Introduction

The Tesla Model S (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 the RCM of a Tesla Model S (2021+).

Contents

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, which allows you to connect to the RCM without removing it 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, which requires that you physically remove the RCM from the vehicle, then connect to it and retrieve the data. Refer to the "Direct-to-module connection" section of Table 1. EDR Data Retrieval Cable requirements for more information about the required cable. For more information about direct-to-module retrieval, refer to "Establish a Direct-to-Module Connection," on page 6.

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. EDR Data Retrieval Cable requirements

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

Establish an In-Vehicle Connection

1. Release the phone dock.

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

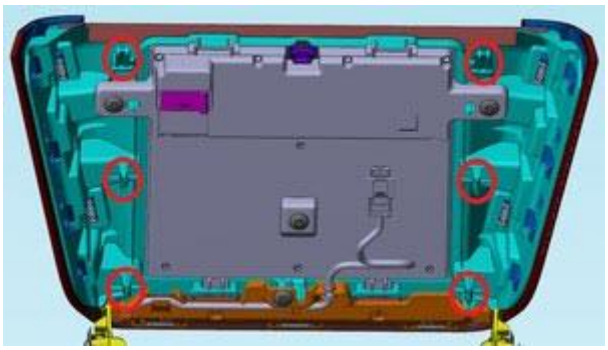

Figure 1. Phone dock fasteners

Figure 2. Releasing the phone dock

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

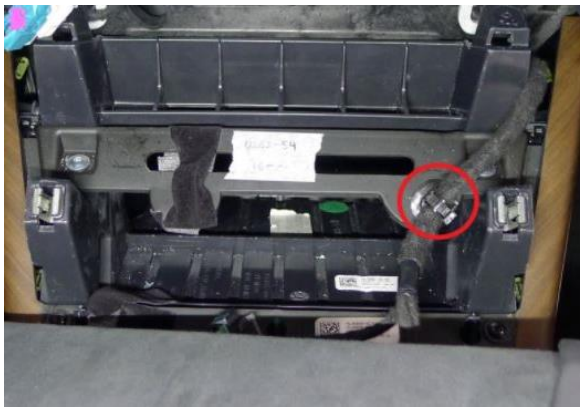

Figure 3. Releasing the phone dock wire clip

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

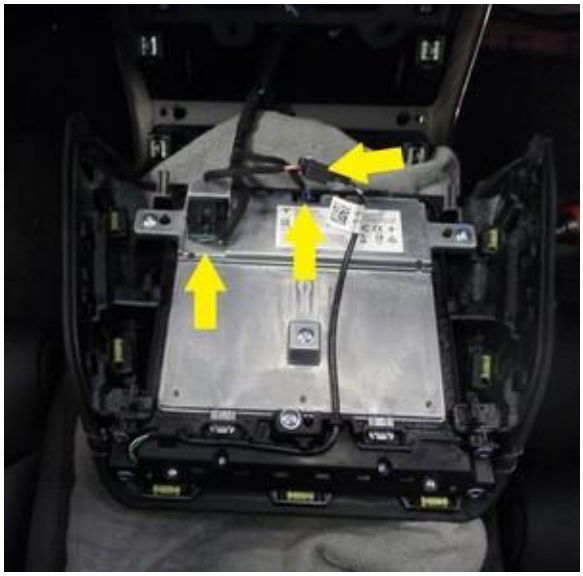

Figure 4. Releasing the phone dock connectors

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

Figure 5. Removing the IP service panel

Figure 6. Removing the IP service panel

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

Figure 7. Releasing the diagnostic and CAN harnesses

5. Connect the appropriate In-Vehicle EDR Retrieval Cable (refer to “Table 1. EDR Data Retrieval Cable requirements,” on page 2 to find the required cable for your vehicle).

