

SOFT CLOSE DOORS REFRESHED MODEL 3

2021

INSTALLATION GUIDE



V. M3 RSOC20-MKIII

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About this guide

Product
descriptions



All specifications and descriptions of the products in this installation manual have been verified and tested at the time of writing and are valid for the respective version mentioned in the manual. We reserve the right to make modifications and improvements to the products at any time.

Errors and inaccuracies

If you notice any errors or inaccuracies in this installation guide, or if you notice that some descriptions are not complete, please use the following email for your feedback: feedback@amptech.store.

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Safety instructions

The softclose doors was designed to allow comfortable and safe opening and closing of the doors. Nevertheless, as such it does not replace the visual inspection. Therefore, always check whether your doors are securely closed before starting a journey and observe any notes on your multifunction display. In any case, the safety instructions marked "⚠CAUTION:..." in these instructions must be observed. In case of disregard of the safety instructions and resulting damages to the AMPTech components or even vehicle parts, the warranty claim as well as any liability for damages or consequential damages expires due to own fault (see GTC's on www.amptech.store/agb/, V. Liability). If you have any questions or problems with the Frunkautomatic, please contact AMPTech under the phone number +49 176 64990890 or the email support@amptech.store.

Preparations

To ensure that the installation can be carried out quickly, tools required for the installation should be provided before starting. The required tools are listed below.

List of tools needed for the installation

Tool list	
Position	Designation
1	Pliers
2	Soft pad (blanket or similar)
4	Scissors
5	Plastic mounting lever
7	Ratchet/Ratchet
8	Socket wrench set / nut
9	Cordless screwdriver
10	Cutting tool
11	Torx set
12	Flashlight
13	Insulating tape
14	Rust protection
15	Cable lubricant
16	Retraction aid
17	Alubutyl



A commercially available toolbox contains many of the necessary tools.

Please check the scope of delivery of the order before starting the installation.

List about the scope of delivery

Scope of delivery	
Position	Designation
1	4 softclose motors
2	4 lock units
3	4 harnesses
4	4 bracket rails
5	6 screws
6	12 Gummistopfen
7	4 plastic caps
8	Current splitter Y-cable
9	2x power supply harnesses
10	Cable tie

After checking the scope of delivery and providing the tools, you can proceed with the installation instructions.

Installation guide

Before proceeding to the removal of the door panels and footwell trim, it is advisable to expose storage areas for the parts removed during the installation. In addition, it is helpful to keep the clamps and screws that are removed sorted.

These installation instructions describe the installation of the softclose mechanism on the two doors on the right-hand side of the vehicle in the direction of travel. On the left-hand side of the vehicle in the direction of travel, installation is identical and can therefore be carried out according to the same instructions.



Start the installation at the passenger door.

Remove door panel

- Remove the tweeter with a plastic mounting lever by placing the plastic mounting lever below the speaker and levering it upward (Figure 1). The tweeter is hooked in and secured by metal clips



Figure 1: Levering the tweeter

- Loosen the connector plug behind the speaker. This is locked with a barb. To do this, lever the plug with a flat-blade screwdriver and pull the plug out at the same time (Figure 2)



Figure 2: Loosening the barb

- Lever out the reflector on the outside of the driver's door using a plastic mounting lever (Figure 3). Be careful not to damage the door panel



Figure 3: Removing the reflector

- Loosen the plastic cover on the bottom of the door panel armrest (Figure 5)
- Unscrew all three screws (T30, Torx) used to secure the door trim. These are located under the reflector, under the removed plastic cover and under the door armrest (Figure 4, 5 and 6).



Figure 4 (left), Figure 5 (center), Figure 6 (right): To removing screws of the door panel

- Slide a plastic mounting lever under the door panel and reach under the door panel at the bottom of the door panel with both hands. Pull the door trim jerkily with both hands to release it. The door trim is hooked at the upper end. You can lift the door trim out upwards
- Feed the tweeter cable through the grommet
- Remove the felt cover so that you can access the bowden cable and the plug connections of the cable harness

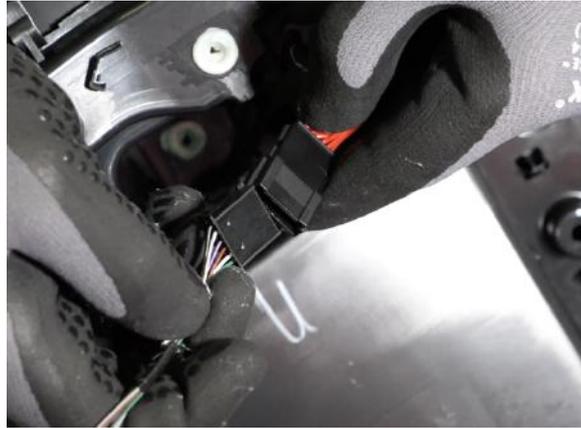
 Tip

The felt cover is susceptible to cracking. Therefore, remove the felt cover carefully.

