



Introduction

The Tesla Model X (2021+) is equipped with an event data recorder (EDR). The EDR records data related to vehicle dynamics and safety systems when the system senses a crash or a crash-like situation, such as hitting a road obstacle. This data is stored in the vehicle’s Restraints Control Module (RCM).

This guide describes how to retrieve EDR data from a Tesla Model X (2021+) RCM.

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This guide and other Tesla EDR information can be found at <https://edr.tesla.com>.

There are two methods for connecting to the RCM:

1. In-vehicle connection, in which you connect to the RCM using in-vehicle wiring and the Tesla In-Vehicle EDR Retrieval Cable without removing the RCM from the vehicle. An in-vehicle connection may not be possible if the vehicle has extensive damage. If an in-vehicle connection can be established, data is retrieved with less vehicle disassembly than when using a direct-to-module connection. For more information about in-vehicle retrieval, refer to “Establish an In-Vehicle Connection,” on page 3.
2. Direct-to-module connection, in which you directly access and connect to the RCM using the Tesla Direct-To-Module EDR Retrieval Cable. To establish a direct-to-module connection, you must remove some vehicle components to allow direct physical access to the RCM. Once you have direct access to the RCM, you can leave the RCM in the vehicle and retrieve data or you can remove the RCM from the vehicle before retrieving data. For more information about direct-to-module retrieval, refer to “Establish a Direct-to-Module Connection,” on page 7.

Tools Required

To retrieve the data from the RCM, you will need the following special tools:

- PCAN-USB Adapter
- A Windows computer running the Tesla EDR Retrieval Program, which you can download at <https://edr.tesla.com/download>
- An appropriate data retrieval cable:

Retrieval Method	Required Cable	
In-vehicle connection	Tesla In-Vehicle EDR Retrieval Cable. Tesla part number 1131144.	
Direct-to-module connection	Tesla Direct-To-Module EDR Retrieval Cable. Tesla part number 1492139.	

Table 1. Retrieval cable requirements

Required cables and software are available at <https://edr.tesla.com>.

Establish an In-Vehicle Connection

1. Remove the console back panel assembly:
 - a. Pull the console downward.



Figure 1. Detach the console

- b. Disconnect the clips and datums (6x clips, 7x datums).
NOTE: Disengage bottom clips last and pull rearward due to alignment.

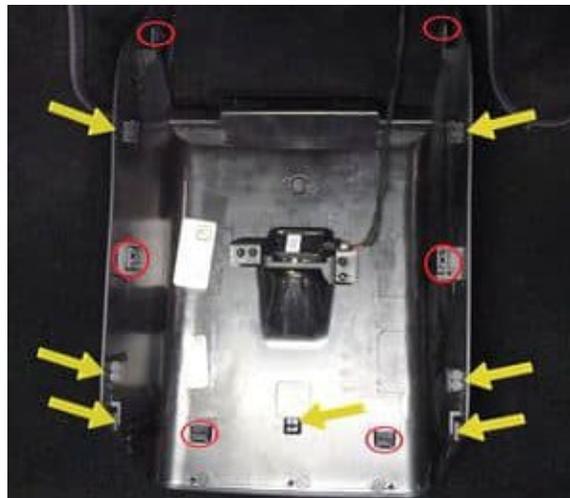


Figure 2. Console back panel assembly clips and datums

- c. Remove the console back panel assembly connector (1x connector).



Figure 3. Console back panel assembly connector

- 2. Release the phone dock.

- a. Release 4x clips and 2x datums, then pull up at the bottom and swing the phone dock out from under the instrument panel.

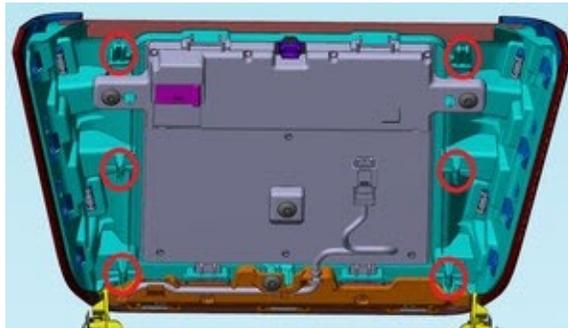


Figure 4. Phone dock fasteners



Figure 5. Releasing the phone dock

- b. Remove the phone dock connectors (1x clip and 3x connectors).



Figure 6. Releasing the phone dock wire clip

NOTE: Carefully release the connector lock before pulling the connector straight out of the socket to avoid damage.



