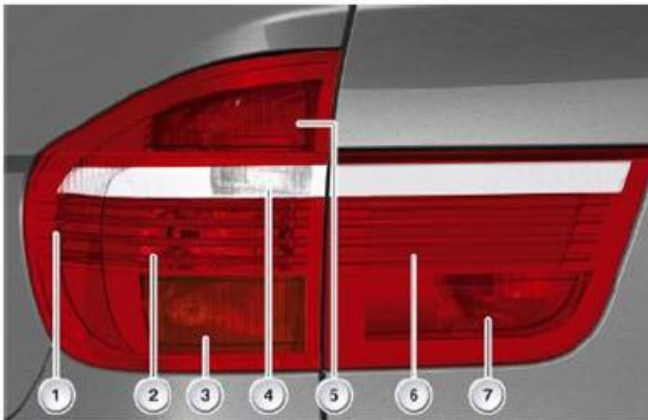


DIY: Enabling the Rear Fog Lights on your BMW X5 (E70)

After making the modification described here, your rear lamps will have the following functions:



Index	Explanation	Index	Explanation
1	Tail Light	5	Brake Light
2	Brake Light	6	Tail Light
3	Direction Indicator Light	7	Rear Fog Lights & Brake Force Display
4	Reversing Light		

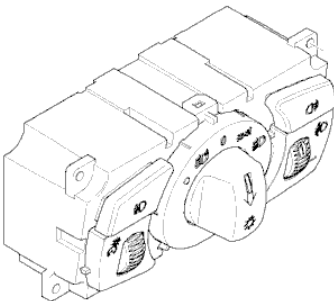
Tools Needed:

- Good Work Light
- Philips Screwdriver
- #10 Hex Bit Driver
- Wire Strippers
- Very Small Needle nose pliers
- Soldering Iron/Solder (optional, but recommended)

Parts Needed:

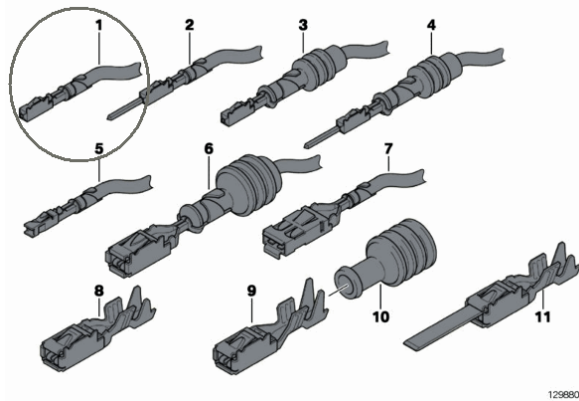
*** You first need to buy the correct switch light control Switch. Here is a link to the various switch options:

http://realoem.com/bmw/showparts.do?model=FE81&mospid=50140&btr=61_2113&hg=61&fg=35



FYI, I purchased mine from here: <http://euroactiveparts.com/bmw-oem-e60-e61-e70-x5-e71-x6-euro-light-control-switch/>

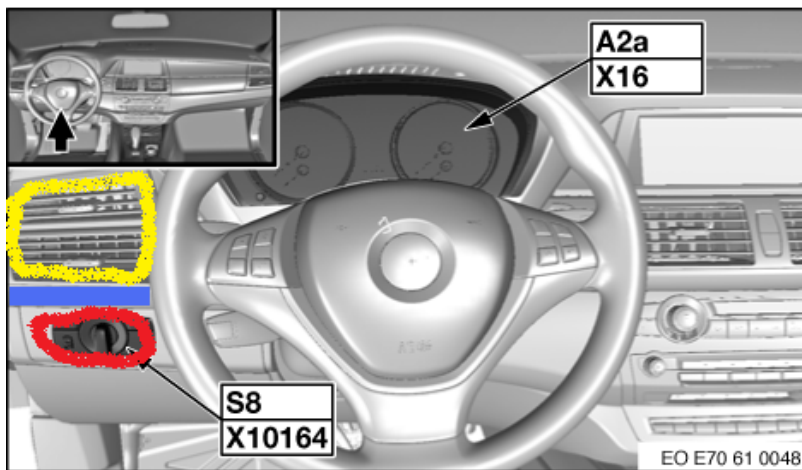
*** You will also need 2pcs. of the Bushing Contact, #1 in the drawing below. You might want to buy an extra just in case, as they are pretty small and fragile. The BMW Part Number is 61130006663 (BUSHING CONTACT 0.75MM) it's the second one in the parts listing here: http://realoem.com/bmw/showparts.do?model=FE81&mospid=50140&btnr=61_1691&hg=61&fg=15



***Finally you will need a 4 foot length of wire, 20-24 guage is OK.

Now, let's get started!

