

BMW X5 Electric Trailer Brake Controller Installation

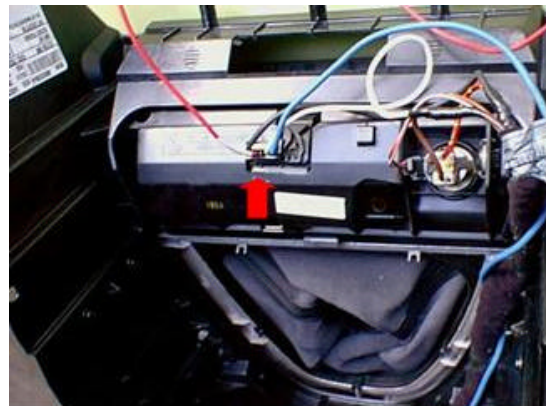
This is the outline of my installation of a Tekonsha Prodigy brake controller into a 2001 3.0 5sp X5.

I opted to install the Prodigy in the console ashtray. It's in front of the shifter and relatively easy to reach the manual brake lever – it's just a little tough to reach in 1st and 3^d gears but it's the best available location for me as under the steering wheel on the bolster doesn't work. The worst thing about this location is having to remove the console to install it. It is doable and requires a little patience to get the console out the first time.



1. To remove the console, remove the driver's side black plastic panel just above the pedals (3 screws and 2 clips). Undo the connectors for the chime, OBDII connector, and the light.
2. Remove the same on the passenger's side – 1 screw and 2 clips. Undo the connections for the 12V power and the light.
3. Remove the carpeted side panels on either side of the console. The front ones have a screw and 4 clips (1 near the front/middle and 3 near the back). The rear have 4 clips.
4. Remove the insert storage container from underneath the console armrest. At the back near the hinge, remove 2 phillips head screws. This will allow the rear center air vent to be removed. Remove the duct and disconnect the wires for the 12V power and any switches.
5. Disconnect the battery so that there is no danger in disconnecting a variety of modules. This will mean you have to reprogram the radio code and no doubt a few other things. (I skipped this step and everything still works but I do not recommend that you skip it and you can't blame me if you do *^. I never turned the key to "on" after I started the job.) The battery is located beneath the spare tire in the rear cargo area.
6. Doing this job saves a lot of money in 2 ways: 1) the labor you don't pay and 2) cut up one of your significant other's credit card. Insert one of the credit card strips in between the dash and the HVAC controller on both sides to release the clips that hold it into the dash. Disconnect the electrical connections from the HVAC unit and toss the unit in the back with all the other parts you're now collecting.
7. Remove the optional equipment unit (BMW calls it a switch unit) from the front of the console, just below the hole for HVAC unit you just removed from the dash. Use the credit card strips on each side again and then disconnect the electrical connections.

8. Remove the shift knob. You simply pull the knob straight up with, as BMW says, “a forceful jerk.”
9. Remove the hazard switch just as you removed the HVAC and other control unit in steps 6 & 7. BMW recommends that you remove the shifter boot to do this. Even after I had my console out of the X5, I could not get my shifter boot removed. You’re supposed to pull up at the front and then it will slip out at the back. If you can’t get the switch out either way, hang on until step 13
10. Pop out the emergency brake lever boot. Using 9 mm and 11 mm sockets and wrenches, loosen the e-brake cable adjusters so that the e-brake lever can be pulled to a much more vertical position. (This step will require readjusting the cables which will involve safely jacking each rear wheel after you reinstall the console in step 23.)
11. Undo the 4 electrical connections for the console. All are accessible from the driver’s side leg area. (Three molded connectors and 1 coax for the phone antenna.)
12. Remove the Phillips head screws that secure the console. There are two under the console arm rest. There is one on each side at the rear of the console at the bottom. There is one on each side near the front of the console – around the shifter position.
13. Remove the screw under the hazard switch for the center mounting bracket. If you have not gotten the hazard switch out, remove the screw on either side of the console that connects the console to the center mounting bracket. Normally those should not be removed when you can remove the hazard switch. After you raise the console in the next step, you can now release the hazard switch.
14. Raise the rear of the console and then gently pull backwards. Watch the e-brake lever, put the shifter in 4th gear, and release the console from the dash – three locating pins slide out. Carefully remove the console from the X5. This step is easier if you remember to put both front seats back and have both front doors open before you attempt it. All of this should be easier, but Hans and Franz wanted to test your determination. Congratulations!
15. Carefully place the console upside down on top of a piece of foam or a blanket. Remove the “wood” trim by removing a large number of T15 (I think) torx screws. Then remove the ashtray from the wood trim.
16. With a T8 torx, remove the wood panel from the ash tray cover.
17. Test fit the Prodigy into the ashtray. I removed the ashtray insert and then used a Dremel tool to carve out an opening for the Prodigy connector (red arrow below). I mounted the Prodigy pretty much in the center with the electrical connector just to the right of the catch for the ashtray cover. I carved some plastic away from the right side of the cover catch and from the left side of the connector. Then drill two holes in the ash tray cover and mount the Prodigy holder – I used the slip out holder. After fastening the screws, I then removed them and cut them short enough so that they just barely protruded through the cover. Then you can reattach the