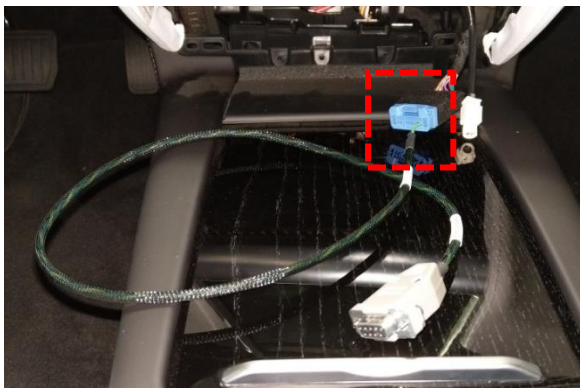

Figure 8. Moving the vehicle communication harness into position

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

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

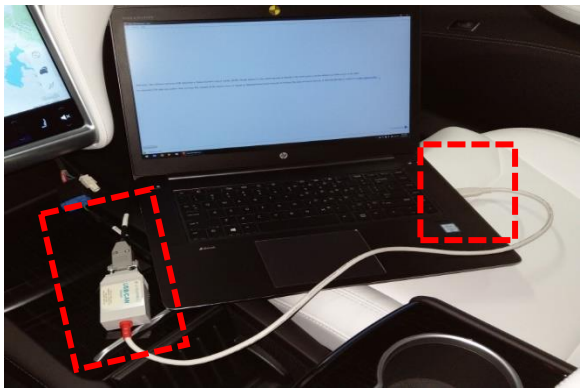

Figure 9. Computer connected to the in-vehicle EDR retrieval cable to the PCAN-USB adapter

8. 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 22.
   - If the instrument cluster does not turn on, perform the procedure described in “Using External Power for the RCM” on page 20.

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 forward of the center console, below the instrument panel and center screen.

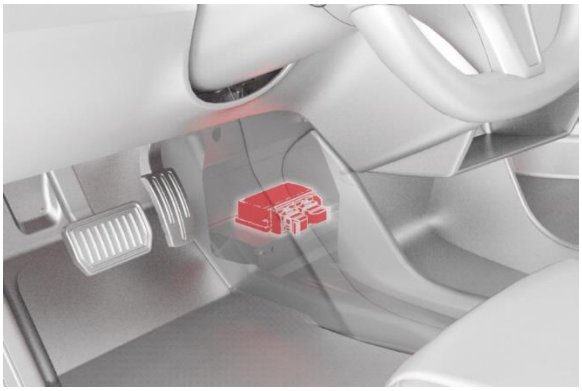

Figure 10. Model S (2021+) RCM location

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 Model S, see “RCM Direct Connection (RCM In Vehicle),” on page 7.

- For information on making a direct connection with the RCM after it has been removed from the Model S, see “RCM Direct Connection (RCM Removed From Vehicle),” on page 12.

RCM Direct Connection (RCM In Vehicle)

To connect to the RCM while it is still in the Model S:

1. Move the LH seat fully to the rear.
2. Open the front trunk using the center display (**Controls > Frunk Trunk**).
3. Power off vehicle using center display (**Controls > Safety & Security > Power Off**).
4. Remove the underhood apron (8x clips).

