

My Experience with the Estate Slide E-SL 450BD

After a strong wind event at my home a few months back, we decided to replace a demolished swinging wooden gate across our 10-ft driveway with a single-slide cantilever chain link gate. Our local fencing contractor installed it without much fanfare.

Of course, we wanted a gate opener but couldn't accept the quote from the fencing guy. They'd be happy to install one but I balked at the price. Off to the web I went looking for options.

I didn't have to go far. www.gatecrafters.com introduced me to the Estate Glide E-SL 450BD. I was intrigued with a number of features. First, it was in my price range, although it meant a DIY installation. I'm not the handiest guy but I decided to turn this into a "bonding event" with my 20 year old son. Second, the belt drive piqued my curiosity. Other units were track, chain or rack & pinion. The web site claimed this was the only belt drive unit on the market. Third, it was a 24VAC, battery backed up appliance: I liked that. Fourth, the manual was right on the website: I could do my research before I had to spend anything. Lastly, and most importantly as it turned out, www.gatecrafters.com added a LOT of bonuses in the form of an extra opener remote plus loads of supplemental installation hardware. I got the impression that they really had done this before and wanted to make sure that I would be able to do it too. After going through the manual I wrote the check and soon my opener would arrive. However, there was still much to do.

Matt Raab, from www.gatecrafters.com was my company-assigned "go to" guy. www.gatemasters.com prides itself of marketing to the DIY community rather than to contractors. This shows a level of commitment, particularly in working with a dufus like me. Matt was, and continues to be, great (no, he's not family).

I sent him a photo asking for his recommendation about my project. He quickly sent back this annotated photo and his reply: "This should be a fairly easy installation as cantilever works very well for belt drive". I felt more confident.



OK. So construction started. First order of business was to get power to the site. I was very fortunate in that I had already installed 120VAC to a free-standing outlet box close to the gate (you can see the original outlet box at the lower right of the above photo). I dug a short trench and put in some conduit between the outlet box and the pad site.

While I ran the 24VAC 16 gauge zip cord through the conduit, I also ran some phone line along with it. This turned out to be very handy in getting some copper back into the house for a later installation to a push button in the garage.

The following picture was taken just after we had poured the concrete pad. Note the white conduit sticking up from the pad with power and phone fed through. Once dry, I trimmed the conduit back to be 1 inch or so above the surface.