Figure 7. Releasing the phone dock connectors

3. Release the IP service panel (4x tabs and 2 datums).



Figure 8. Removing the IP service panel



Figure 9. Removing the IP service panel

4. Release the diagnostic and CAN harnesses from the IP service panel (2x clips).
5. Locate the rectangular vehicle communication harness under the touchscreen, gently pull it toward you.



Figure 10. Moving the vehicle communication harness into position

6. Connect the In-Vehicle EDR Retrieval Cable to the connector. (Refer to “Table 1. Retrieval cable requirements,” on page 2 for more information about the required cable for your vehicle.)

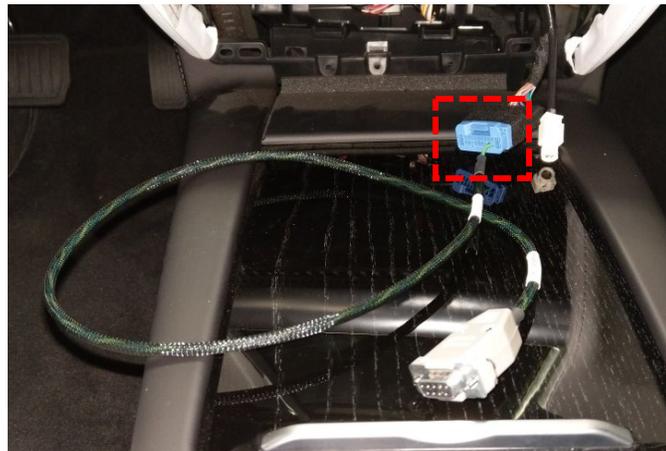


Figure 11. Moving the vehicle communication harness into position

7. Connect the other end of the In-Vehicle EDR Retrieval Cable to the PCAN-USB adapter.

8. Connect the PCAN-USB adapter to the computer used for retrieval.

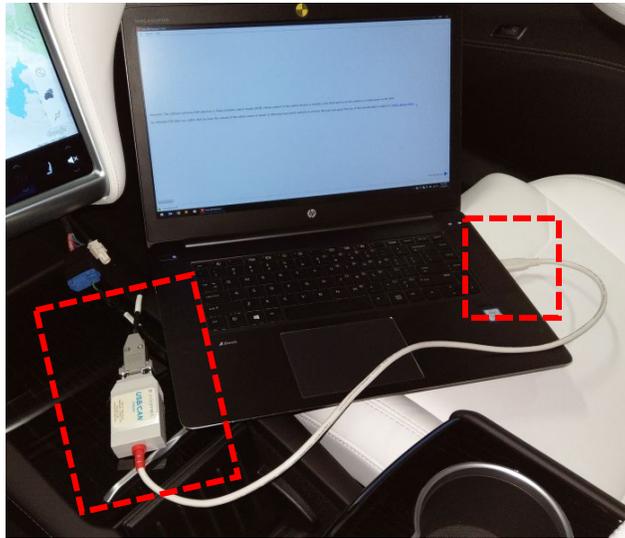


Figure 12. Computer connected to the in-vehicle EDR retrieval cable to the PCAN-USB adapter

9. Place the key-fob inside of the vehicle and press the brake pedal, which should result in the instrument cluster turning on.
 - If successful, proceed to “Retrieve Data” on page 29.
 - If the instrument cluster does not turn on, perform the procedure described in “Using External Power for the RCM” on page 26.

Establish a Direct-to-Module Connection

If the In-Vehicle Connection procedure is unsuccessful, you might be able to connect to the RCM directly, and establish a direct-to-module connection. The RCM is located under the center console and slightly forward of where the front row seats are mounted.

NOTE: In Figure 13 (below) components have been removed to aid clarity.

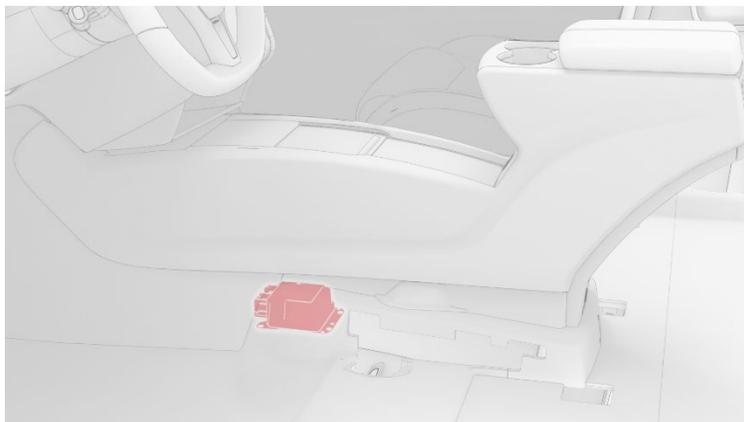


Figure 13. Model X (2021+) RCM location

The RCM can be left in the vehicle, but if necessary it can be removed from the vehicle:

- For information on making a direct connection with the RCM while it is still in the vehicle, see “RCM Direct Connection (RCM In Vehicle),” on page 8.
- For information on making a direct connection with the RCM after it has been removed from the vehicle, see “RCM Direct Connection (RCM Removed From Vehicle),” on page 23.