- Remove the bowden cable from the device
- Loosen all the clamps that secure the wiring harness to the door panel
- Loosen the plug connections. These are connected according to the barb principle

Remove window pane

- Connect the connector of the window pane motor (Figure 7)



Connect the connector of the window pane motor (Figure 7)

- Remove the two rubber seals on the door (Figure 8). Depending on the position, the window pane itself or the frame of the window pane can be seen behind the rubber seals



Figure 8: Rubber seals

- Position the window pane so that both screws in the window pane socket can be seen through the opening
- Disconnect the window pane motor connector. You can place the door panel on an exposed storage surface

 Tip

Mark the position of the window pane (e.g. with insulating tape). This allows you to reset the window pane to the same position later.

- Loosen both screws from the window pane socket (14mm, hexagonal). A second person should hold the window pane at all times (Figure 9).

ATTENTION

After the door trim and all plugs have been loosened, the window moves higher than normal. The door must therefore no longer be closed to prevent the window pane from hitting the chrome strip!

ATTENTION

For the removal of the window panes should be sure to use a second person!



Figure 9: Removing the screws in the window frame

- Remove the seal from the window pane. This is fixed at the outer end with plastic clips in the door casserole and can be lifted up after these have been released.
- Carefully lift the window pane out of the door and place it on a safe shelf

Tip

Tilt the window pane in the direction of curvature when lifting it out.

Remove plastic trim from the door

- Disconnect the connectors below the tweeter that has already been removed (Figure 10). These connectors must also be disconnected from the rail below. To do this, lever the retainer of the plugs out of the barb on the underside of the plugs and then slide the plugs downward out of the rail. The blue-colored plug in Figure 10 is not held by a barb

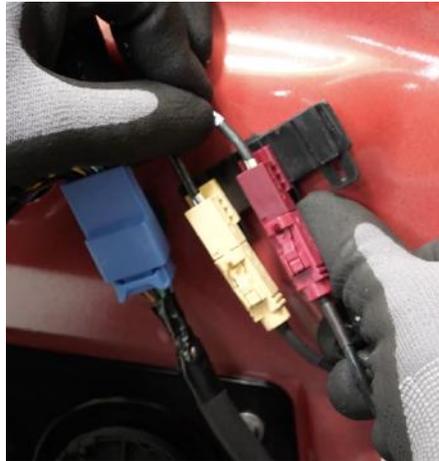


Figure 10: Connector below the tweeter

- Disconnect the plugs above the speaker (Figure 11). The upper connector of the airbag sensor is secured with a locking pin. Pull the locking pin down and then lever it to remove the connector



Figure 11: Plug connections to be removed

- Disconnect the wiring harness from the plastic trim of the door by loosening the clamps on the attachment points with a pulling motion
- Remove the five screws (8mm, hex) around the window motor to loosen it from the plastic trim behind it (Figure 12)

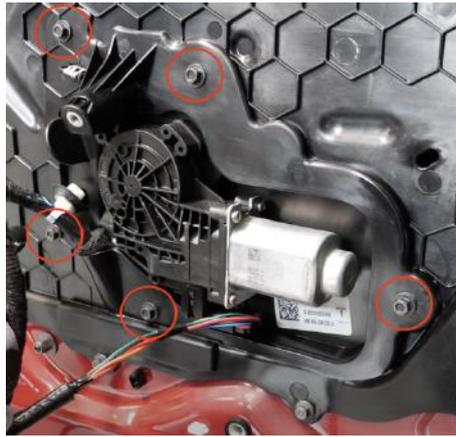


Figure 12: Window pane motor screws to be removed

- Push the fuse clamp out of the holder (Figure 13)



Figure 13: Fuse terminal

- Loosen all 12 screws (8mm, hexagonal) of the plastic trim (Figure 14). The plastic trim is fixed at the upper left and right edge each with a safety clip. Pull out the plastic trim at the upper left and right edges and feed the wiring harness through the opening in the plastic trim. Removing the plastic cladding

 **ATTENTION** The window motor remains in the door!



Figure 14: Plastic trim screws to be removed

- Feed the cables through the opening of the plastic trim and remove the plastic trim from the door

Replacement of the lock unit and wiring

- Remove the rubber seal (Figure 15) and loosen the nut that can be seen behind it (10mm, hexagon). Push the black-colored cross strut backwards so that the associated screw slips through the opening. This allows the black-colored cross strut to be tilted and makes it easier for you to reach the door's clamping unit.