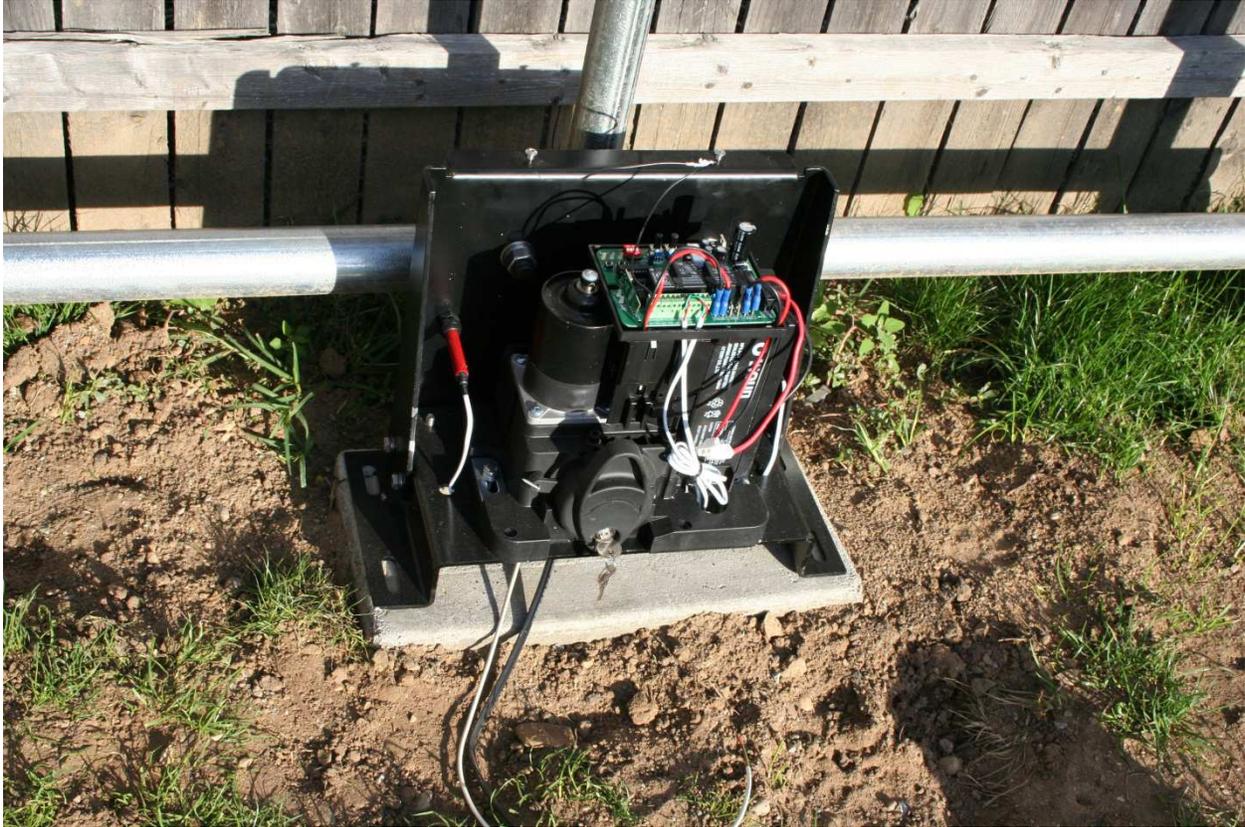
Fresh concrete in a wooden form is shown above. Please notice the outlet box. ½ inch PVC conduit is buried 18-in below ground between the two. If I were to do this again, I would have added about 2-3 inches to the height and width of the pad. The suggested size puts the concrete anchor bolts a little too close to the corners: the concrete split when I torqued the bolts into position. We patched it up and tried to waterproof the whole thing. See my UPDATE discussion later in this document.



This is the modified outlet box in the yard. I removed the left outlet and wedged the 24 VAC transformer in place. On the right is a circuit tester that confirms that all the wiring is correct. The whole thing is in a weather-resistant case. You can find this at Lowes easily.



The pad once the concrete had dried and the form removed. Note the conduit and the power & phone wiring.



Checking to see if opener fits the pad and vice versa. The concrete anchor bolts have not yet been installed, the unit is just sitting on top. Again, I would have poured the pad a little larger if I were to do this again. As it is, it has 4 3-ft pieces of rebar holding it in place, per the manual's recommendation.

This brings us to the first problem I encountered. Fortunately, I was able figure it out. When the opener arrived, it has a grey cover secured over the inner mechanism (what you see above is the unit with the cover off). What the manual doesn't tell you is that you must unlock the drive gear handle using a supplied key, flip the handle up (as shown above) before the last mounting screw can be accessed and removed so the cover can come off. With it in the locked position the handle hides the final mounting screw. Sigh.

Next goof-up: I didn't read the manual closely enough to notice that the concrete anchors need to be 7/16 in diameter. I made the mistake of drilling and installing 1/2 inch anchors, which, as it turns out, IS TOO WIDE FOR THE MOUNTING HOLES. I spent the next three days buying a 4 inch angle grinder, widening the 4 mounting slots in the mounting base, priming and repainting the base before I could get the unit to mount over the bolts. PLEASE NOTE: THIS WAS COMPLETELY MY FAULT AND NO FAULT OF THE PRODUCT. It was an idiot moment. I could have demolished and re-poured the pad again. I thought I could save it. Again, sigh.



Here is the pad with the conduit trimmed to about 1 inch above the surface and the wiring wrapped in duct tape to try and keep the water out. The supplied anchor bolts have been installed.