Disconnect the battery!

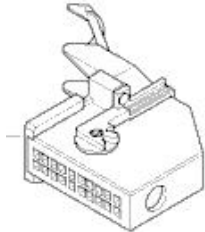


To remove the light switch:

- 1.) Gently pry the trim piece (Blue) outward toward you. It is held in place by three clips.
- 2.) Remove the Phillips head screw that is under the trim piece, which is holding the vent in place.
- 3.) Gently lift up and out on the vent (yellow) it should come out easily.

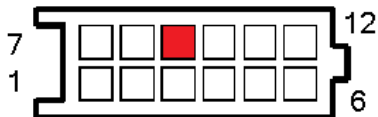
- 4.) Reach behind the filler material (looks like grey/black Styrofoam) and gently press the switch and trim piece (red) out from behind. It fits tight, and is held in the dash by 4 clips.
- 5.) Go ahead and disconnect the locking connector from the back of the SWITCH.
- 6.) Put the SWITCH aside, we will get to it later...

This is the connector on the end of the cable, that you just disconnected, which fits into the back of the light switch.

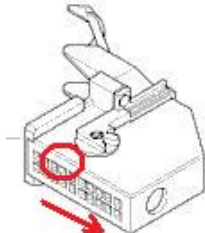


According to the published schematics for the North American version of the E70, there should be a female pin with a wire on it in location number 9. However, this is not the case. This is part of the reason why we have no rear fogs... There is no connection to the switch to turn them on.

(Note pins number 1,6, 7 and 12 are labeled on the connector itself)



Getting to the wires is tricky because of the latching mechanism they have on the connector. We need to remove the latch.



Looking at the bottom of the connector with the holes facing you, there is a small tab next to the rows of pins (red circle I believe) that gets pressed toward the outside, and this will allow the latching cover to slide off of the connector. It took me a few minute to find this, but one you find it, it works very easily.

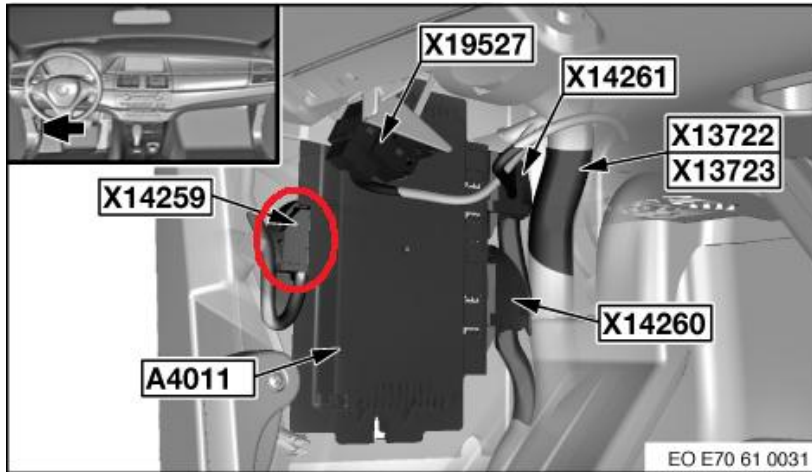
NOTE: THERE SHOULD BE NOTHING IN HOLE #9.

You will now need to access the Foot Well Module (FRM).

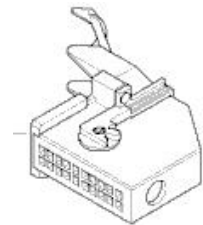
- 1.) Remove the Philips head screw from the center of the Hood Release Handle and remove the Handle.
- 2.) Remove the Philips head screw that was behind the Hood Release Handle.
- 3.) Carefully pull the trim panel toward the inside of vehicle. It is held in place by two plastic clips, one at the top of the piece about an inch below where the dash is, and the other just below where you took the second screw out of the piece. You can get your hand behind

there and gently apply pressure until it comes loose. Be careful not to break the trim or the 2 clips. Save the clips, as you will need them to re-attach the trim.

