Emergency Responder Guide

This guide is designed to assist emergency responders effectively handle a Tesla Roadster in emergency situations. The information in this guide will allow you to respond to Tesla Roadsters in a safe manner.

Tesla Roadster

Contents

Identifying a Tesla Roadster

About the Tesla Roadster 3
Distinguishing features 3
Determining model year 3

The Roadster's main components

Four main components 4
Battery Pack 4
Chassis 4
Motor and Power Electronics Module (PEM) 4

Safety Considerations

High voltage 5
The Roadster makes no noise 5
Airbags and other SRS components 5
Do not use water if the Roadster is plugged in 5

Emergency Disconnect on a 2008 Roadster

To stop all current flow 6

Emergency Disconnect on a Roadster 2

To stop all current flow 7

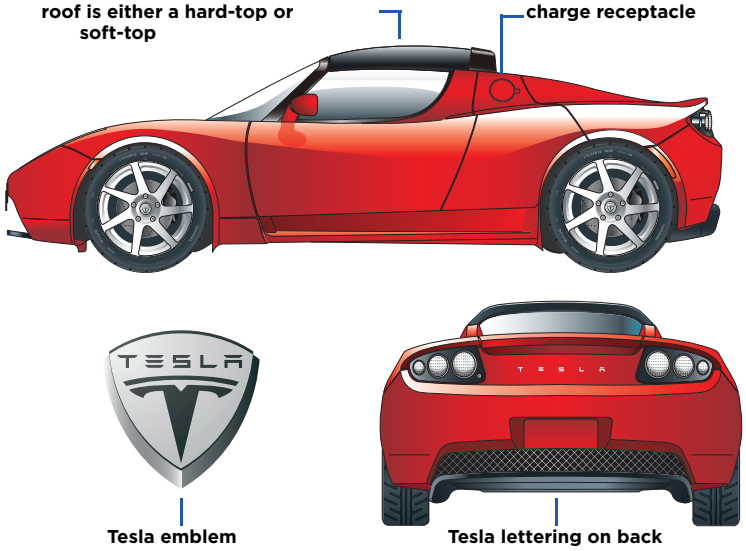
Airbags

Two airbags 8

The Roadster's Battery Pack

Description and identification 9
Substantial electrical charge 9
Fire fighting measures 9
Battery first aid 9
Battery disposal 9

Battery Materials 11



About the Tesla Roadster

The Tesla Roadster is a high-performance pure electric vehicle. It is powered by electricity stored in a large high-voltage lithium-ion Battery Pack located behind the seats. The Roadster has been designed with many features that provide you with safe access to the vehicle under various conditions. However, when approaching a high-voltage vehicle in a rescue or recovery situation, you must ASSUME THE ROADSTER HAS ELECTRICAL POWER.

Distinguishing features

The Tesla Roadster is unique and can easily be identified. A Tesla emblem is located in the front of the Roadster and in the center of each wheel. Tesla lettering is located across the back body of the Roadster, between the tail lights. An electric charge receptacle is located to the right of the driver's door—this receptacle closely resembles a fuel door in a conventional vehicle.

Determining model year

An Emergency Disconnect cable is located either in the trunk area (on a 2008 Roadster) or under the hood (on a Roadster 2).

Note: Subsequent to the 2008 Roadster, the Tesla Roadster is no longer differentiated by model year.

If you are in a situation where extensive effort is required to open the trunk and hood, you may need to determine the Roadster's model year to know where to find the Emergency Disconnect cable.

To determine the Roadster's model year, look at the 10th character of the Vehicle Identification Number (VIN). On a 2008 Roadster, the 10th character of the Vehicle Identification Number (VIN) will be the number "8," whereas on a Roadster 2, the 10th character will be the letter "A."

You can find the Vehicle Identification Number (VIN) in multiple locations:

- Top of Dashboard - the VIN is stamped on a plate which is visible through the lowest part of the drivers side of the windshield.
- Chassis - the VIN is stamped on the Roadster's chassis, and is visible behind the passenger side front wheel.
- Underside of Dashboard - a VIN label is attached to the underside of the dashboard.