UPDATE: as it turned out the sliding gate, being made of steel, was on the heavy side. I had to turn up the open/close gate power controls on the control board to have the opener open and close the gate fully. At the end of the close cycle, the opener was torquing the mounting base pretty forcefully and managed to dislodge the anchor bolts. I replaced the supplied anchors with red-hat anchor bolts (in the wrong ½ inch size: see discussion earlier). They too did not hold up well in the concrete slab. The solution ended up being removing the anchors and resetting them in the slab using RockTite anchoring cement. Wonderful stuff. No problems since then: it is solid. If I were to do this again, I'd pour a slightly larger pad (note the chipped upper left corner) and install the anchor bolts using RockTite.



Next challenge. The kit comes with two black brackets for mounting the belt to the gate itself. I get the impression that this works well for aluminum or wood gates, but not so well for chain-link gates manufactured from 3 inch galvanized steel tube; there just isn't a flat surface to secure the brackets to. In the above picture, the original brackets are shown in black. The rest of the photo shows the rather ingenious solution that my gate contractor suggested: bolt angle iron brackets to the vertical end tubes instead of trying to use the original brackets. He was kind enough to go to his back room and brought out all the hardware I needed. I had a friend of mine cut off some excess iron and I drilled new holes where I'd need to connect the tensioning bolts. Put a couple coats of primer on and I was good to go.



One of two bracket assemblies with holes drilled to the same distance from the gate as the original black bracket.

The following are photos of the brackets after mounting them to the gate.