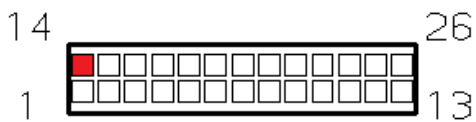
This is what you should see behind the piece that you just removed. We are only working with the connector with the red circle around it, so go ahead and disconnect it.



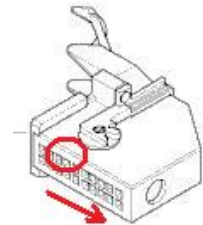
This is the connector that fits into the FRM module.



According to the published schematics for the North American version of the E70, there should be a female pin with a wire on it in location number 14. Again, this is not the case. This is the other end of why we have no rear fogs... There is no signal to tell the FRM module, that we want to turn them on. (Note the pins numbers 1,13, 14 and 26 are labeled.)



If you got the latch off of the switch connector, you are going to like this part...



We are again going to remove the latch. Looking at the bottom of the connector with the holes facing you, there is a small tab (red circle I believe) next to the rows of pins that gets pressed toward the

outside, and this will allow the latching cover to be slid off of the connector. It works JUST LIKE the switch connector. NOTE: THERE SHOULD BE NOTHING IN HOLE #14.

It's probably obvious by now that all of this is to allow us to insert the missing Busing Contacts in the connectors and complete the circuit between the SWITCH and the FRW. This will give us our REAR fog lights!

At this point, we will need the 2 Bushing Contacts, and the 4 foot piece of wire.

Strip back the insulation on each end of the wire for about 0.25"

You want to be sure that you only take off the insulation and leave as much of the wire intact as possible. If you mess it up, don't worry just try it again, as you have an extra 6" or so of wire to work with.

You need to either crimp (mash around the wire) the Bushing Contacts onto the ends of the wire, or if you are able to solder these onto the ends of the wire, I would HIGHLY recommend doing this for signal integrity.

We are trying to duplicate this, on each end of the wire.



The round open part should be used for the wire, and the square end should be un-touched and treated VERY CAREFULLY. This end will be used later to make our connections... BE VERY CAREFUL with these, and take your time making the solder connection or crimp. Make sure you have a good connection on each end. You should NOT be able to pull the wire out of the connector, using a very small amount of force.

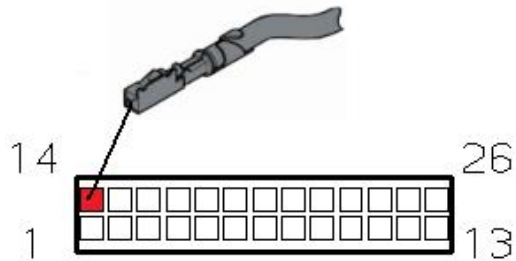
Once we have the wire with the Busing Contacts installed we are ready to add the new circuit.

Pass one end of the wire through the opening in the Dash where the vent was, and keep it next to the cable that is hanging there. Feed it through and behind the filler material and down behind the dash toward the Footwell Module (FRM). You will need to reach up under the dash and pull it down so it is located next to the cable that is disconnected from the FRM. Be careful to not damage either of the Bushing Contacts on the ends of the wire.

Starting at the Footwell Module end, we need to add the wire to the connector from the top side where all of the wires are coming out of it. There is a small tab extending from one side of the square end of the Bushing Contact, this needs to be lined up with the hole in the side of the connector where we are

going to insert the Contact. This will lock it in place and prevent it from pushing out of the connector when we re-connect to the FRM.

CAUTION: Find the open hole for #14, and reconfirm, then check again. Putting this in the wrong spot can cause serious problems, and may damage your X5. These Bushing Contacts are also very tough to remove and re-place. It's never good to put things in the wrong hole J



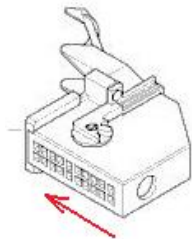
Once you have pressed it into the connector, double check the pin location again, and GENTLY pull up on the wire to see if the Busing Contacts stays locked into the connector. If so, GREAT! If not, be sure you have the small tab lines up with the hole, and try it again.

Now we need to replace the Latching Cover on the connector,

CAUTION: orientation is again CRITICAL.