Figure 15: Rubber seal to be removed

- Loosen the three screws (T15 Torx) to be able to remove the clamping unit (Figure 16)



Figure 16: Screws of the clamping unit

- Loosen the locking pin of the plug on the lock unit and uncouple the plug. Tilt the black-colored cross strut away from the lock unit and remove the lock unit from the door. Pull the bowden cable out of the bushing

 Tip

AMPTech's lock units are clearly differentiated based on the bowden cable head. The lock units for the front doors have a cap instead of a Bowden cable lug. The lock units for the two rear doors have a Bowden cable lug (Figure 17).



Figure 17: Bowden cable head (left) and bowden cable link (right)

- Attach the Bowden cable of the motor to the lock unit. There is a device for this on the lock unit (Figure 18 and 19)

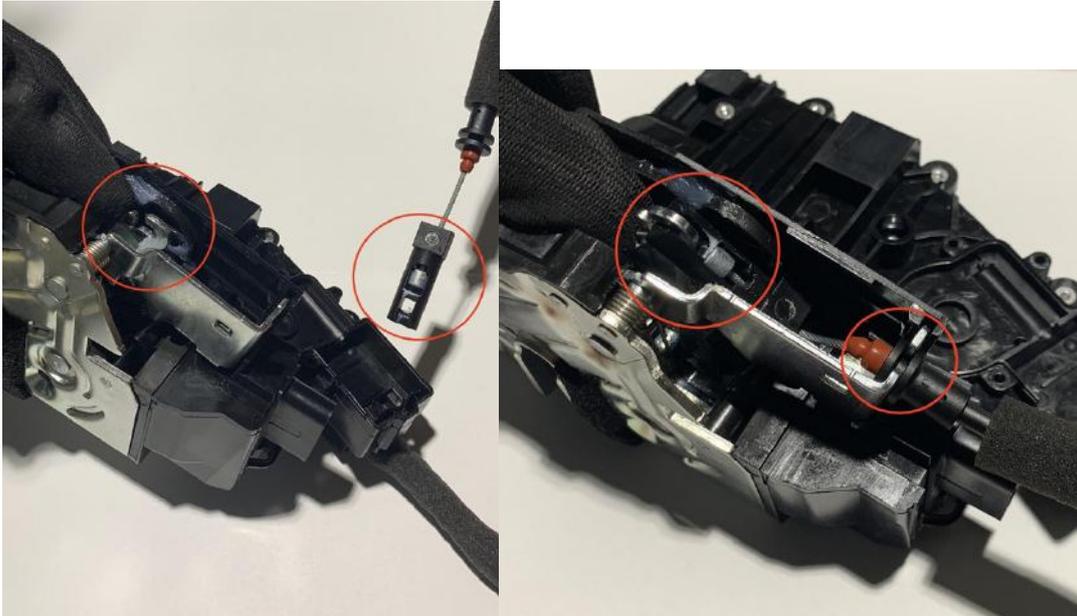
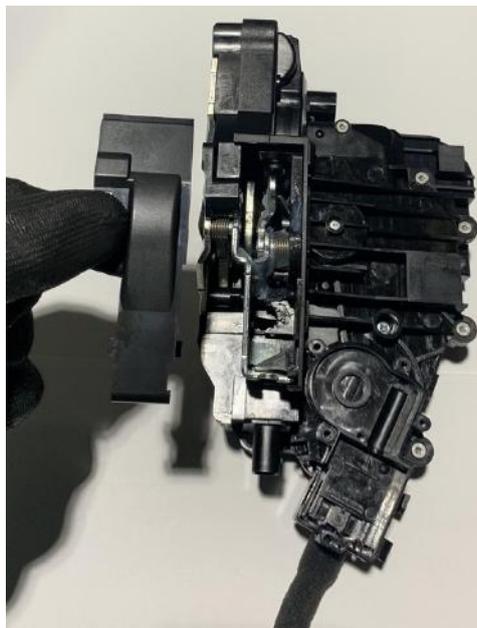


Figure 18 (left) and 19 (right): Attaching the motor bowden cable to the lock unit

- Attach the correct plastic cap from the scope of delivery to the device (Figure 20)



A-figure 20: Bowden cable cover

 Tip

It is recommended to remove the plug at the Bowden cable end of the lock unit already before

to connect the reinsertion. This saves time, but is not necessary. Make sure that the cable length for the front door is longer than for the rear door. The cable harnesses are designed accordingly (Figure 21).



