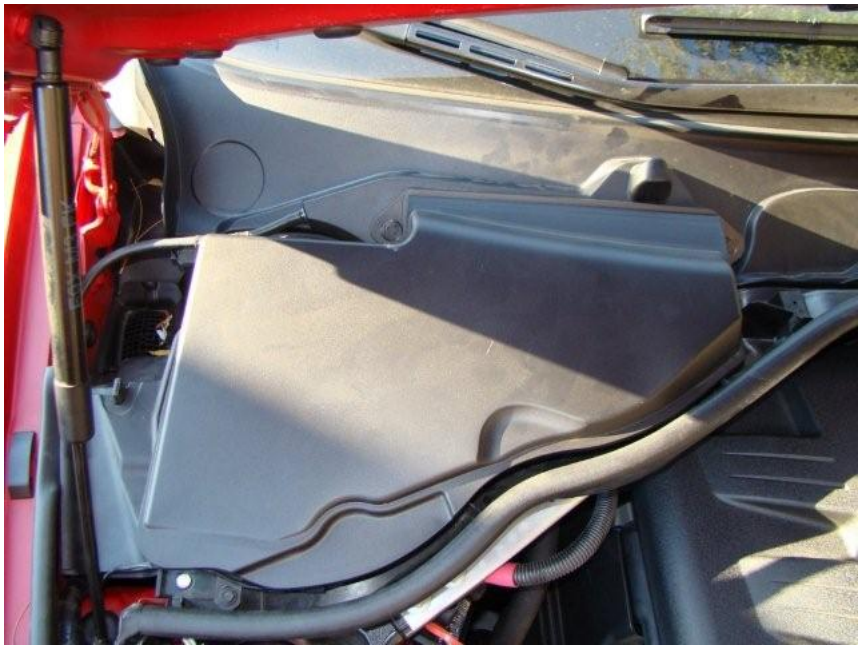
BMW E9x M3 ECU Removal / Replacement Instructions.

Removing and replacing the ECU in the E9x M3 is a very simple task and will only take about 30 minutes. The ECU – also called the DME – is located under two layers of covers and protection. Removing each of these layers only takes a few minutes. Once exposed, the ECU will slide right out.

Tools required: 8mm nut driver.

1. Remove the driver's side air conditioning filter cover. The air conditioning filter cover is a triangular box located right in front of the firewall. Three 8mm-hex screws hold it in place. Two screws are located at the top corners, and the third is located at the bottom.
    a. Remove the three screws holding the air filter cover in place.
    b. Once removed, the filter cover will still be attached by an air temperature sensor. Leave the sensor attached, and just rotate the filter cover out of the way – leaving the master cylinder brake reservoir exposed.

2. Remove the passenger's side air conditioning filter cover. The passenger's side filter cover is the same shape as the driver's side filter, and is also held on by the same three 8mm-hex screws.
    a. Remove the three screws holding the air filter cover in place.
    b. Once removed, the filter cover is still attached by an air temperature sensor. We will remove this sensor.