RCM Direct Connection (RCM In Vehicle)

To connect to the RCM while it is still in the vehicle:

1. Open all four doors.
2. Move both seats fully forward.
3. Remove the console back panel assembly:
 - a. Pull the console downward.



Figure 14. Detach the console

- b. Disconnect the clips and datums (6x clips, 7x datums).

NOTE: Disengage bottom clips last and pull rearward due to alignment.

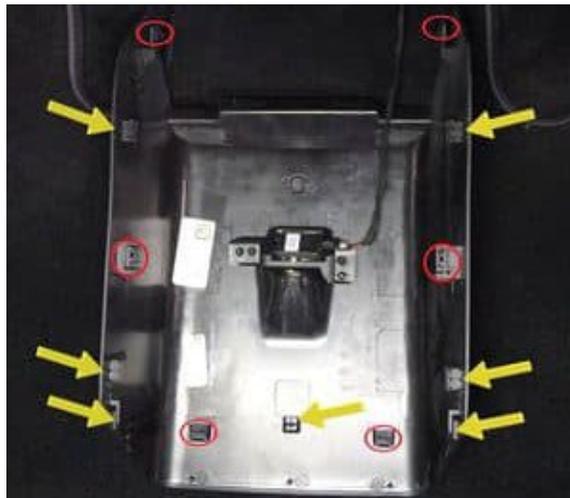


Figure 15. Console back panel assembly clips and datums

- c. Remove the console back panel assembly connector (1x connector).



Figure 16. Console back panel assembly connector

4. Remove both the LH and the RH rear console carrier bolts (x2 bolts).



Figure 17. Console carrier bolt (LH)



Figure 18. Console carrier bolt (RH)

5. Move both seats fully towards the rear of the vehicle.

6. Release the phone dock.

- a. Release 4x clips and 2x datums, then pull up at the bottom and swing the phone dock out from under the instrument panel.

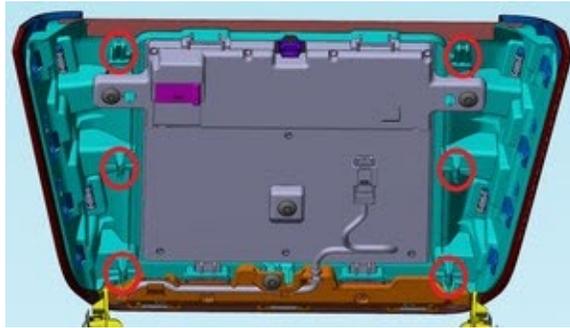


Figure 19. Phone dock fasteners



Figure 20. Releasing the phone dock

- b. Remove the phone dock connectors (1x clip and 3x connectors).



Figure 21. Releasing the phone dock wire clip

NOTE: Carefully release the connector lock before pulling the connector straight out of the socket to avoid damage.

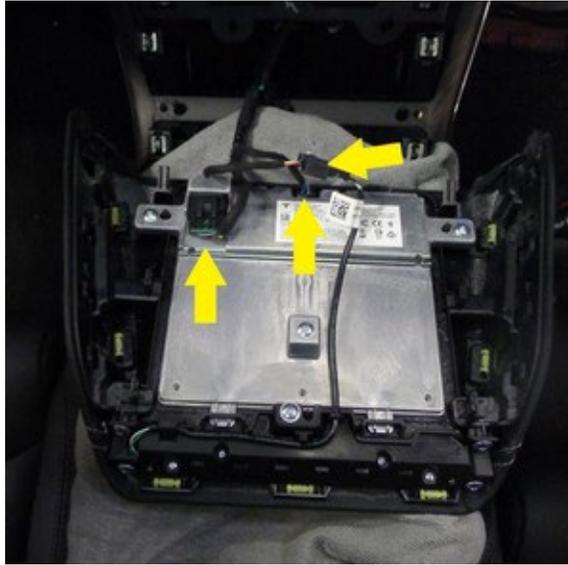


Figure 22. Releasing the phone dock connectors

7. Release the IP service panel (4x tabs and 2 datums).



Figure 23. Removing the IP service panel



Figure 24. Removing the IP service panel

8. Release the diagnostic and CAN harnesses from the IP service panel (2x clips).



Figure 25. Releasing the diagnostic and CAN harnesses

9. Release the IP service panel (1x connector).



Figure 26. Releasing the IP service panel

10. Remove both the LH and RH floor mats from the vehicle.
11. Remove the LH outboard footwell cover (2x magnets and 2x datums).