Figure 21: Wiring harness lengths

- Two different mounting rails are included in the scope of delivery (Figure 22)



Figure 22: Front door mounting rail (left), rear door mounting rail (right)

- The mounting rails on the left side in Figure 22 are installed in the front doors and the Befestigungsschienen auf der rechten Seite in the

rear doors. First, we will discuss the attachment of the left mounting rail

- Press 3 rubber plugs into each of the marked locations (Figure 22). The larger hole remains free
- Attach the motor to the rubber plugs by inserting the head of the rubber plugs into the latch provided on the motor (Figure 23)

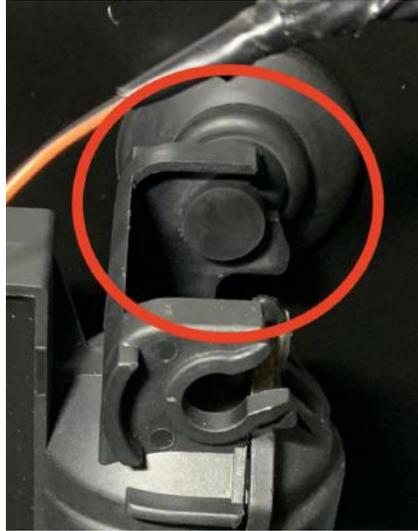


Figure 23: Inserting the rubber stoppers

- Disconnect the thin orange cable at the motor and insulate it. The cable currently performs no function
- Insert the rail with the motor in the front of the door and press the mounting rail into the two body screws (Figure 24)

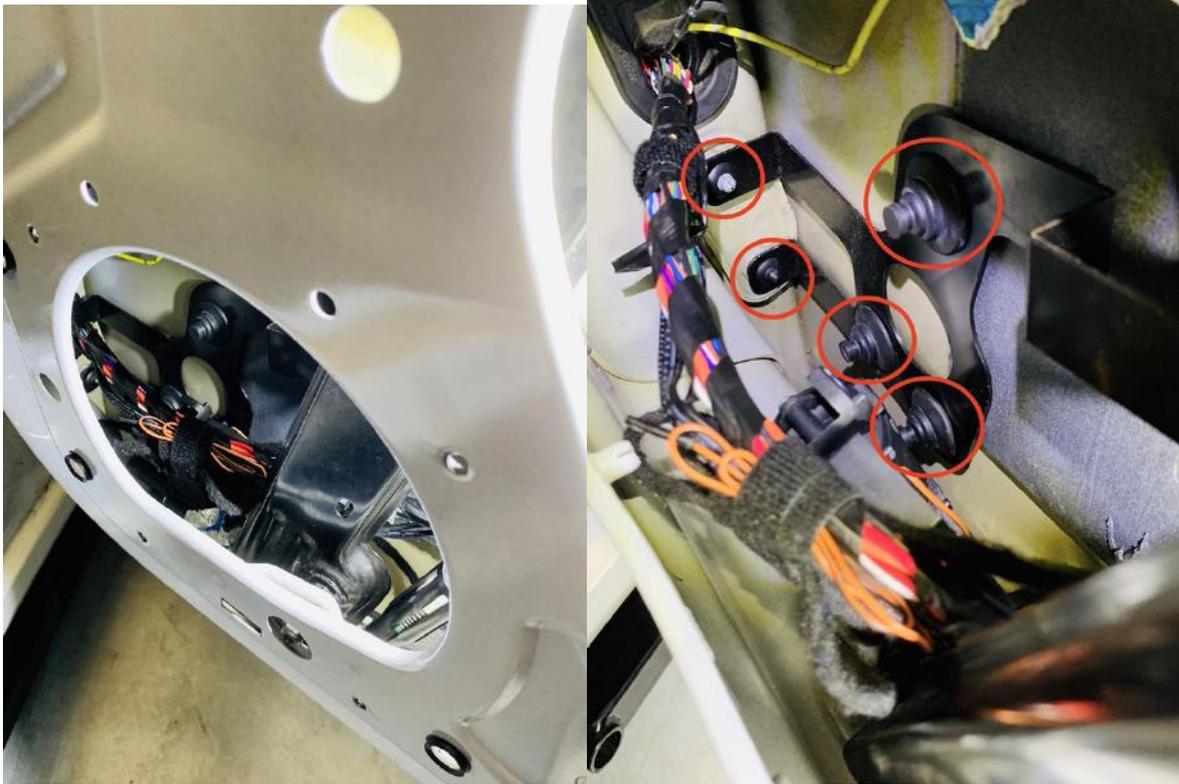


Figure 24: Mounting rail without motor

- Push the white colored clamp that holds the OEM harness out of the socket. Position the other end of the rail so that the hole on the rail and the socket of the white colored clamp are on top of each other. Secure the rail at this point with a screw from the scope of delivery and press the white-colored clamp into the slotted hole of the rail located under the hole (Figure 25).