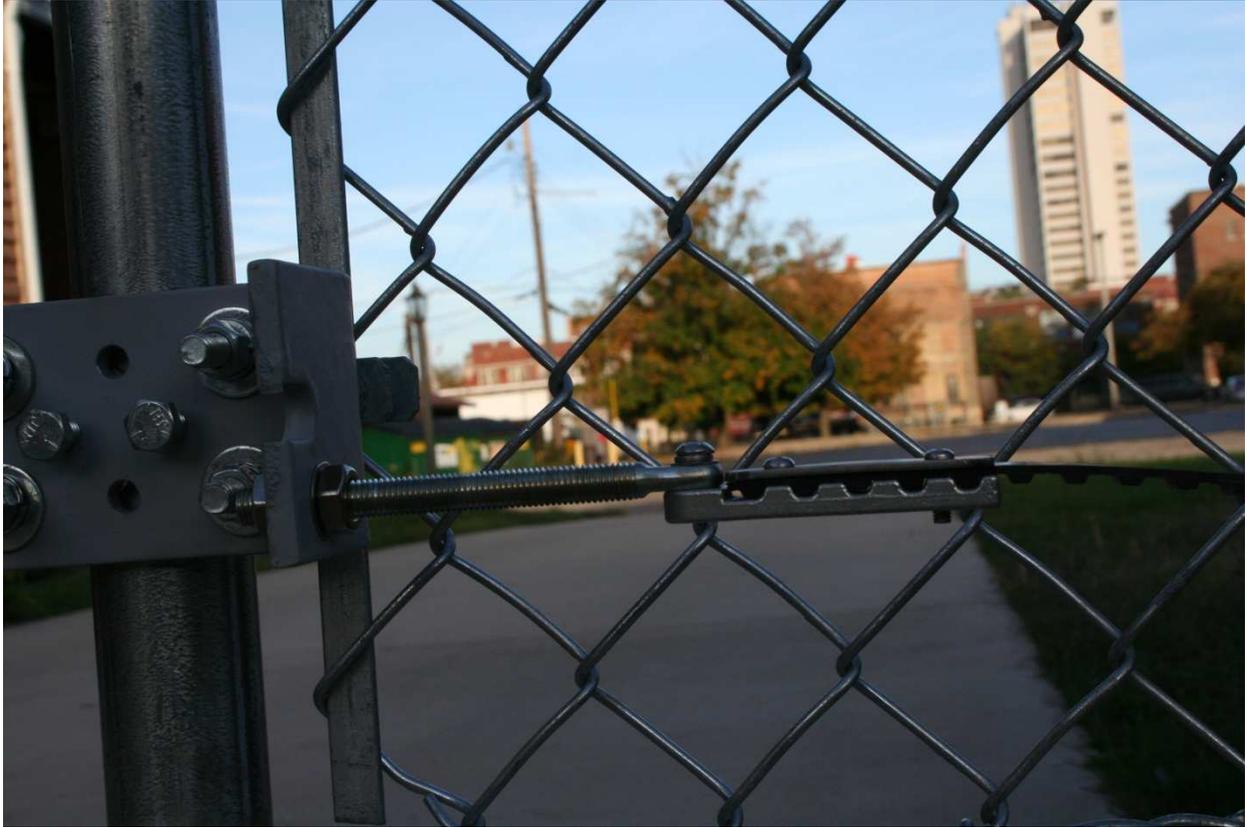


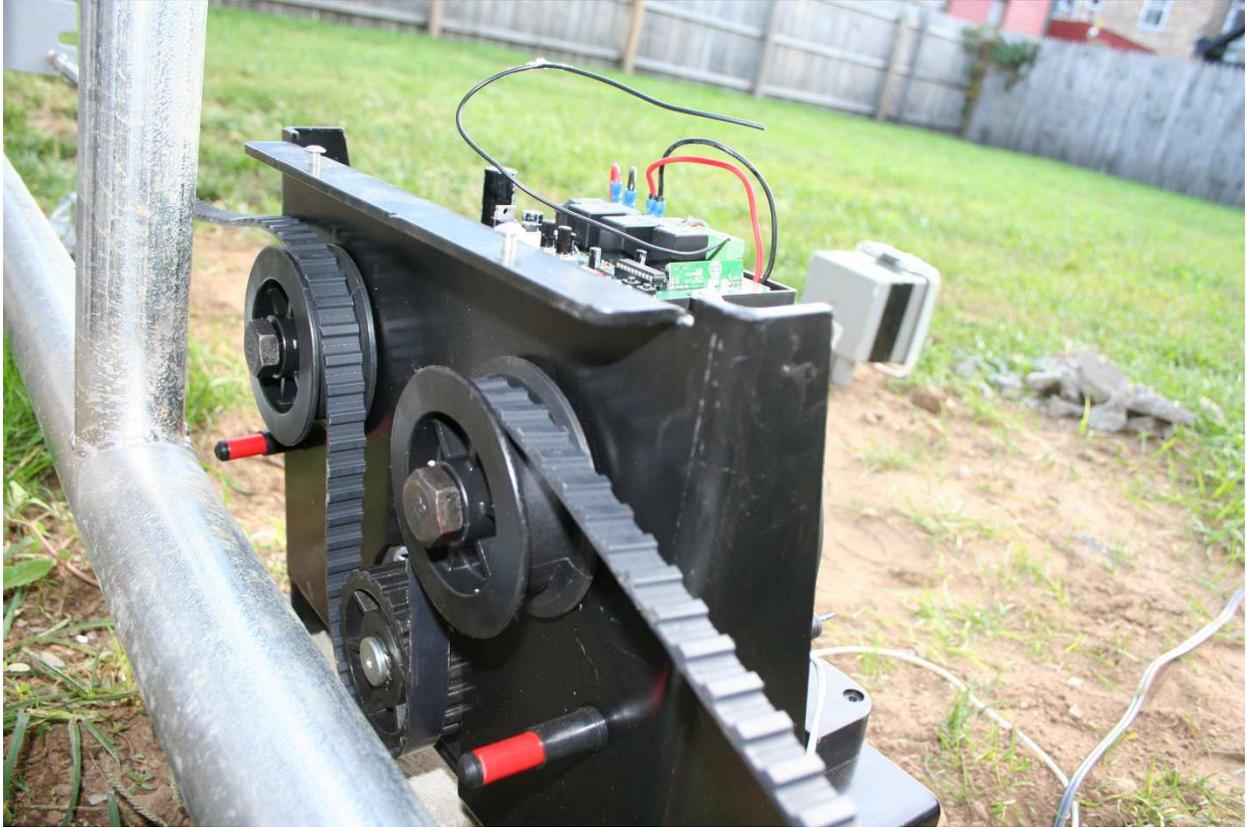
These are photos of the brackets in place on the gate. Some show the tension bolts attached. The belt mounts to the hole at the end of the bolts.