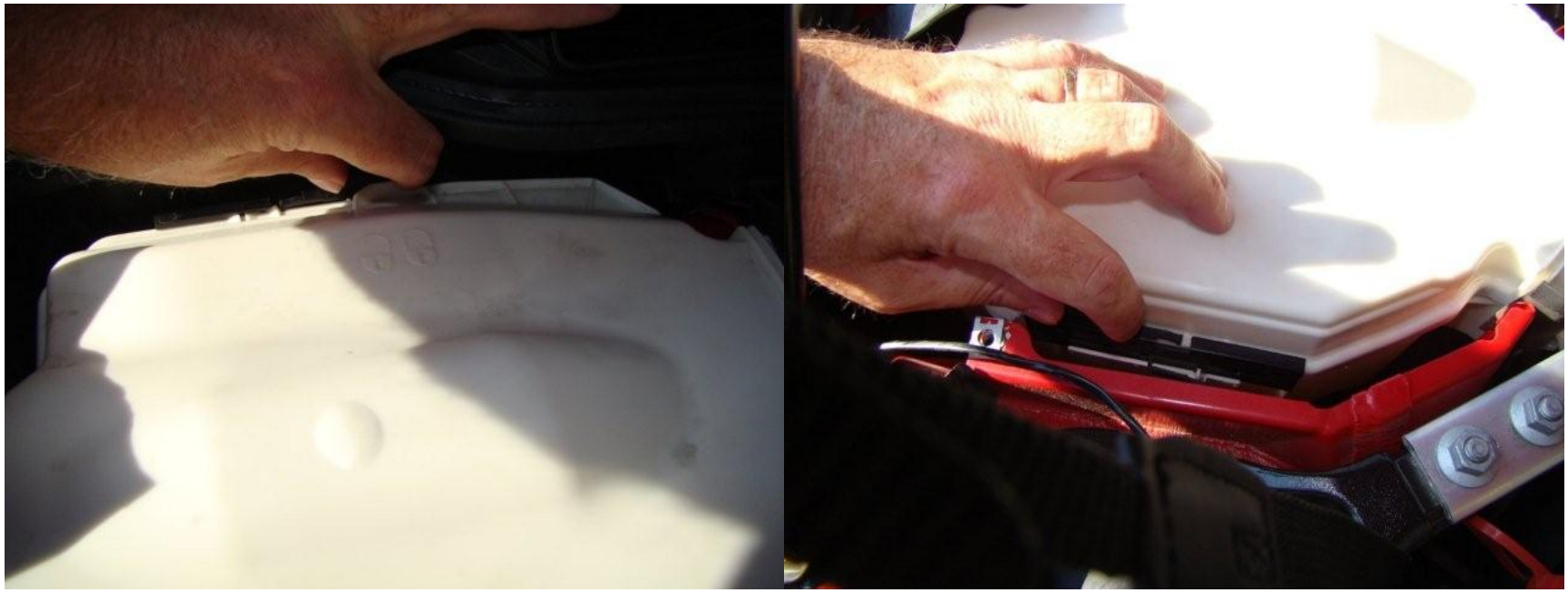
c. The air temperature sensor is held on a rotating lock fixture, and two compression tabs. Rotate the sensor until it unlocks and remove it. Then follow the wiring and remove the two compression tabs holding the wiring in place. You may need to slightly pry these compression tabs to get them removed. The white box below is where the ECU is located. **DO NOT PULL ON THE WIRING to remove the compression tabs.**

3. Remove the rain gutter tray. This tray is located underneath the two air conditioning filter covers removed in (1) and (2) above. The tray runs the entire width of the engine compartment. The tray is held on by two 8mm-hex machine screws.
    a. Remove the two machine screws holding the rain gutter tray.


b. Remove the four rubber tabs holding the tray in place.

c. Remove the tray. The tray will slide out. It may hit the engine hood struts. Just manipulate the tray until it is completely removed. The white box underneath this tray on the passenger side contains the ECU.

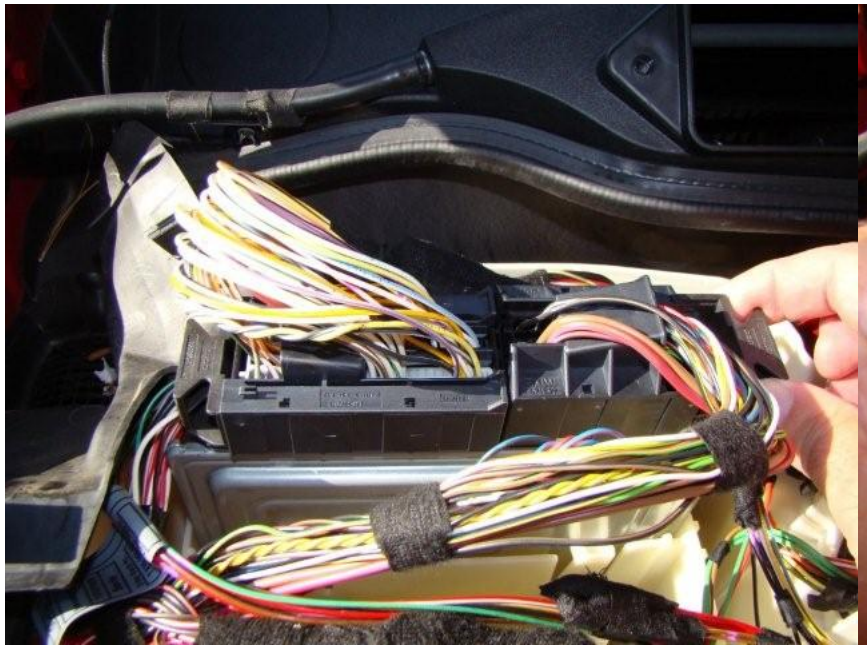
4. Remove the white ECU compartment cover. This cover is held on by two sliding locks, and four locking tabs.
    a. The white ECU compartment cover contains icons indicating a locked and unlocked position for these two sliders. Slide the two locks towards the unlocked position icon.