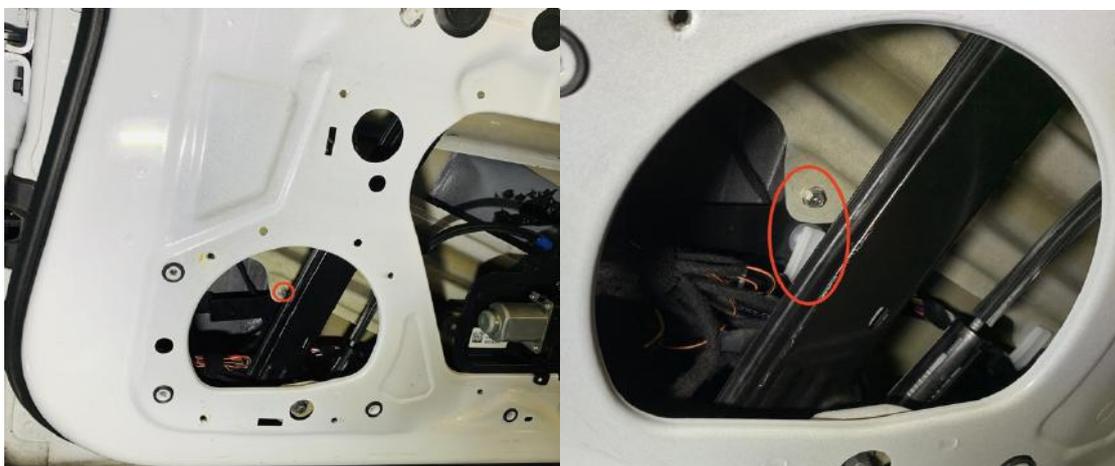


Figure 25: Fastening the rail

- Connect the gray colored connector of the wiring harness with the red locking pin to the connector of the motor

- Align the lock unit with the door body and fasten the lock unit with the same screws that you loosened
- Connect the previously removed plug to the lock unit (Figure 26)



Figure 26: Upper connection of the lock unit

- Connect the black colored connector of the wiring harness to the connector at the bottom of the lock unit
- Pull the bowden cable of the lock unit through the bushing and seal with the rubber plug hanging on the bowden cable wire

Power supply

- Remove the plastic cover between the dashboard and the door. Lever on the upper end of the plastic cover with a plastic mounting lever and then lift the plastic cover out upwards
- Loosen the fuse clamp (Figure 27)



Figure 27: Fuse terminal

- Remove the baseboard trim by simply pulling it off
- Loosen the fasteners of the footwell trim on the driver's side (Figure 28)



Figure 28: Footwell trim fasteners

- Pull off the left panel with a jerk and disconnect the connectors behind it
- To loosen the fairing on the right picture in Figure 28, two more fasteners must be loosened, which are revealed under the left fairing (Figure 29)

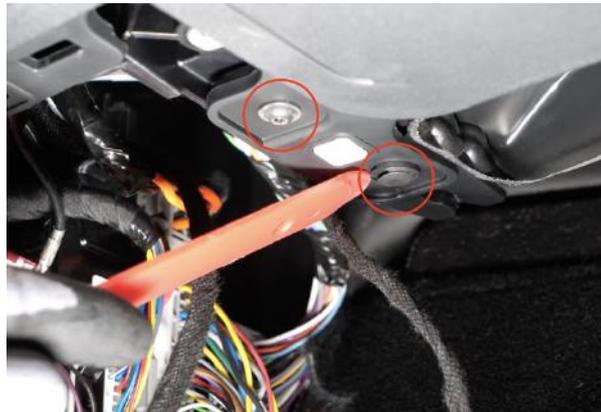


Figure 29: Fasteners of the right footwell trim

- Pull off the right fairing

ATTENTION

Since the voltage supply is now laid, the vehicle must be switched off! Switch off the vehicle on the

on-board computer in the settings under the "Safety" menu item. To do this, press the "Switch off vehicle" button and then wait approx. 5 minutes. Do not open or close the doors during this time. Also make sure that there are no heavy objects on the seats.

 Tip

A dull sound from the battery signals that the vehicle is off.

- The basic structure of the power supply is shown schematically in Figure 30



Figure 30: Power supply

- The short Y-piece has a forked cable lug on one end that attaches under the nut (10mm hex) in the driver's footwell (Figure 31). A red-colored insulated thicker cable leads from the nut. Loosen the nut slightly and slide the forked cable lug under the nut. Tighten the nut



Figure 31: Current splitter

- Loosen the cable hose on the driver's door (Figure 32)



Figure 32: Loosening the cable conduit

- The ground is tapped on both sides of the vehicle using the two power supply harnesses supplied (Figure 33 and 34)



Figure 33: Power and ground cable



Figure 34: Laying the ground cables

- Both power supply harnesses have a forked cable lug for the ground (marking: GND-) and a white colored plug which is connected to one of the two terminals of the power splitter cable
- A power cable is routed to the right side of the vehicle and is used to supply power to the doors located there
- Attach the ground cable fork lug to the screw below the removed baseboard trim (Figure 35). Figure 27 shows the screw for tapping the ground above the fuse terminal



Figure 35: Screw for tapping the ground

- Feed both power and ground connections (white and black plugs) through the cable grommet (Figure 36) into the doors

 Tip

Use cable lubricant for passing the cables through the cable conduit.