These are photos of the drive belt with mounting attachments at each end.

Note: run the belt (without mounting attachments) from the end brackets, through the idler guides, over the drive gear to determine how much belt you will need. Only then trim the belt. You'll need to use a hack saw to cut the belt: it is steel-belted and tough. Then attach the mounting hardware to the belt. You will use the tensioning bolts to take up the slack once the unit is ready for final installation.





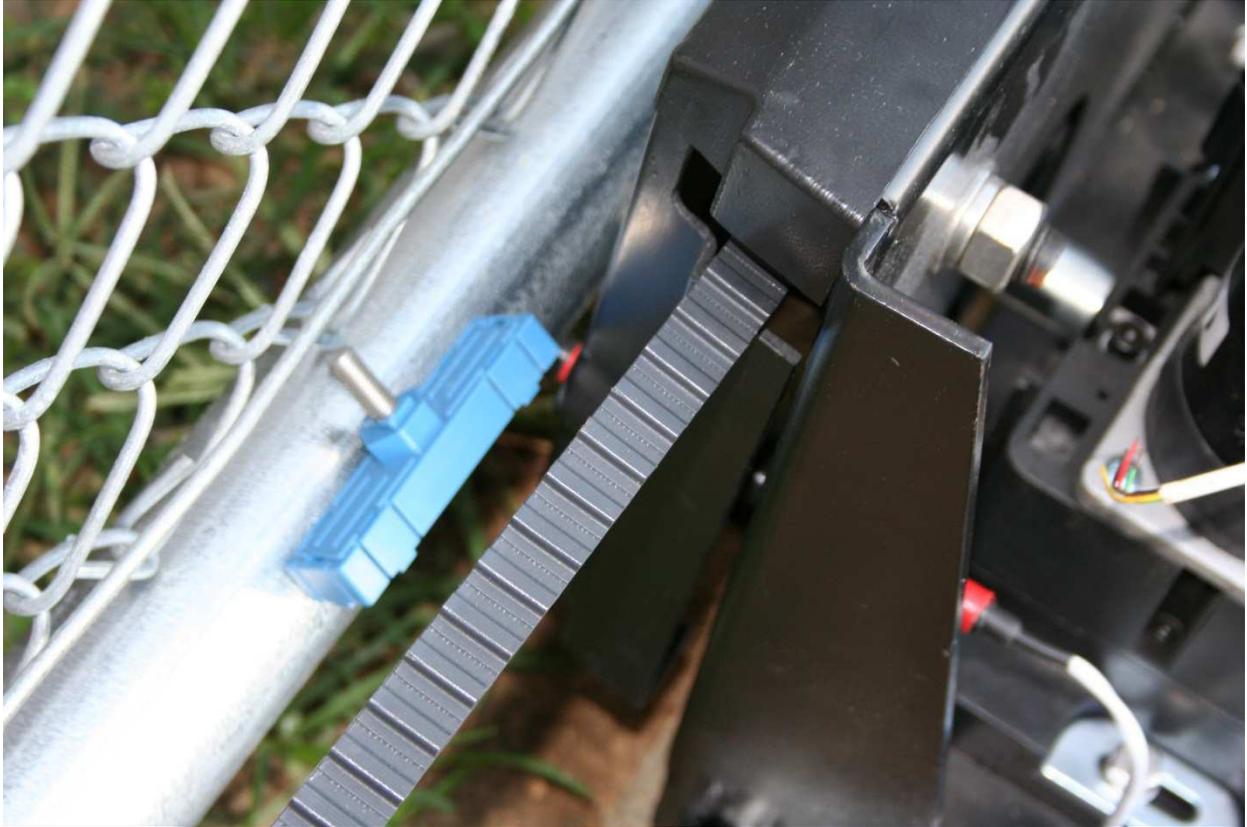


These are photos of my first dry fit. The belt is threaded through the opener and excess removed as described earlier. Once the base is bolted to the slab tighten the belt using the nuts on the tensioning bolts as shown in the next photo.