Figure 11. Removing the underhood apron

5. Disconnect the 12V battery connector (1) and the First Responder Loop (2).

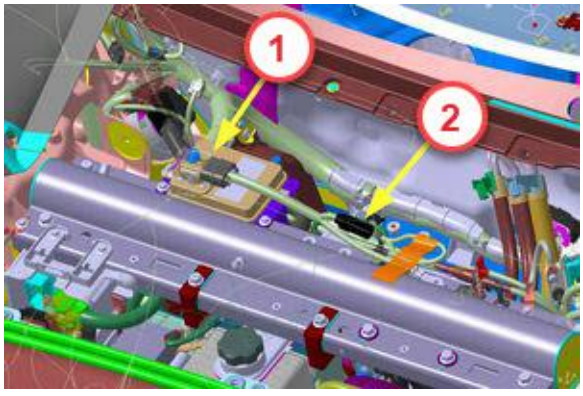

Figure 12. 12V battery connector and First Responder Loop location

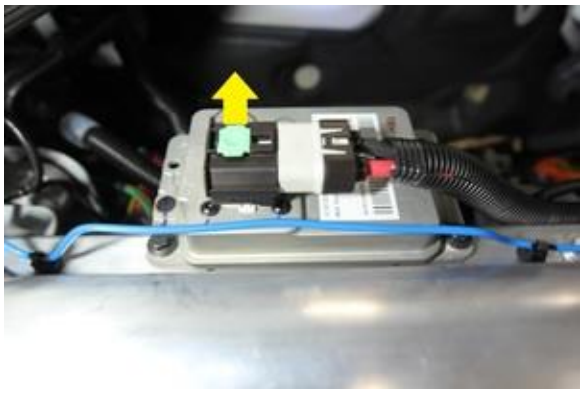

Figure 13. Unlocking the 12V battery connector

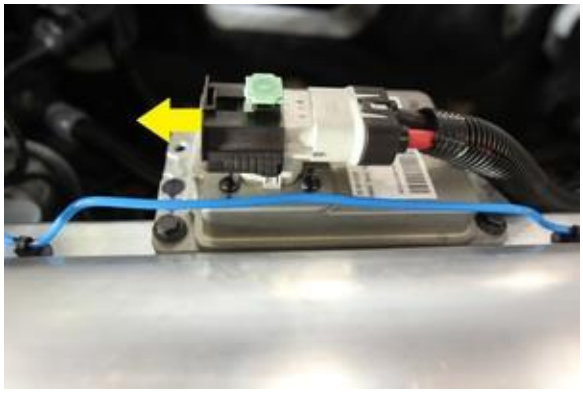

Figure 14. Removing the 12V battery connector

Figure 15. Disconnecting the First Responder Loop

6. Remove the LH footwell cover (1x clip and 2x magnets).

Figure 16. Removing the LH footwell cover

7. Remove the LH console side carpet (11x clips).

Figure 17. Removing the console side carpet

8. Release the LH toeboard bracket from the body (2x 10 mm bolts).

Figure 18. Releasing the toeboard bracket from the body

9. Release the LH toeboard bracket from the center console (1x 10 mm bolt).

Figure 19. Releasing the toeboard bracket from the center console

10. Release the LH toeboard bracket from the IP carrier (1x 13 mm bolt).

Figure 20. Releasing the toeboard bracket from the IP carrier

11. Remove the LH toeboard bracket from the vehicle by lifting the body side of the bracket out of the slotted receptacle.

Figure 21. Removing the toeboard bracket from the vehicle

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

Figure 22. Disconnect the RCM connectors

Figure 23. Disconnect the RCM connectors

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

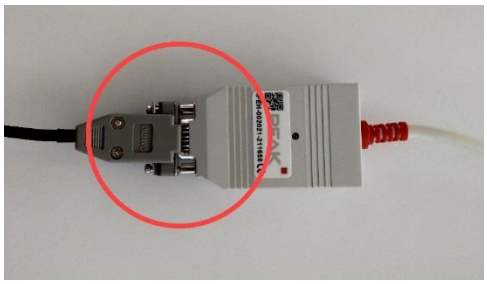

Figure 24. Connecting the EDR retrieval cable to the PCAN

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

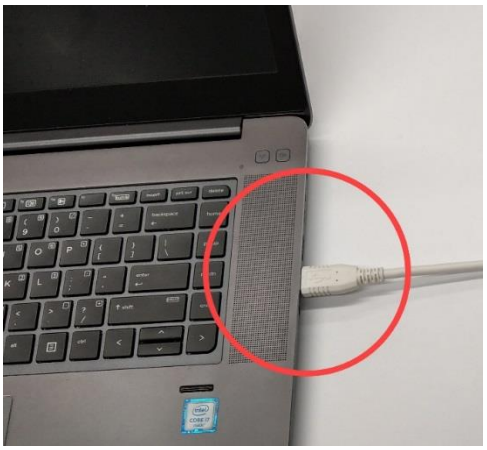

Figure 25. Connecting the PCAN to the computer

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

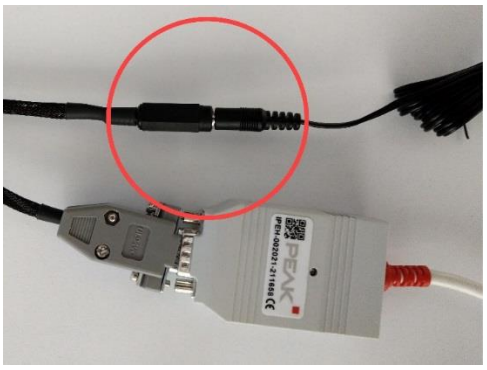

Figure 26. Connecting 12V power to the EDR retrieval cable

17. Proceed to “Retrieve Data” on page 22 to complete the data retrieval procedure.

RCM Direct Connection (RCM Removed From Vehicle)

To remove the RCM from the Model S, and make a direct connection, complete the following steps:

1. Move the LH seat fully to the rear.
2. Open the front trunk using the center display (**Controls > Frunk Trunk**).
3. Power off vehicle using center display (**Controls > Safety & Security > Power Off**).