Figure 27. Releasing the LH outboard footwell

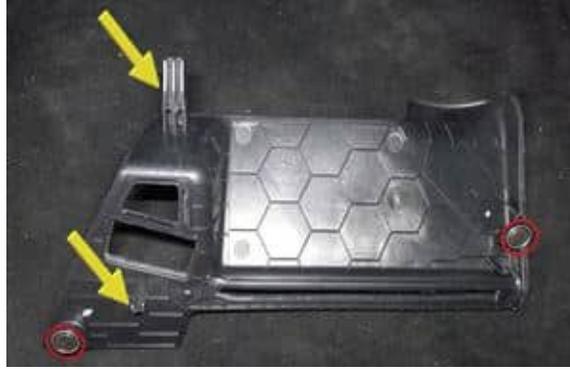


Figure 28. Releasing the LH outboard footwell

12. Remove the LH inboard footwell cover (1x cover, 1x clip, 1x screw, and 1x datum).



Figure 29. Releasing the LH inboard footwell



Figure 30. Releasing the LH inboard footwell



Figure 31. Releasing the LH inboard footwell

13. Remove the LH console side carpet (11x clips and 2x datums).



Figure 32. Releasing the LH console side carpet

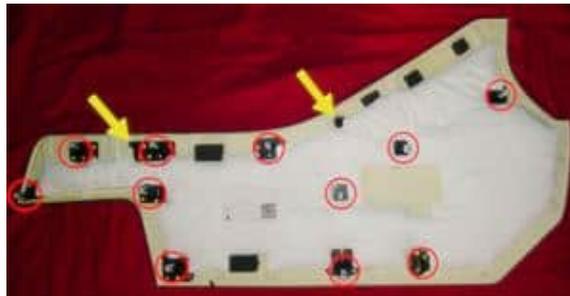


Figure 33. Releasing the LH console side carpet

14. Release the LH center console lower bracket from the IP carrier (1x bolt)



Figure 34. Releasing the LH center console lower bracket

15. Remove the RH footwell cover (3x magnets, 1 connector, and 4x datums).

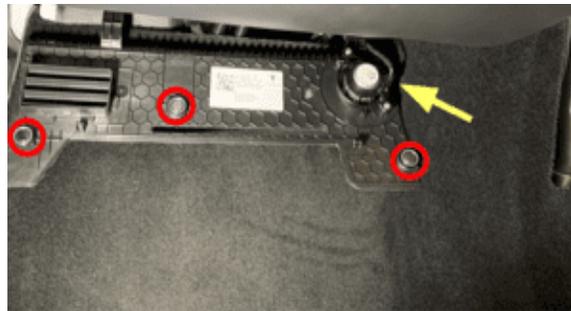


Figure 35. Releasing the RH footwell

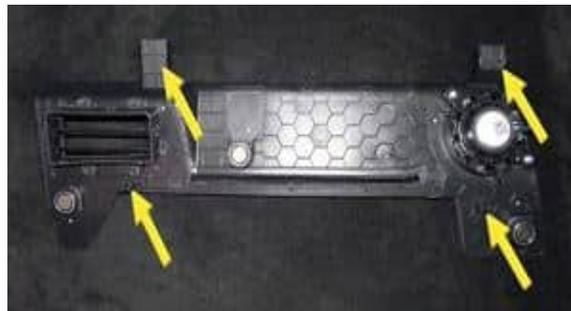


Figure 36. Releasing the RH footwell

16. Remove the RH console side carpet (11x clips and 2x datums).



Figure 37. Releasing the RH console side carpet



Figure 38. Releasing the RH console side carpet

17. Release the RH center console lower bracket from the IP carrier (1x bolt).



Figure 39. Releasing the RH center console lower bracket

18. Release center console connectors to body harness (4x connectors).



Figure 40. Releasing the center console connectors

19. Release the console carrier center bracket (2x bolts).



Figure 41. Releasing the console carrier center bracket (LH side)



Figure 42. Releasing the console carrier center bracket (RH side)

20. Fully recline both seats.

21. Remove the console assembly:

NOTE: Request assistance to remove the console from the vehicle.

- a. Lift the rear of the console.
- b. Rotate the front of the console from under the instrument panel.
- c. Remove the console from the vehicle through the passenger door.

NOTE: Take care not to scratch seats, instrument panel, or inner door panel.



Figure 43. Releasing the LH console side carpet

- d. Place the console onto a padded surface.