- Using the guide wire, route the power and ground connections to the motor lock harness connectors through the body to the conduit, through the conduit at the door, and through the grommet into the door (Figure 36)



Figure 36: Feed-through of power and ground cable

- Pull the cable hose over the plastic holder and press the cable hose back into the body or door at both ends. The plastic holder is hooked in. Press the hooks with a screwdriver and loosen the plastic holder at the same time.
- Connect the power and ground connections to the matching mating connectors of the motor lock unit harness. The mating connectors have the same color as the power and ground cable connectors (black and white)
- **Check the function:** Apply the brake. The power supply is now active again. Lock the lock with a plastic mounting lever. Pull the Bowden cable. The lock unlocks. Lock the lock a second time and unlock the lock with the door handle. When unlocking with the door handle, the window regulator moves down a bit
- Isolate the free white colored plug and the small black colored plug on the power supply
- Pass the Bowden cable through the grommet and insert the seal
- Tie the cables together with Velcro tape and attach them to existing OEM cable bundles. Do not tie the power supply cables to the cable bundles.

ATTENTION

Make sure that the cables are routed and tied to the door body as much as possible, otherwise the

window may be blocked when it is lowered and thus cannot be lowered completely.

 Tip

When tying the cables together, do not use cable ties and use Velcro to prevent additional noise.

- Glue the connectors to the door body with alubutyl
- Insert the screw of the black-colored cross strut into the grommet provided and hand-tighten the nut
- Temporarily stow the door wiring harness in the door body and make sure that the lock unit is open by operating the door handle
- **Function test:** Lean the door. The softclose mechanism
- pulls the door closed. The end position of the door can be adjusted by aligning the closing latch with the vehicle body or the lock unit
- Route the power supply cable underneath the power window motor along the door body (Figure 37)

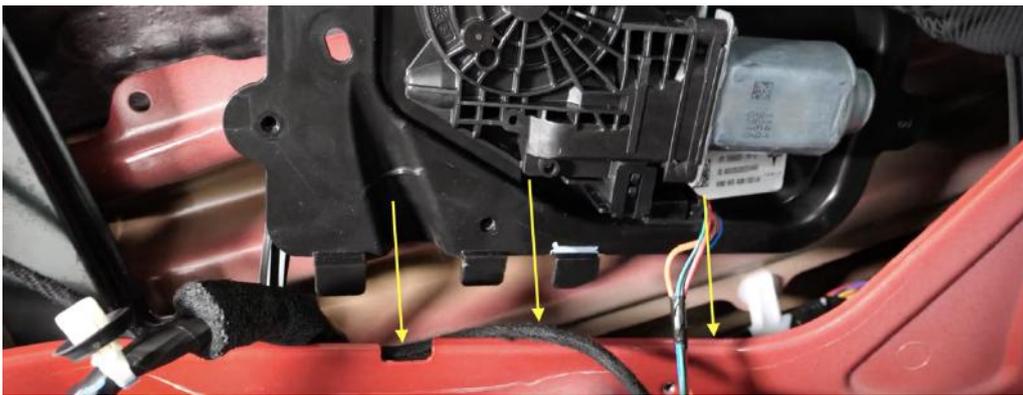


Figure 37: Power supply cable guide

- Tie excess lengths of the power supply cable together with Velcro tape and fasten them with aluminium butyl as far down as possible on the door bodywork
- Tighten the nut of the black colored cross strut
- To power the driver's side rear door, route the longer end of the power supply cable along the baseboard trim to the B-pillar. Keep to the OEM cable routing
- Loosen the pin clamp on the driver's side (Figure 38) that holds the B-pillar trim in place

Notice: As of version number Mark III, the power supply cables are additionally cloth band and protected.



Figure 38: B-pillar trim pin clamp

- The B-pillar trim is attached to the body with clamps and can be removed by hand
- Disconnect the rear door cable hose and guide both connections through the grommet in the car body
- Place the power cable for the right side of the vehicle along the center console to the right side and push the cable under the trim with a plastic mounting lever (Figure 39). The footwell trim on the driver's side covers the power cable after removal
- **ATTENTION:** The cables must always be routed in front of the pedals!