If your gate opener is on the left side of the gate, you shouldn't have to do anything more. However, if your opener is going on the right side of the gate (like mine), some adjustments just be made. First, reverse the polarity of the motor connectors on the control board. They are spade-type connectors marked "Motor+" and "Motor-". This will cause the motor to reverse its direction and work correctly on the right side. Additionally, you should reverse the OP and CL connections on the green terminal block. This swaps the open/close limit switches so that it will work correctly when the opener is on the right.

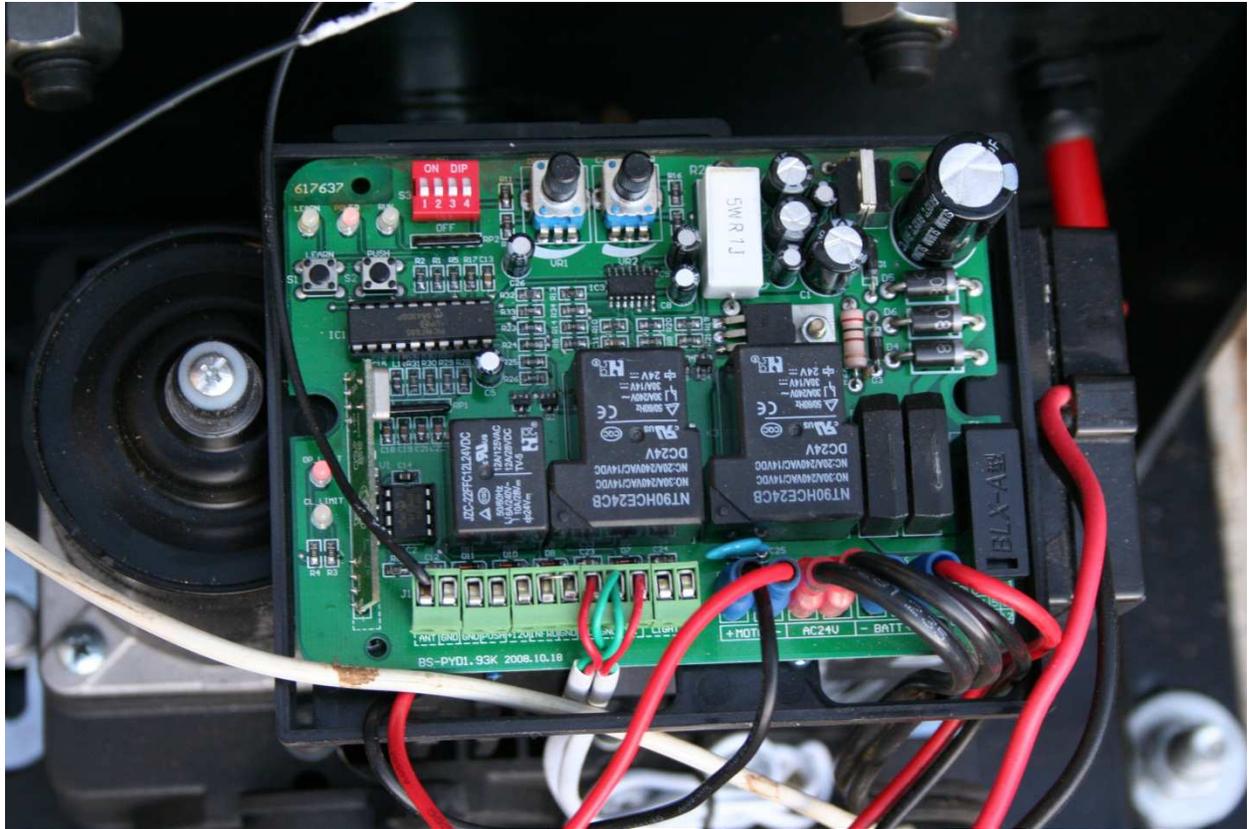
Next challenge: as part of the setup two limit magnets need to be affixed to the gate to indicate open and closed positions. On my gate, the magnets would not work if mounted on the chain-link fabric. The only place they would work would be if they were directly affixed to the lower horizontal gate tube. Because this tube is already made of a ferrous metal (steel) the magnets attach to the tube directly due to their magnetic nature. Note the placement in the above photo of the blue magnet directly to the horizontal tube. The red magnet also gets placed on this tube. I'd not have to use the supplied magnet mounting hardware that was supplied: careful placement followed by some careful application of duct tape should do the trick. See the following photos to see how my set up worked.