22. Remove the center console HVAC duct (1x brush clip).



Figure 44. Center console HVAC duct



Figure 45. Center console HVAC duct



Figure 46. Center console HVAC duct

23. Disconnect the LV (12V) power.

NOTE: After disconnecting LV power, the rear doors and liftgate are inoperable. Open any necessary closures before proceeding.

WARNING: If the 12V power supply is disconnected, do not attempt to open the front doors with door glass in closed position. Failure to follow this instruction could result in door glass shatter.

- a. Open the front trunk using the center display (Controls > Frunk Trunk).
- b. Power off vehicle using center display (**Controls > Safety & Security > Power Off**).
- c. Remove the underhood apron (11x clips and 2 datums).



Figure 47. Removing the underhood apron

- d. If the vehicle is charging, remove the charge cable.
- e. Locate the LV battery connector.



Figure 48. LV battery connector

- f. Lift up and release the green locking tab, then pull the black connector lock outwards to disconnect the LV battery.

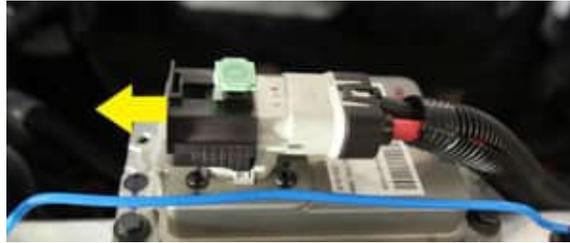


Figure 49. LV battery connector

- g. Release the red lock tab on the first responder loop.



Figure 50. First responder loop

⚠ CAUTION: Do not cut the first responder loop.

- h. Wait at least 2 minutes for all electrical circuits to fully discharge.

⚠ CAUTION: Ensure that the first responder loop has been disconnected for at least 2 minutes.

- 24. Locate the RCM under the HVAC duct support.



Figure 51. Disconnect the RCM connectors

25. Disconnect the RCM harness connectors (x2) by pressing the lock tab in while pivoting the retention latch toward the outside of the vehicle. (When an audible click is heard, the catch release is fully disengaged.).

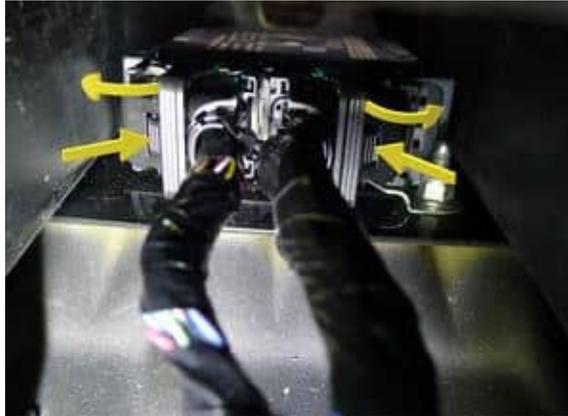


Figure 52. Disconnect the RCM connectors

26. Connect the Tesla Direct-To-Module EDR Retrieval Cable to the RCM.
27. Connect the Tesla Direct-To-Module EDR Retrieval Cable to the PCAN-USB adapter.



Figure 53. Connecting the EDR retrieval cable to the PCAN

28. Connect the PCAN-USB adapter to the computer used for data retrieval.



Figure 54. Connecting the PCAN to the computer

29. Connect 12V power to the Tesla Direct-To-Module EDR Retrieval Cable.

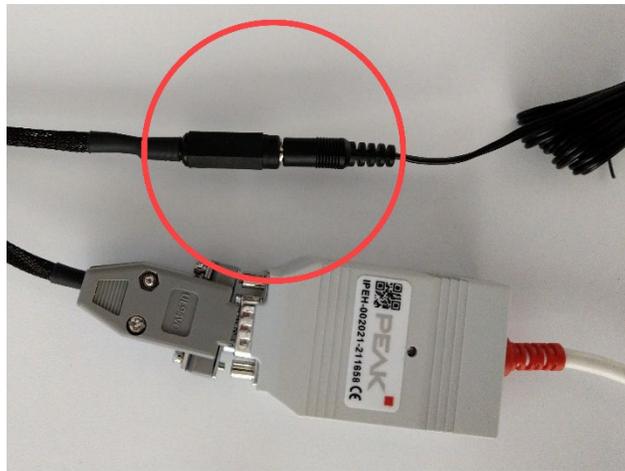


Figure 55. Connecting 12V power to the EDR retrieval cable

30. Proceed to "Retrieve Data" on page 29 to complete the data retrieval procedure.

RCM Direct Connection (RCM Removed From Vehicle)

To make a direct connection to the RCM, complete the following steps:

1. Remove the center console, and HVAC outlet duct. See steps 1 through 25, on pages 8 through 21.
2. Remove the bolts (3) that secure the RCM to the body (torque 10 Nm).