wood panel for the ashtray cover. Cut out an opening in the ash tray insert and then you can reassemble. In this way, if you ever remove the Prodigy, the only thing that's visibly damaged is the easily replaceable ash tray insert.



18. To connect the Prodigy wiring, you could splice into the power and ground for the console cigarette lighter but this is not good as you have to be absolutely sure your trailer brakes will not blow the fuse. The correct way is to run a separate power line from the battery (or the positive post in the engine compartment) with an automatically resetting circuit breaker. The cigarette lighter ground is fine since the Prodigy returns very little current through the controller grounds.
 19. Connect a long length of blue wire for the electric trailer brakes to the Prodigy connector. This wire has to go to the back of the X5 so start with about 16 feet. Connect a few feet of red wire for the brake light switch wire – this has to go to the right front of passenger's footwell – 3 additional feet should be fine.
 20. Set the console in the X5 (get the center mounting bracket secured to the console first if you couldn't get the hazard switch out) but do not insert it into the dash at this point. Route the blue wire to near the left rear of the console and the red out of the right front.
 21. To route the blue wire to the rear, remove the rear seat bottom, the rear plastic sill plates (pop out with about 5 clips), and the interior lights below the rear seat. Lift up the rear carpet and feed the blue wire underneath, straight back to the rear seat support, and then toward the driver's side, slipping it through the cable ties. Continue to feed it to the rear with the wire loom and back to the X393S connector for the trailer harness (remove the spare tire). Connect the male pin (part # 61 13 1 376 193 from your BMW dealer – least expensive part you'll ever buy ☺) to the blue wire and insert it into the connector opposite the big blue wire for the trailer brakes – follow red arrows in picture.
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22. Now you can reinstall the rear seat area and console excepting the passenger's side carpet pieces to the console, the footwell black plastic, and the e-brake boot.
 23. Adjust the emergency brake cables by first jacking up the rear by the lift-points so that each rear tire is off the ground (they can be done one at a time). Pull the

emergency brake lever up 4 clicks. Adjust the cables successively so that the rear wheel will not turn, and then will just barely turn. Tighten the 9 mm locknuts and reinstall the e-brake boot.

24. To connect to the brake switch, rumor has it that in earlier times BMW recommended using the signal from the third (LED) brakelight. I couldn't get any advice from BMW. I used this and things are working well. It is easy to pick up the signal at the light control module (LCM) in the right side of the passenger's footwell. The plastic trim panel pops out by prying, releasing 2 clips near the rear of the panel. The LED brakelight power comes from Pin 10 of connector X12 of the LCM. X12 is the top connector of the three and the wire to pin 10 is black/yellow (see red arrow). According to Tekonsha (thanks Dan!), the Prodigy has only a 1 mA draw on this line so it seems the Prodigy will not perturb the LCM. For other controllers, check and use good judgment as I guess the LCM is not inexpensive. I've heard of one X5 owner who connected directly to the brake light switch and this is working fine. This is not recommended by a few that I've talked to – the X5 brake switch is a Hall effect switch – no moving parts – it uses the magnetic field of the brake pedal arm.



25. Put the passenger's footwell back together and then carefully test the trailer brake operation.

Many many thanks to Myles Kitchen, who was the first to soldier through and write it down, and Dan at Tekonsha.

Please let me know if I mis-remembered any details – my email is kgibble15@hotmail.com.

Best wishes,
Kurt Gibble