4. Remove the underhood apron (8x clips).

Figure 27. Removing the underhood apron

5. Disconnect the 12V battery connector (1) and the First Responder Loop (2).

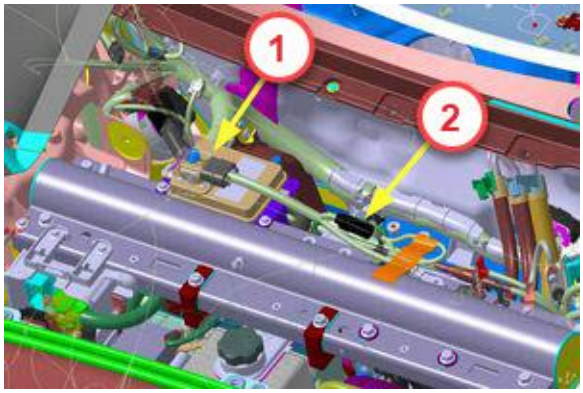

Figure 28. 12V battery connector and First Responder Loop location

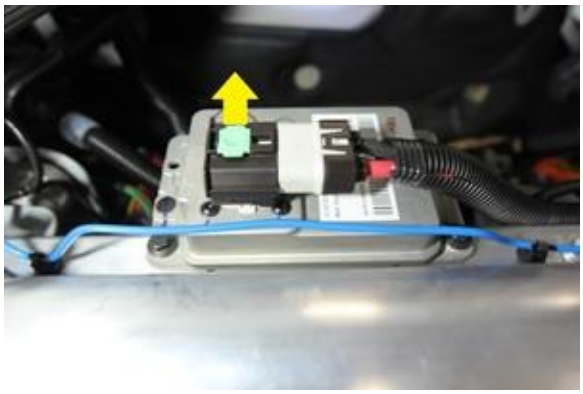

Figure 29. Unlocking the 12V battery connector

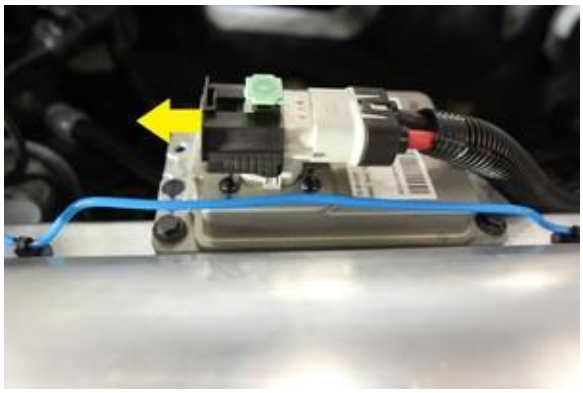

Figure 30. Removing the 12V battery connector

Figure 31. Disconnecting the First Responder Loop

6. Remove the LH footwell cover (1x clip and 2x magnets).

Figure 32. Removing the LH footwell cover

7. Remove the LH console side carpet (11x clips).

Figure 33. Removing the console side carpet

8. Release the LH toeboard bracket from the body (2x 10 mm bolts).

Figure 34. Releasing the toeboard bracket from the body

9. Release the LH toeboard bracket from the center console (1x 10 mm bolt).

Figure 35. Releasing the toeboard bracket from the center console

10. Release the LH toeboard bracket from the IP carrier (1x 13 mm bolt).

Figure 36. Releasing the toeboard bracket from the IP carrier

11. Remove the LH toeboard bracket from the vehicle by lifting the body side of the bracket out of the slotted receptacle.