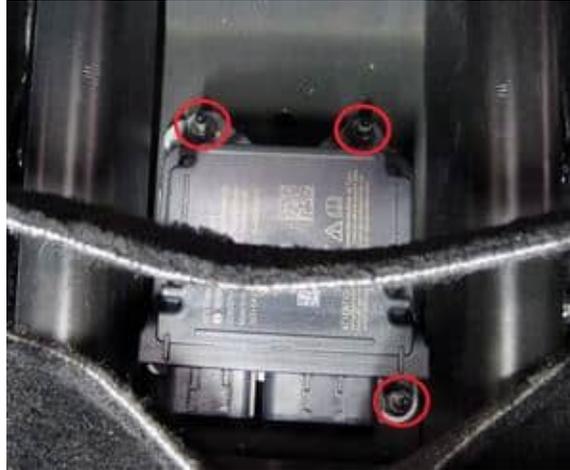


Figure 56. RCM mounting bolts

NOTE: If necessary, carefully peel back the carpeting to gain access to the bolts.

3. Remove the RCM from the vehicle and place it on a stable surface.



Figure 57. RCM removed from the vehicle

4. Connect the Tesla Direct-To-Module EDR Retrieval Cable to the RCM.

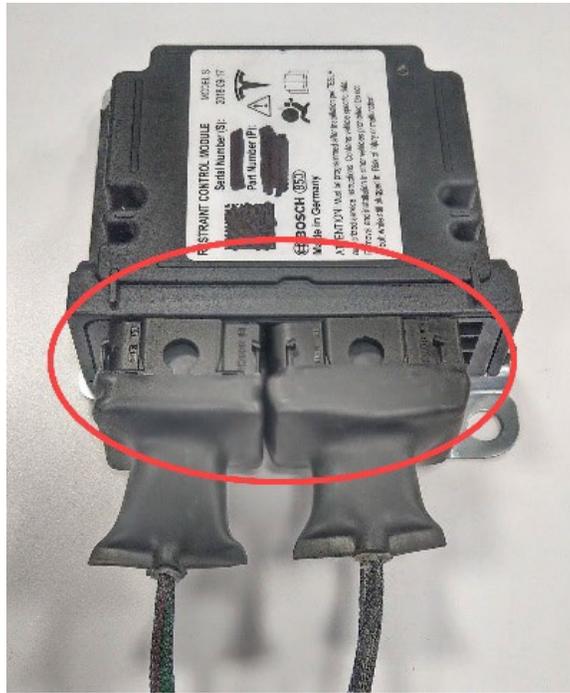


Figure 58. Connecting the EDR Retrieval Cable to the RCM 1/4

5. Connect the Tesla Direct-To-Module EDR Retrieval Cable to the PCAN-USB adapter.



Figure 59. Connecting the EDR retrieval cable to the PCAN

6. Connect the PCAN-USB adapter to the computer used for data retrieval.

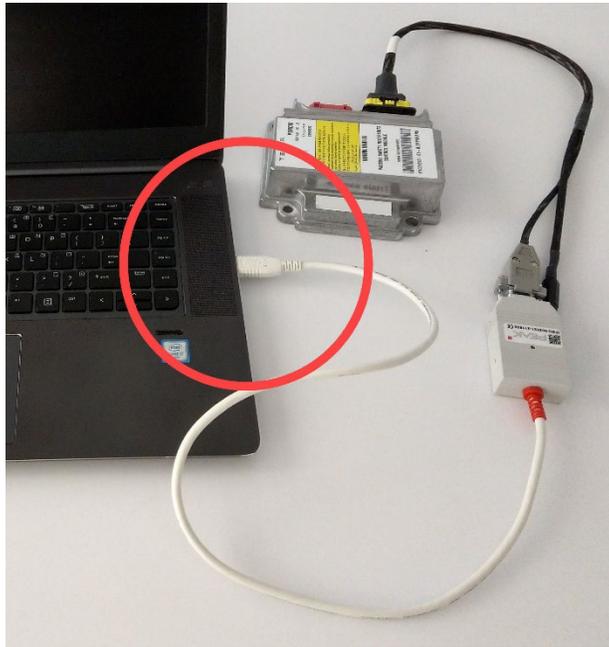


Figure 60. Connecting the PCAN to the computer

7. Connect 12V power to the Direct-To-Module EDR Retrieval Cable.

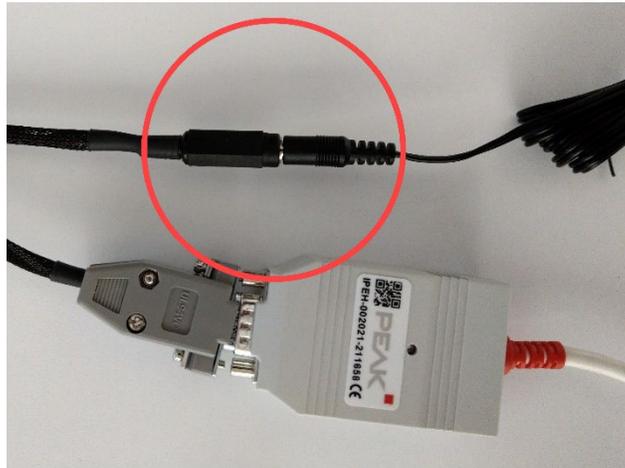


Figure 61. Connecting 12V power to the EDR retrieval cable

8. Proceed to “Retrieve Data” on page 29 to complete the data retrieval procedure.

Using External Power for the RCM

Externally powering the RCM refers to applying power to the RCM via the vehicle's "first responder's loop," located in the front trunk. This procedure can be used if a key-fob is not available, 12V DC power is not available to the vehicle system, or the vehicle is otherwise unable to turn on.