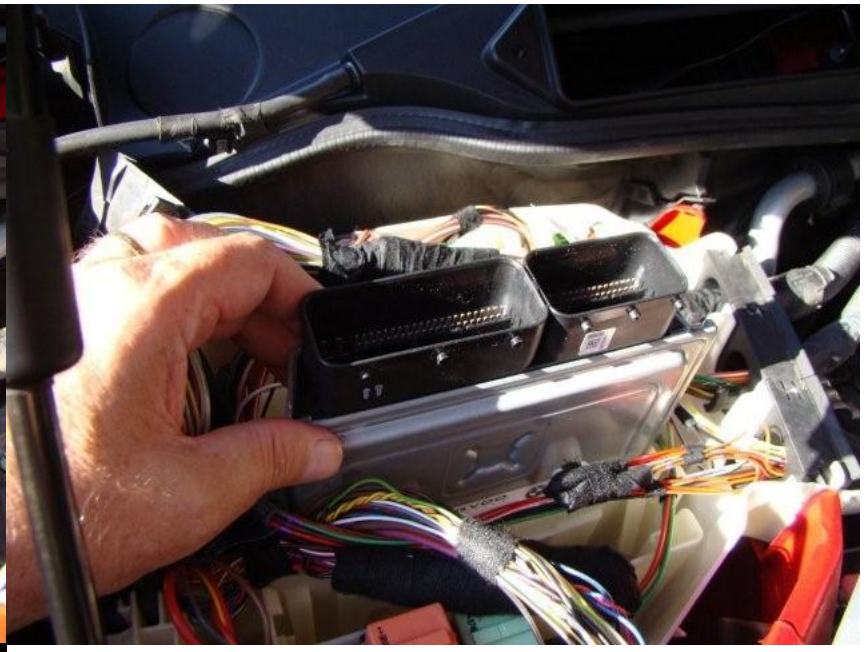
b. Release the four locking tabs. You must reach underneath the ECU cover and pull the corner of each tab outwards until it unlatches. It's best to use two hands for this: one hand to pull the tab outward, and the other hand to pull the locking tab bar upwards to remove pressure on the locking tabs. **The pictures are intended to show where the locking tab bar is located, not the method for unlocking them.**