Figure 37. Removing the toeboard bracket from the vehicle

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

Figure 38. Disconnect the RCM connectors

Figure 39. Disconnect the RCM connectors

13. Remove the 10 mm bolts (x3) that secure the passive safety restraint control module (RCM) to the body.

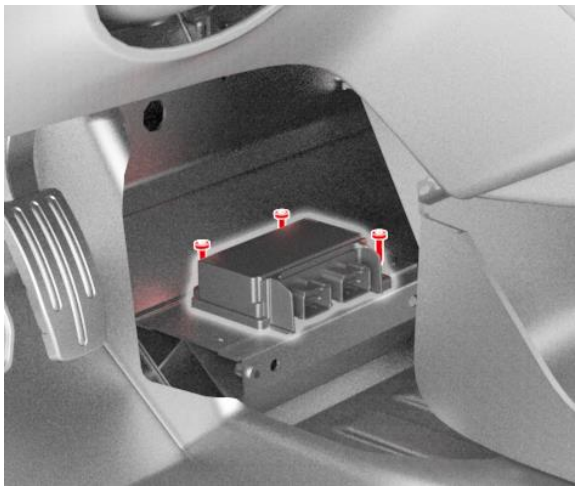

Figure 40. RCM mounting bolts

14. Remove the RCM from the Model S and place it on a stable surface.
15. Connect the Tesla Direct-To-Module EDR Retrieval Cable to the RCM.

    Attach both EDR Retrieval Cable connectors to the RCM (Figure 41). Make sure both connectors are fully seated.