NOTE: This procedure requires an external source of 12V power.

WARNING: Follow all manufacturer's instructions for safe use of the external 12V power source.

1. Open the front trunk by using one of the following methods:
 - The touchscreen: touch **Controls > Front Trunk**.



Figure 62. Opening the front trunk using the touchscreen

- The key fob: double click the front trunk button on the key fob.

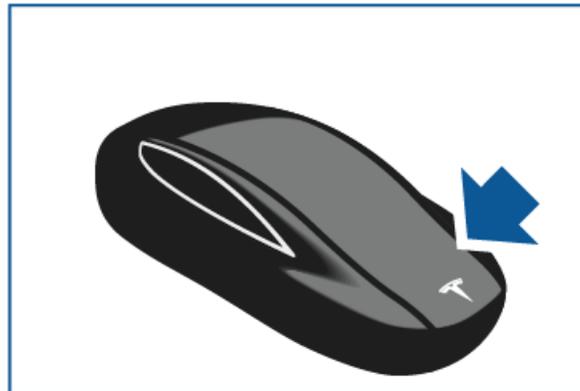


Figure 63. Opening the front trunk using the key fob

- The manual release straps (only needed if the vehicle does not have 12V power):
 - a. Locate the tow eye cover.

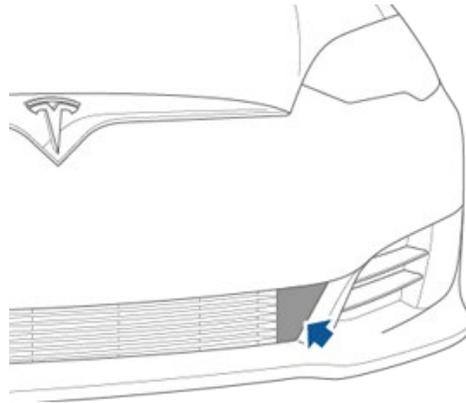


Figure 64. Tow eye cover location

- b. Insert a small flat screwdriver into the slot along the top of the cover, then pry gently to release the cover from the top snap.

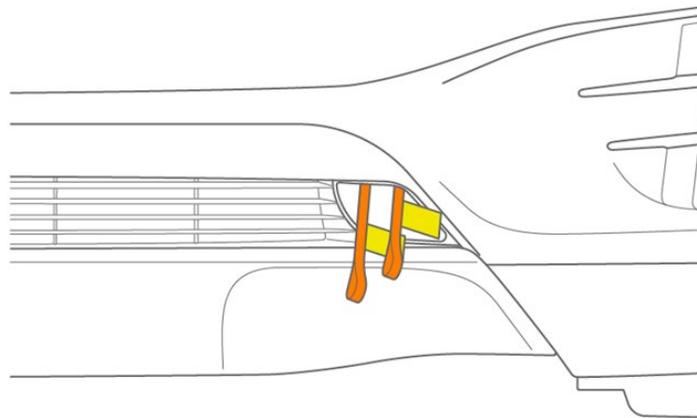


Figure 65. Primary and secondary latch cables location

Once the tow eye cover has been removed, the latch release straps are accessible. These straps are labeled A for the primary latch and B for the secondary latch.

- c. Pull strap A to open the primary latch, then strap B to open the secondary latch.

2. Remove the first responder loop access panel by pulling its rear edge upward to release the clips that hold it in place. Maneuver the access panel toward the windshield to remove it from the vehicle.