Figure 39: Routing the power cable to the right side of the vehicle

- Loosen the footwell trim on the passenger side (Figure 40)



Figure 40: Fastenings of the passenger footwell

- Run the power cable along the footwell trim to the passenger door
- The power cable is also held on the passenger side by the footwell trim after removal
- The shorter branch of the power cable is used to supply power to the passenger door. The longer end is placed to the rear door
- Remove the covers as on the driver's side to be able to lay the power supply cables of the passenger side

Installation of the rear door

- To remove the rear door panel, loosen two screws (Figure 41)



Figure 41: Rear door panel screws to be removed

- Pass a plastic mounting lever under the door panel to be able to reach under the door panel with both hands
- Release the clamps of the rear door by pulling jerkily on the lower end of the door
- Lift out the door panel

- Move the window pane to the correct height so that you can remove the screws from the socket
- As with the driver's door, disconnect all plug connections and the Bowden cable on the rear door
- Pull off the window seal
- Loosen the two screws from the window mount (Figure 42). A second person must be consulted to hold and lift out the window pane!
- Lift out the window pane

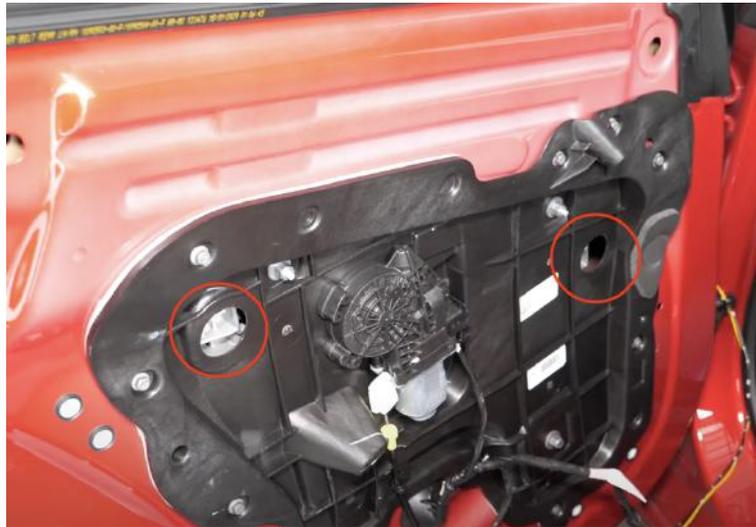


Figure 42: Screws of the window frame

- Remove the 9 screws around the edge of the plastic trim of the door (Figure 43)

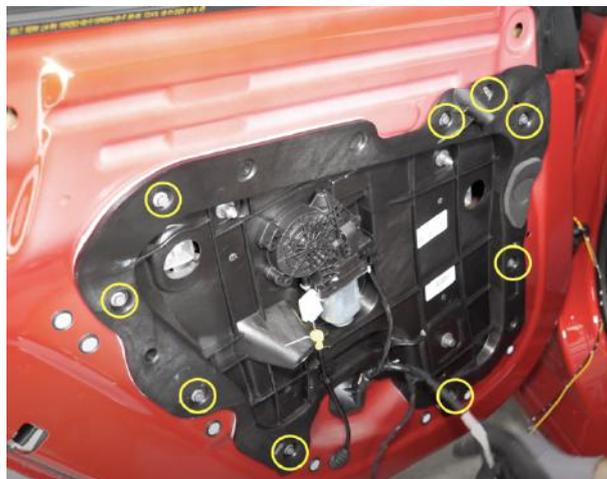


Figure 43: Screws of the plastic trim

 ATTENTION

Only the screws shown in Figure 43 may be removed, otherwise the door electronics may be damaged!

- Loosen the plastic trim and remove the plastic trim downward. The window regulator unit is connected to the plastic covering
- Loosen the three screws of the lock unit (Figure 44)

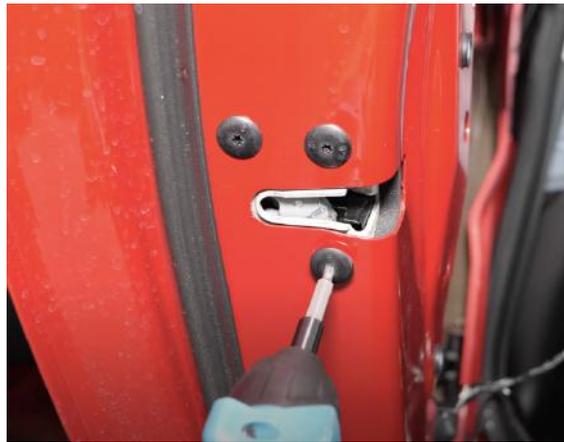


Figure 44: Screws of the lock unit

- Remove the lock unit from the door body and disconnect the connector and the Bowden cable
- Press 3 rubber plugs into the openings of the rail and remove the sticker on the back of the rail
- Release the two cable ties from the rail on the door body (Figure 45)
- Attach the rail for the rear door (Figure 45)