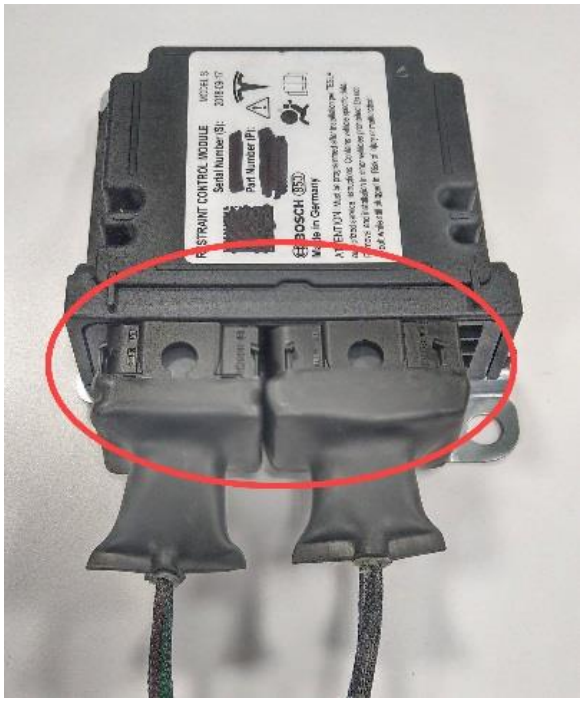

Figure 41. Connecting the EDR retrieval cable to the RCM

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

Figure 42. Connecting the EDR retrieval cable to the PCAN

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

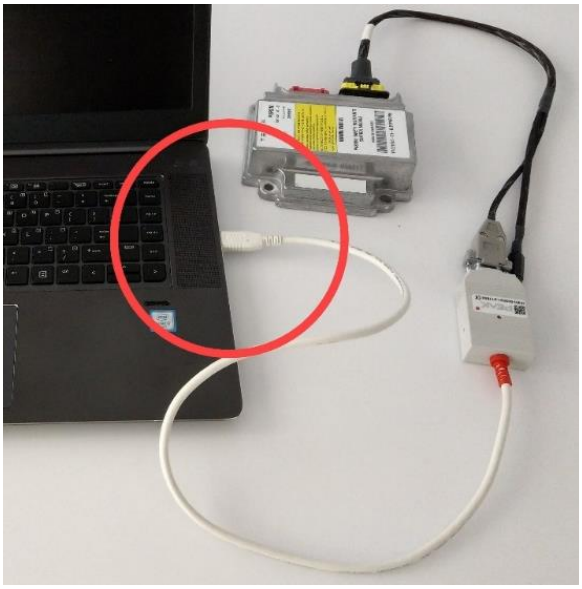

Figure 43. Connecting the PCAN to the computer

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

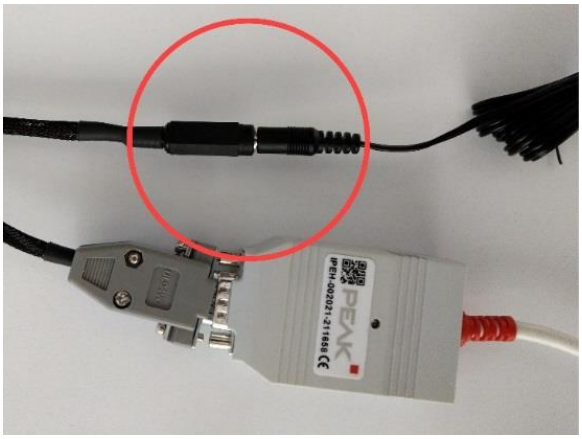

Figure 44. Connecting 12V power to the EDR retrieval cable

19. Proceed to “Retrieve Data” on page 22 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 hood by using one of the following methods:
   - The touchscreen: touch **Controls > Front Trunk**.

Figure 45. Opening the frunk using the touchscreen

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

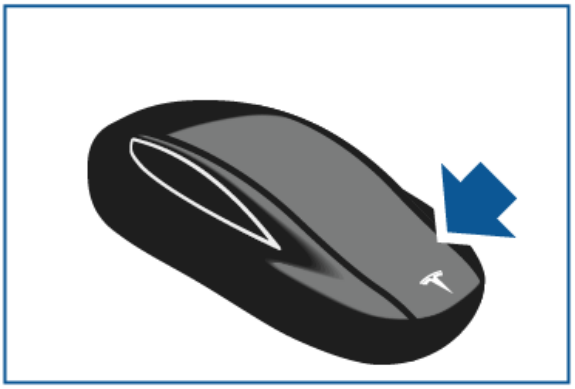

Figure 46. Opening the frunk using the key fob

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

Figure 47. Opening the first responder access panel

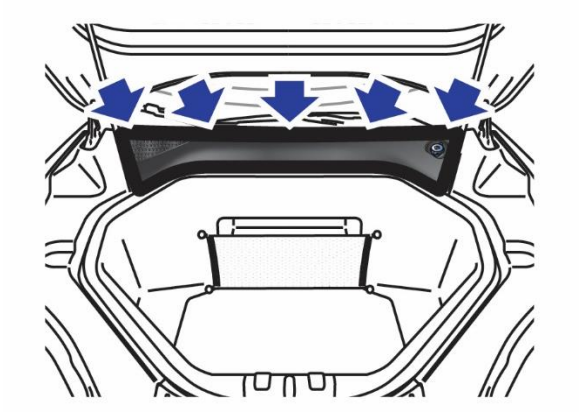

Figure 48. Removing the first responder access panel

3. Disconnect the first responder loop harness.

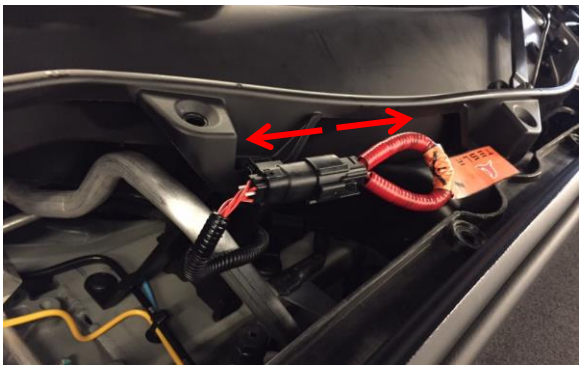

Figure 49. Disconnecting the first responder loop harness

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.

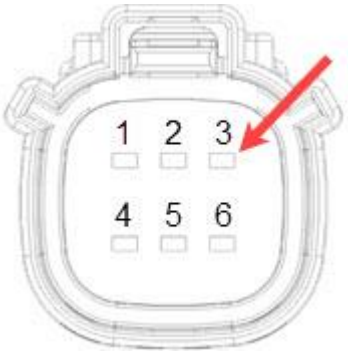

Figure 50. Connector pin layout

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 51. EDR program successful connection).

