

FIGURE 3-11: Coax cable connected to the KL042 board

### Step 3-A: Prepare the Keyless Entry Remote

What you're going to do here is wire up the keyless remote so the RFID control circuit can fool the remote into thinking someone is pressing the unlock button. When the KL042 onboard relay closes, current will flow between the two normally open circuit paths which the unlock button normally closes when it's being pushed.

**Note**



If you don't have a keyless entry system already and are building the power actuator version, skip to step 3-B.

My car is a VW, and the spare remotes are rather expensive. For many cars, you might be able use a cheaper kind of universal remote replacement, which learns your remote code and mimics it. However, if you are forced to go to your dealer to get an additional remote, make sure you only get the remote portion and not the extra key section as well. That should save you about half the cost right there. The dealer will also make sure your remote is programmed for your car for you before you leave, which is a plus. Figure 3-12 shows the spare remote for my car, minus the key section, which is usually attached.



**FIGURE 3-12: Additional keyless entry remote**

If you also have a VW remote like the one in Figure 3-12, you can just pull it apart. There are no screws or anything holding it together. You will have two cover sections and an internal circuit board that looks like the one in Figure 3-13.

If you get an additional remote from your dealer, ask them how to replace the batteries and they should show you how it comes apart. If you are using a generic universal remote, check the instructions on battery replacement to see how to get it apart.

**Note**



From here on, I'll just be showing the process using a VW remote, but the concept is the same for any remote. Just keep that in mind and modify the process to suit your own unit.

When the remote is apart, take the bottom piece with the battery in it and set it aside. You'll be working with the circuit board and the top cover with the button faces in it. Flip the circuit board over so you can see the actual buttons, as shown in Figure 3-14. Lay the board next to the casing with the button faces on it so you can figure out which button is the unlock button.



FIGURE 3-13: Remote casing and circuit board



FIGURE 3-14: Casing with button faces and the button side of the remote board

This remote board uses surface mount buttons. There are four leads, but a couple of them are redundant. You only need two connections, but the designers added an extra two to secure the button itself to the circuit board. Otherwise, it might easily break off when used. Test the button for resistance across leads to find out which two leads represent the switched connections. Hold your meter leads across a couple connections and press the button. The reading should go to 0 (zero). The other approach would be to just short the button leads until your car door unlocks. There's no danger shorting this lead because that's what the button is designed to do—just make sure you're shorting the button leads and not two other leads.

When you find the correct leads, solder a couple 6" wires to them. Make sure you use very thin wire and choose button leads that allow you to run these wires as flat as possible against the board. You may want to put the remote casing back together later to protect the circuit board, and the board has to fit back into the casing without the wires pinching or getting in the way of proper circuit board seating. You could optionally leave the remote circuit board out of the original casing and just mount it in a project box with the RFID reader hardware, but keeping the casing provides short protection as well as allows you to use the remote later if you decide to disassemble your RFID project.

Figure 3-15 shows the two lead wires soldered and run flat and tight against the remote circuit board.

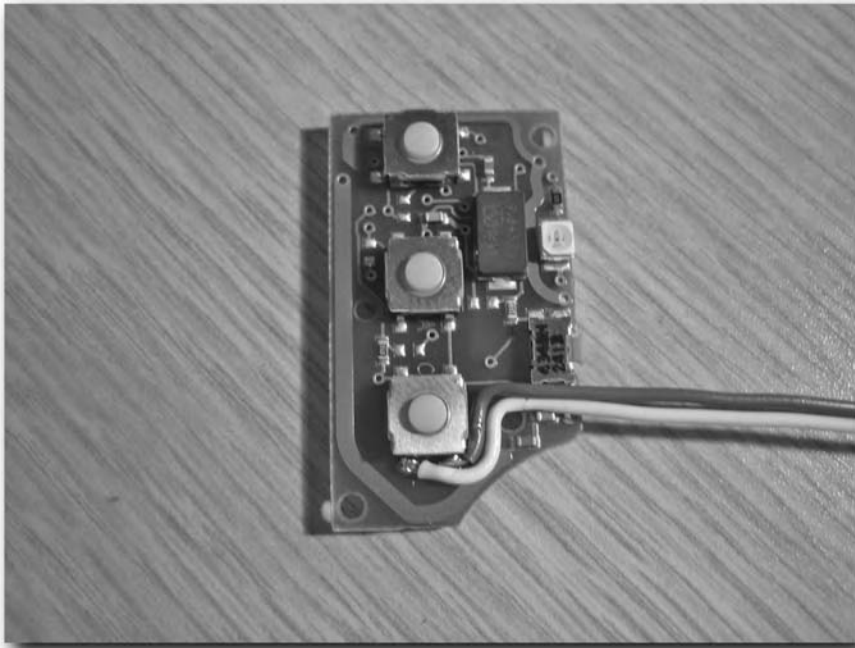


FIGURE 3-15: External switch wires soldered to surface mount button

Test the connections by stripping the tips of the wires you just soldered and touch them together. The remote should react as if you'd just pressed the unlock button and your car door should unlock. If you have an integrated alarm system, it should also disarm at this point.

Now take the top casing of the remote (the one with the button faces in it), and locate a suitable drill-hole point for your external switch wires to fit through. Check both the inside and front face of the remote casing for fit, function, and fashion before drilling. When you're sure the wires will fit through correctly, the circuit board will seat properly, and the hole won't mess up any of the remote button faces, carefully drill the hole.

Now just run the wires through the hole and set the circuit board back in place. Press the back casing and top cover back together and you're done. Figure 3-16 shows a finished product, with the button extension wires coming through the newly drilled hole.



FIGURE 3-16: Remote with external switch wires

### Step 3-B: Prepare Power Lock Actuator

There isn't really anything to do to prepare the actuator. It's ready to go out of the package. Figure 3-17 shows what should be included in the package. You should have the actuator itself, a pack of mounting screws, a coupling block, a connecting rod, and a mounting bracket.