By sticking your hand in the body cavity behind the relay the can feel it emerge. Pull it on through so you can hook the second pull wire to it, and pull it back to meet the speaker wire. As before, thread the speaker wire through the loop and pull it through.

You are now finished with the hard work. All that remains is to route the wire over to the stereo. I just ran it upwards in a manner that it would be covered by the footwell side panel, then over to the vicinity center console following the easiest path. On the passenger side I went under the glove box, taping down so it wouldn't be I the way when the replacing the Under scuttle panel. Since you have the footwell inboard side panels removed it's not hard to see how to poke them through to the space behind the stereo.

I can't say much about the final hookup because that will depend on your stereo. If you are sure it was hooked up correctly in the first place, just connect it where you disconnect the old wires. I soldered mine, but if you have a good tool and trust your skills, I suppose they could be crimped. Pay close attention the marker threads so you get the polarity right.

Reassembly

As they say in the ROM, "reverse the above steps."