Figure 66. Opening the first responder access panel

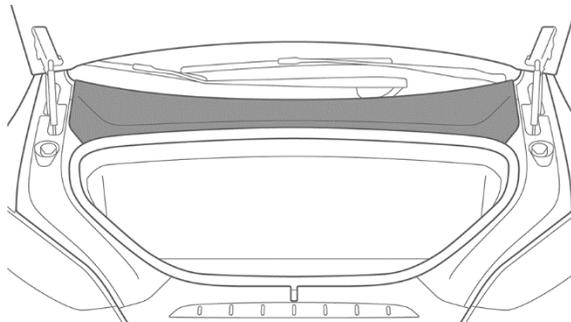


Figure 67. Removing the first responder access panel

3. Disconnect the first responder loop harness.



Figure 68. Disconnecting the first responder loop harness

⚠ CAUTION: Do not cut the first responder loop.

⚠ WARNING: Wait at least 2 minutes for all electrical circuits to fully discharge.

4. Connect the negative terminal of the external 12V power source to the vehicle chassis.

5. Connect the positive terminal of the 12V source to pin 3 of the first responder harness. See the diagram below to identify pin 3.



Figure 69. Connector pin layout

6. Proceed to the “Retrieve Data” section of this document to complete data retrieval.

Retrieve Data

1. Open the Tesla EDR Retrieval Program. The program automatically attempts to connect to the RCM.
 - When connected properly, a green circle and the message “Connected to RCM” displays on the bottom left corner of the window (see Figure 70. EDR program successful connection).

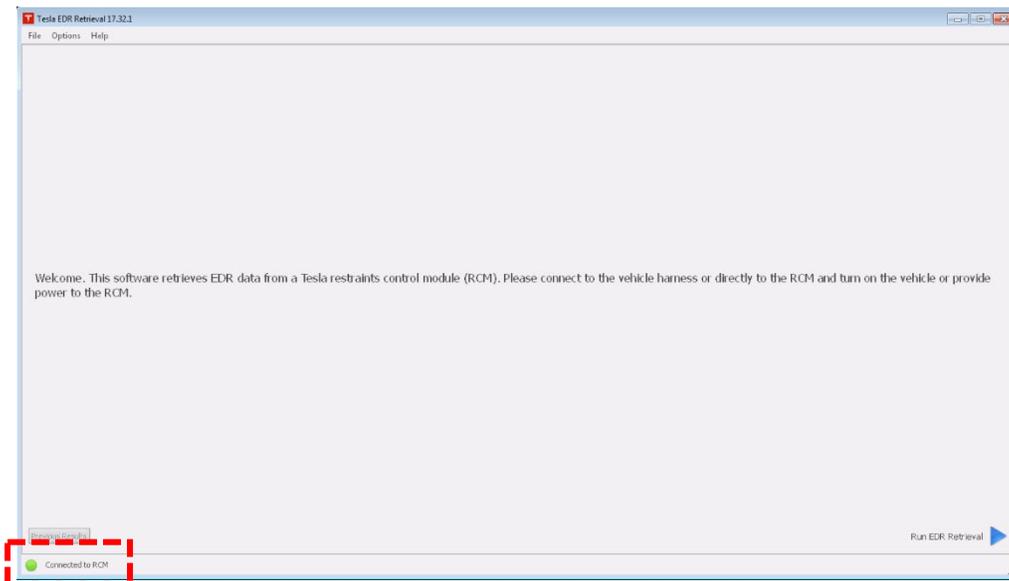


Figure 70. EDR program successful connection

- If the Tesla EDR Retrieval Program is not communicating with the PCAN-USB adapter, a message displays “Not Connected to PCAN”

Check the connection to the PCAN-USB adapter.

- If the Tesla EDR Retrieval Program is communicating with the PCAN-USB adapter, but is not communicating with the RCM, a message displays “Not Connected to RCM.”

Check the connection to the vehicle harness and the vehicle power. If a successful connection through the vehicle communication system cannot be achieved, connect to the RCM using the procedure described in “Establish a Direct-to-Module Connection” on page 7.

2. Once connected to the EDR, click “Run EDR Retrieval” and follow the on-screen prompts to retrieve and save EDR data.



Figure 71. Retrieving data using the Tesla EDR retrieval program

The retrieved *.edr data file can be used to generate a Tesla EDR Report at <https://edr.tesla.com>.

For Further Assistance

For technical support, please contact the exclusive Tesla EDR hardware distributor, Crash Data Group:

Email: crash@crashdatagroup.com

Phone: (951) 252-9254

Toll Free: (800) 280-7940