Figure 45: Attaching the rail to the rear door

- Screw the rail to the holes and press the cable tie clips to the rail in the slotted holes above them
- Attach the motor and plug the gray colored connector of the wiring harness into the connector of the motor (Figure 46)



Figure 46: Attaching the motor

- Disconnect the thin orange cable and insulate it
- Hook the bowden cable of the motor into the device in the lock unit

- Attach the plastic cap over the device and position the lock unit and screw it tightly
- Connect the black colored plug of the cable harness to the control unit
- Run the cables for the voltage supply through the cable conduit of the rear door and connect them to the plugs of the motor lock unit wiring harness
- Push the ends of the cable hose to the original position
- Perform a **Function test** through by leaning the door
- Also on the rear door, an incorrect position of the door can be corrected by adjusting the closing lug
- Tie the cables and connectors to the OEM cable bundle and route other cables as close to the door body as possible



Tip

Use alubutyl to tape off potential noise generating areas.

- Tie excess cable lengths together with Velcro tape
- Guide the tab of the emergency release through the bushing and set the seal in position

ATTENTION

Check the locking mechanism. To do this, lock the door using a plastic mounting lever and unlock the door using the emergency release and the door handle.

The instructions for installing the driver's door and the rear door can be completed in the same way for the passenger side.

System test

After the power supply cables have been connected to the clamping unit, an initial manual function test can be performed. To do this, the latch of the lock is pressed with a plastic mounting lever when the door is open. After an initial latching position is reached, the softclose motor pulls the latch completely closed. The door must then be opened from the inside. Press the button on the inside of the door. The latch of the lock is then pressed again and the lock is opened by the outer door handle and once with the emergency bowden cable.

If all tests have been carried out successfully, the dismantling process can be started.

ATTENTION

This test must be performed with each door before the first closing, otherwise a malfunction or incorrect installation will not be detected.

Checklist

After wiring:

- All plugs are connected
- The cables and plugs in the door are tied together with Velcro/cable ties and fastened with Alubutyl
- The nut on the 12V source in the driver's compartment is tightened
- The ground is tapped on the driver's side and passenger side
- The connectors of the ground and power supply are isolated
- The clamping unit and the control unit are securely fastened

Attaching the door panel:

- The windows are screwed tight and positioned correctly
- All plugs on the door panels are connected
- The clamps of the door panels are all engaged

System test:

- Door opener, window regulator, loudspeaker and door lock are working
- The windows can be raised and lowered without any problems
- All doors close with the softclose mechanism
- The emergency bowden cable works

Deconstruction:

- All routed cables are located underneath the panels and are not visible
- All fairings are attached and fastened

Deconstruction

Front doors:

- Guide the wiring harness through the opening of the plastic cover
- Position the plastic trim and pull the window regulator unit locking clip into the plastic trim until it snaps into place
- Fasten the plastic trim with the 12 screws
- Screw the window regulator unit into the plastic casing
- Attach the clamps of the wiring harness to the plastic casing
- Connect all plug connections
- Carefully replace the window pane and screw the two screws into the socket. Make sure that the screws are not tightened too much (5 - 7 Nm). Carefully lean the door and check whether the window pane is correctly positioned horizontally and adjust if necessary

ATTENTION: Do not close the door before checking the position of the window pane

- Move the window to the lowest and then to the highest position. Make sure that the window is not blocked
 - Also note that the window pane does not hit the door frame when closing and, if necessary, adjust the position of the window panes
 - Close the openings of the plastic casing with the rubber seals
 - Replace the seal of the window pane
 - Put the Bowden cable back into the door panel and check its function
 - Connect all plugs of the door panel
 - Hook the door panel at the upper end, position the door panel and press the door panel against the door body so that the clamps snap into place
 - Connect the connector of the loudspeaker and reinsert it
 - Screw in the 3 screws securing the door panel again and insert the reflector
-

Rear doors:

- Place the plastic trim together with the window regulator unit into the door body and screw the plastic trim back to the door body
- Connect the connector of the window regulator motor
- Carefully replace the window pane and screw the two screws into the socket. Make sure that the screws are not tightened too much (5 - 7 Nm). Carefully lean the door and check whether the window pane is correctly positioned horizontally and adjust if necessary

ATTENTION: Do not close the door before checking the position of the window pane

- Also note that the window pane does not hit the door frame when closing and, if necessary, adjust the position of the window panes
- Replace the window seal
- Move the window pane to the lowest and then to the highest position. If the window pane is not blocked, you can continue with the dismantling process
- Connect all plugs of the door panel
- Hook the door panel at the upper end and press the clamps in until they snap into place
- Fasten the door panel to the door body with both screws