At this point, the power is ready to be applied. **DO NOT CONNECT THE BATTERY.** The battery is connected only when all the setup is complete. There are points during the programming phase when you need to have the power turned off. Hook up of the battery will prevent that.

Next are photos of the controller board as it was being wired. The first one is almost complete but without the external pushbutton and light connections made. The motor and limit switch modifications had been made. The second is with the push button connection (black and yellow from the phone cable) and the 24VAC light connection (clear 18 gauge zip line). Note both photos were taken with power supplied. Note the location and state of the LED indicators. Quiz: what do they tell you?



Once the magnets are approximately placed (they need to be within 1 inch of the matching magnetic switch on the opener) apply power to the unit. With the opening gearing disconnected (flip the handle so the gate moves freely), manually open and close the gate and notice the open and close lights on the controller circuit board. When the limit magnets are within 1 inch or so of their matching open or close limit switches, the open and close LEDs will go dark. If the magnet is not close enough to the limit switch, the LED will remain lit indicating that the limit has not been reached. Adjust the magnets so that the matching LEDs go out just as the gate is fully opened and fully closed.

Once you have this adjustment made (and not sooner) follow the manual's instructions on "One-Touch" programming. The hardest thing about this step was finding the "Push" button on the controller board. There are two surface-mounted pushbuttons on the circuit board at the upper left corner. One is marked "Learn" and the other "Push". The instruction manual details how and when to use each of these switches.

The first time I pressed "Push", nothing happened. Actually, I could hear a click and a whirr indicating motor operation. I started to panic until I remembered I still had the drive gear disengaged. Oh dopey me. I cut the power, flipped the handle back down engaging the gears, restored power and tried again. This time it worked! I then carefully tucked all the wiring into place and I reinstalled the opener's cover. I was done!

The first thing I noticed was now eerily quiet it was. The only real sound made is the chain link fabric shifting in the gate as normal gate forces are applied. I've come to accept that the thing is so quiet, you really have to look at it to see if it's working, opened or closed. There are two connections on the controller board labeled "Light" that will apply 24VAC to an external device as the opener is in operation. You could hook up a light or annunciator to indicate when the opener is working. I will probably do that soon.

I ran some 4 conductor phone line with the power wire to the opener through the conduit. I used two of the conductors to connect to a push button placed nearby (in my case the garage) to the "Push" and "Gnd" terminals on the green terminal block on the controller board. This allows manual operation of the opener without having a remote. Good call. And I have two spare conductors if I need them in the future: right now they're not connected to anything.

Upon Reflection

Things I would have done differently:

- 1) Poured a larger (added 2 inches to width and height) concrete pad.
- 2) Not used ½ inch anchor bolts. Should have stuck to 7/16 as the manual directs.
- 3) Anchor the bolts to the pad using RockTite mounting cement.

Other than those particular problems (all of them my fault) the opener works as promised. The one thing I don't know yet is how well it will hold up during our local winters. The opener's claimed operating temperature limit is 4 below Fahrenheit: it regularly drops below that here. How will snow and ice affect it? We'll find out. In the meantime, my son and I are tickled.