Four main components

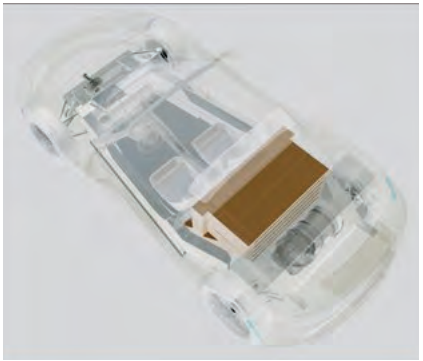
The Roadster's four main components:

- Battery Pack
- Chassis
- Motor
- Power Electronics Module

These components are illustrated on this page.

Battery Pack

The Battery Pack, located behind the seats in the trunk area, is housed in a black enclosure and consists of several thousand lithium-ion cells. The Battery Pack is monitored by a safety system that responds to an emergency by automatically disconnecting the Battery Pack and shutting down high voltage power to the Roadster and all its electric cables.

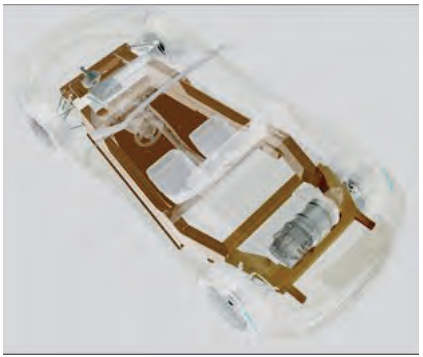


WARNING: Due to high voltage risks, never cut or penetrate the Battery Pack, even after you have cut the Emergency Disconnect cable.▲

The Tesla Roadster's Battery Pack is a substantial energy source. For details, see The Roadster's Battery Pack on page 9.

Chassis

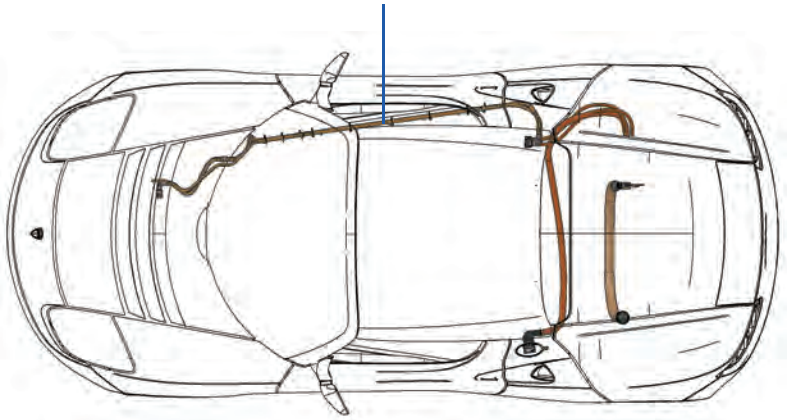
The Roadster's chassis is made of extruded aluminum.



Motor and Power Electronics Module (PEM)

The Roadster's electric motor is located behind the Battery Pack, under the trunk area. The Power Electronics Module (PEM) is located directly above the motor.

High voltage wiring runs under the passenger side of the Roadster. It is connected to an HVAC (Heating, Ventilation, and Air Conditioning) controller. High voltage wiring also runs from the Battery Pack to the PEM and the Motor.



High voltage

All high voltage cables and components enclosed in orange-colored insulation or wrapping. Never touch, open, or cut any orange-colored cable or any component connected to this cable without disabling the high voltage system by cutting the Emergency Disconnect cable as described on pages 6 and 7.

WARNING: Failure to disable the high voltage electrical systems (by cutting the Emergency Disconnect cable) before performing emergency response procedures may result in serious injury or death from electrical shock.▲

The Roadster makes no noise

Always remove the key. The Tesla Roadster makes virtually no noise when the drive system is powered on and the vehicle is stopped. Never assume the Roadster is off simply because it is silent and the key is in the off position.

Airbags and other SRS components

The Tesla Roadster features a DC to DC converter. Turning off the car and removing the key prevents the car from driving but does not kill power to the airbags and other SRS (Seating and Restraint System) components. The only way to completely disable these systems is by cutting the Emergency Disconnect cables as described on pages 6 and 7.