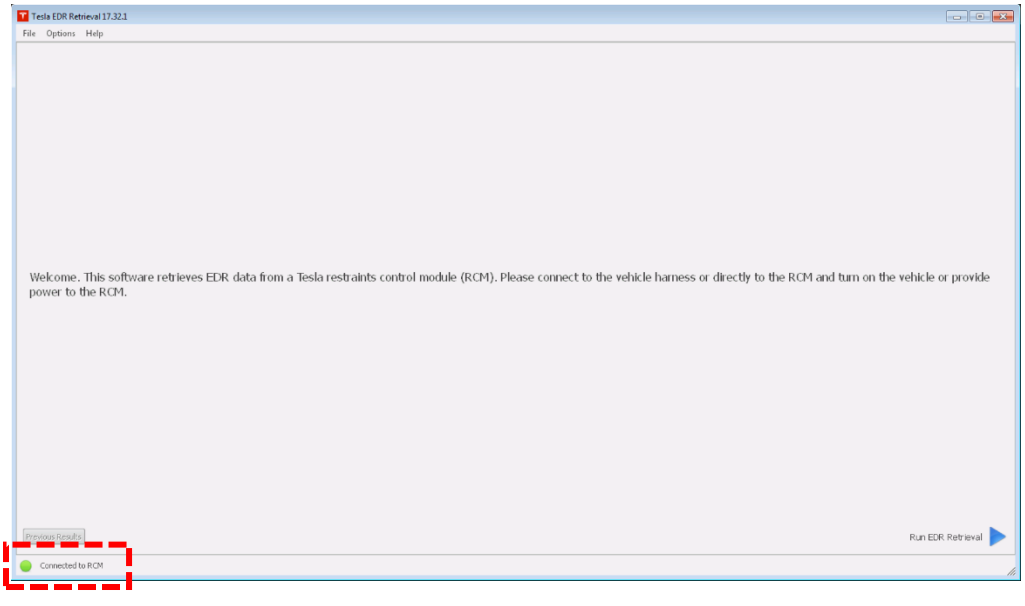

Figure 51. EDR program successful connection

- 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 6.

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

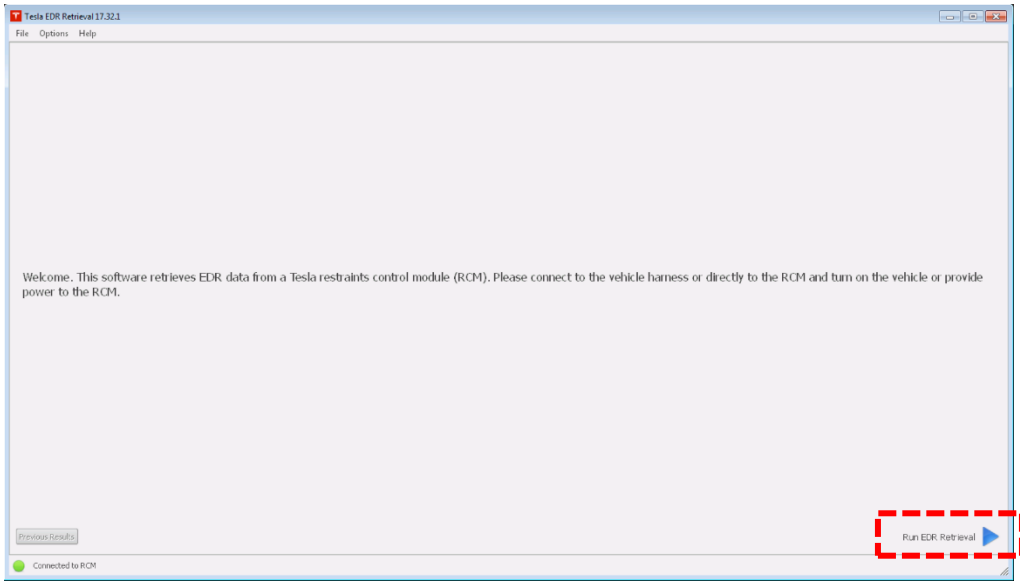

Figure 52. Retrieving data using the Tesla EDR retrieval program

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