There is an Arrow on the side of the Connector where we just added the wire.

The connector needs to be slid into the locking cover in the direction of the arrow, and it should snap into place and lock.



Check the pin labels on the locking cover and connector to be sure that they match.

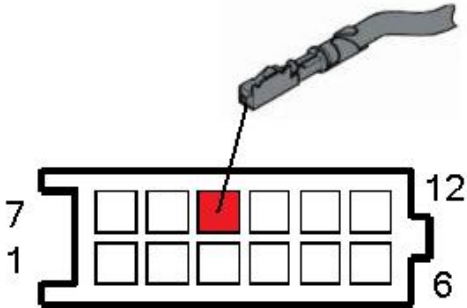
Now we need to do the same process up at the SWITCH end of the cable.

We need to add the wire to the connector from the top side where all of the wires are coming out of it.

Be sure you have the wire running through the dash in the correct manner with the cable so you can re-install the SWITCH without having the wire or cable in a wrong location. We don't want to have to take it apart again when we get down the road with the re-assembly.

There is a small tab extending from one side of the square end of the Bushing Contact, this needs to be lined up with the hole in the side of the connector where we are going to insert the Contact. This will lock it in place and prevent it from pushing out of the connector when we re-connect to the SWITCH.

CAUTION: Find the open hole for #9, and reconfirm, then check again. Putting this in the wrong spot can cause serious problems, and may damage your X5. These Busing Contacts are also very tough to remove and re-place. It's never good to put things in the wrong hole J



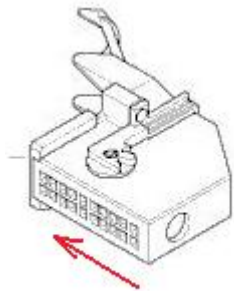
Once you have pressed it into the connector, double check the pin location again, and GENTLY pull up on the wire to see if the Busing Contacts stays locked into the connector. If so, GREAT! If not, be sure you have the small tab lines up with the hole, and try it again.

Now we need to replace the Latching Cover on the connector...

CAUTION: orientation is again CRITICAL.

There is an Arrow on the side of the Connector where we just added the wire.

The connector needs to be slid into the locking cover in the direction of the arrow, and it should snap into place and lock.



Check the pin labels on the locking cover and connector to be sure that they match.

You should now have both Locking Connectors on the ends of the cable with the new wire added. It doesn't look pretty yet, but we can do that after we make sure this all works.

Now we need to go back to the OLD SWITCH that you had set aside earlier.

We need to take the trim piece off of the OLD SWITCH and install it on the NEW SWITCH.

This can be done by removing the 4 outermost screws with a #10 Hex bit.

We can then remove the OLD SWITCH and install the NEW SWITCH, then just replace the 4 screws.

Now for some fun!

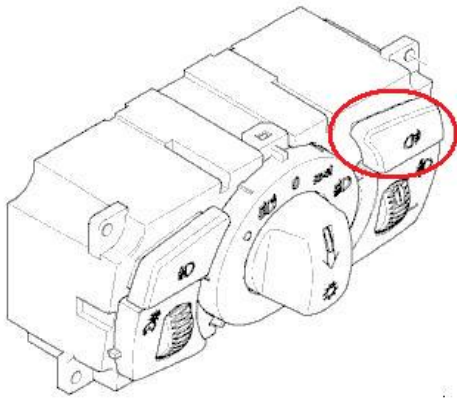
Re-connect the SWITCH to the cable, make sure that you have the wire & cable routed properly so you can just press the SWITCH back into the dash, but DON'T do it yet. Just leave it hanging for now...

Now re-connect the cable to the FRM.

Time to see if it works...

Re-connect the battery.

Start the car and turn on the headlights, they need to be on for the REAR FOGS to work, and then press the REAR FOG SWITCH.



You should have an AMBER indicator in the CLUSTER, to the right of your GREEN indicator for the FRONT FOGS, and your REAR FOGS (#7 in the top Picture) should be lit!

Congratulations!

You can tape the wire to the cable, or zip tie it... It's up to you, just do something to keep it located in the correct location and to keep it with the cable.

Now all you have to do is put your X5 back together.

Just follow the steps in reverse...

You are now REAR FOG capable... Enjoy, and use them responsibly!