Do not use water if the Roadster is plugged in

If the Roadster is connected to a charging device, DO NOT use water to extinguish a vehicle fire. Exercise the same precautions used when AC power supply potential exists.

If the Roadster is NOT connected to a charging device, Battery Pack voltage will not follow water back up a fire hose.

For more detail on fire fighting measures, see Fire fighting measures on page 9.

To stop all current flow

Cutting the 12V Emergency Disconnect cable stops all current flow through high-voltage cables. It also stops all current flow to the Roadster's Seating and Restraint Systems (SRS), which include the airbags and seat belt tensioners.

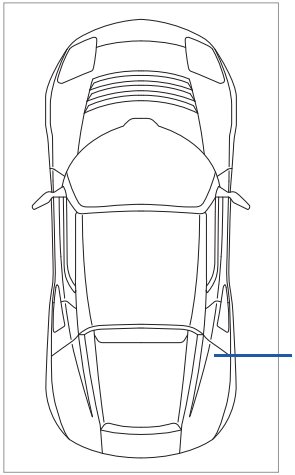
Before attempting to cut the Roadster to rescue occupants, you should reduce the potential for current to flow from the high voltage Battery Pack by shutting the Roadster off and then cutting the Emergency Disconnect cable.

On the 2008 Tesla Roadster, the Emergency Disconnect cable is located under the trunk, on the passenger side of the vehicle.

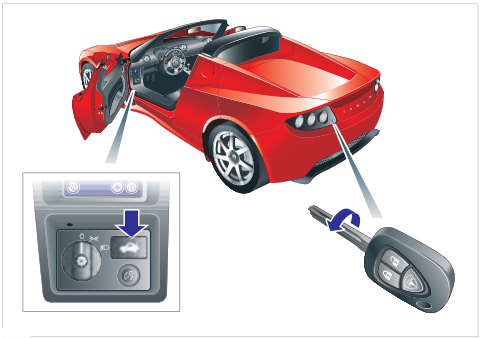
WARNING: High voltage cables and components may remain powered for up to 10 seconds after cutting the Emergency Disconnect cable. The Seating and Restraint Systems (airbags and seat belt tensioners) may remain powered for up to 30 seconds.▲

Follow these instructions to cut the Emergency Disconnect cable:

1. Press trunk release button or turn the key counter-clockwise to open the trunk.
2. Remove the cover labeled "EMERGENCY SRS DISABLE."
3. Cut the cable where indicated.



The emergency disconnect is located under the trunk above the rear passenger wheel



Press the trunk release button or insert the key and turn counter- clockwise to open the trunk

Remove cover and cut where indicated

To stop all current flow

Cutting the 12V Emergency Disconnect cable stops all current flow through high-voltage cables. It also stops all current flow to the Roadster's Seating and Restraint Systems (SRS), which include the airbags and seat belt tensioners.

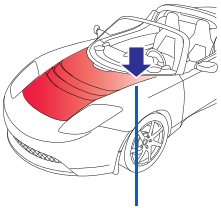
Before attempting to cut the Roadster to rescue occupants, you should reduce the potential for current to flow from the high voltage Battery Pack by shutting the Roadster off and then cutting the Emergency Disconnect cable.

On the Roadster 2, the Emergency Disconnect cable is located under the hood, on the driver side of the vehicle.

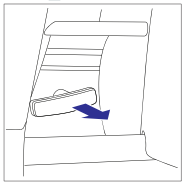
WARNING: High voltage cables and components may remain powered for up to 10 seconds after cutting the emergency disconnect. The Seating and Restraint Systems (airbags and seat belt tensioners) may remain powered for up to 30 seconds.▲

Follow these instructions to cut the emergency disconnect cable:

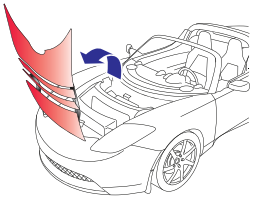
1. Pull the hood release handle located to the left of the steering column.
2. Raise the hood and if possible, insert the hood stay into the slot.
3. Cut the cable where indicated.