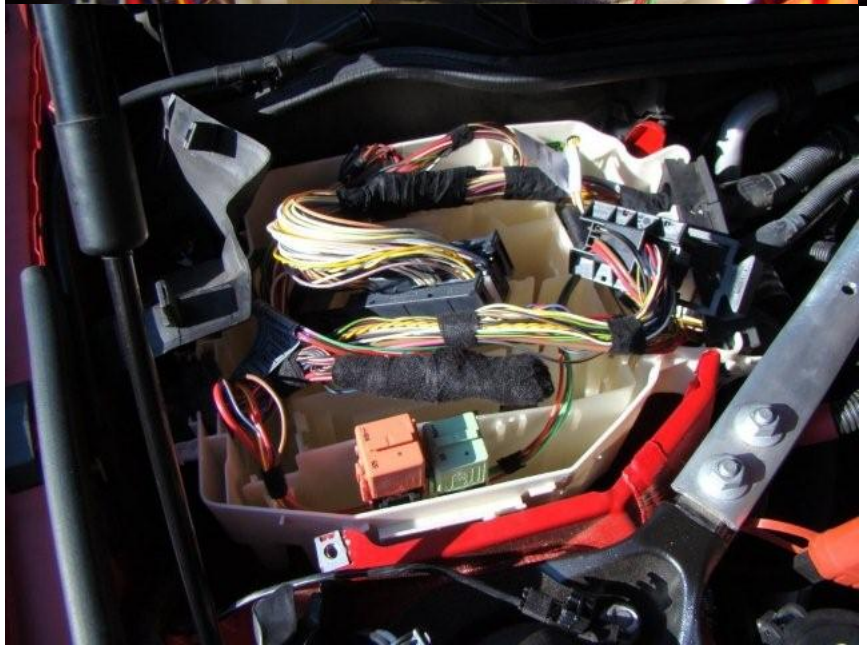
c. Remove the ECU compartment cover and expose the ECU compartment.

5. Remove the ECU wiring harnesses. Each ECU wiring harness is held in place by a sliding lock. Pull each sliding lock and remove the wiring harnesses.



6. Remove the ECU. The ECU is held in by two plastic tabs. Pry these tabs loose, and remove the ECU.





7. Place the ECU in an anti-static bag for shipping. **Do not touch any of the wiring contacts, as static build up on your body may damage the ECU.**

ECU Replacement Instructions

The ECU replacement instructions are essentially the reverse of the removal instructions. There are a few things you must be aware of.

1. Remove the ECU from the anti-static bag.
2. Replace the ECU into the ECU compartment.
    a. Partially insert the ECU into its holding compartment.
    b. With the ECU partially inserted, attach the two wiring harnesses. Each wiring harness will not fully insert itself into its receptacle. Place the wiring harness on top of the receptacle, and slide the lock inwards. Sliding the lock inwards will pull the wiring harness receptacle into place. Follow this procedure for both wiring harnesses.
    c. Insert the ECU into its compartment until the two locking tabs click in place. If you put the ECU into the wrong slot in the compartment (it won't slide all the way down, and the locking tabs won't click in place), then remove it and try a different slot.
3. Replace the ECU compartment cover.
    a. Place the compartment cover over the ECU compartment.
    b. Slide the two slider locks into the locked position.
    c. Press the locking tabs down from the top until they click into their locked position.
4. Replace the rain gutter.
    a. Put the rain gutter in place.
    b. Reattach the four rubber tabs holding the rain gutter in place.
    c. Use the two 8mm-hex machine screws to screw it into place. These are the only two machine screws; all other 8mm-hex screws are self-taping metal screws. **DO NOT USE THE 8MM-HEX SELF TAPPING METAL SCREWS TO SECURE THE RAIN GUTTER.**
5. Replace the air conditioning filter covers.
    a. Reattach the air temperature sensor.
    b. Press the air temperature sensor compression tabs back into place, locking the wiring harness to the air conditioning filter cover.
    c. Screw the passenger side air conditioning filter cover back into place with three 8mm-hex self tapping metal screws.
    d. Replace the driver side air conditioning filter cover. Screw the air conditioning filter cover back into place with three 8mm-hex self tapping metal screws.
6. Make sure all rubber seals on the rain gutter are in place. This includes the rubber seal that runs the entire length of the rain gutter, and the rubber seals underneath the four rubber tabs in (4b) above.

Congratulations, you have finished. Time to start your car.

Starting your vehicle

The first time you start your vehicle, the ECU will be confused because it has lost all of its data. It takes time for the ECU to become 'reacquainted' with your motor. The first time you start your car the motor might spit and sputter a little bit. When you press the gas, the motor might sound like it is getting flooded. When you first drive the car, it may seem like you have little power in some gears. This is a normal part of the ECU readapting itself to your motor. Once you drive the car for a few miles, all of these behaviors will go away. After you drive the car for 50-100 miles the ECU should be fully adapted to your motor and all of its modifications.

Enjoy. Remember: Keep the shiny side up.