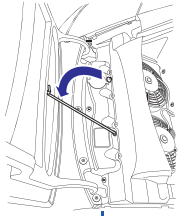


Emergency disconnect is located under the hood



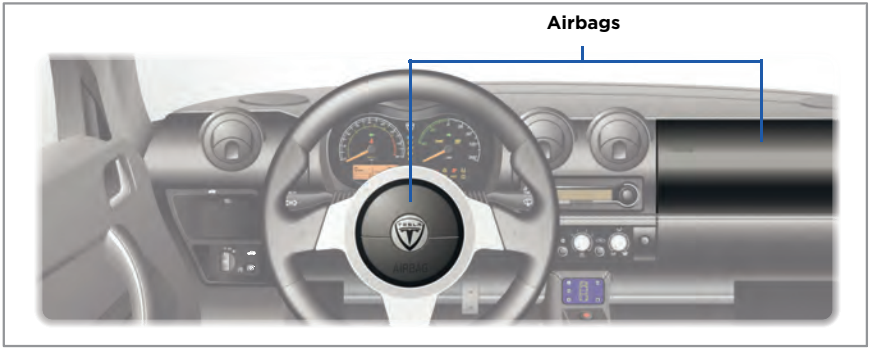
Pull the hood release handle





Insert the hood stay

Cut where indicated



Note: The appearance of the interior will vary depending on model year, but airbags are in the same location for all models.

Two airbags

The airbag for the driver is located in the padded hub of the steering wheel. The airbag for the passenger is located on the dashboard. These are indicated by the word AIRBAG on the trim.

Exercise standard precautions when working in close proximity to undeployed airbags.

Cutting the emergency disconnect stops all current flow to the airbags. See pages 6 and 7.

Description and identification

The Tesla Roadster's Battery Pack, also referred to as the ESS (Energy Storage System) is comprised of several thousand consumer-grade hemetically-sealed lithium-ion cells.

Battery Pack technology	Lithium-ion
Nominal voltage	366.3V
Maximum voltage	420V
Maximum weight	1200 lbs
Length	43.3 in (110 cm)
Width	32.3 in (82 cm)
Height	27.6 in (70cm)
Manufacturer	Tesla Motors USA 1050 Bing Street San Carlos, CA 94070 For service issues, call 1-877-79TESLA (1-877-798-3752).
Emergency Contact (USA)	Chemtrec: 1-800-424-9300
Emergency Contact (International)	Chemtrec: 1-703-527-3887 (collect calls accept3ed)

Substantial electrical charge

WARNING: Due to high voltage risks, never cut or penetrate the Battery Pack, even after you have cut the Emergency Disconnect. If the Battery Pack has been visibly damaged or its enclosure compromised, practice appropriate high voltage preventative measures until the danger has been assessed and, if necessary, dissipated.

Do not short circuit, puncture, incinerate, crush, immerse, force discharge, or expose the Battery Pack to temperatures above 140°F (60°C).

Under normal conditions, the electrode materials and liquid electrolyte that the battery cells contain are not exposed, provided the Battery Pack integrity is maintained and seals remain intact. Risk of exposure will occur only in cases of abuse (mechanical, thermal, electrical). For example, an internal or external short circuit can cause significant overheating and provide an ignition source resulting in fire, including surrounding materials.

Fire fighting measures

If fire or smoke is observed when the Tesla Roadster is connected to a charging source, immediately shut off power to the charging source.

In the case of burning lithium-ion fires, generously and continuously flood the area with water. The water may not extinguish the fire, but will cool the adjacent battery cells, control the spread of the fire, and prevent the fire from being re-ignited.

Firefighters should wear self-contained breathing apparatus. Battery cells may emit potentially hazardous organic vapors if exposed to excessive heat, fire, or over-voltage conditions. These vapors include HF_2 oxides of carbon, aluminum, lithium, copper, and cobalt. Additionally, volatile phosphorous pentafluoride may form at temperatures above 230^{o} Fahrenheit.

Battery first aid

Under normal conditions, the Tesla Roadster's battery cells are hermetically sealed. Contents of an open (broken) constituent battery cell can cause skin irritation and/or chemical burns.

If materials from ruptured or otherwise damaged battery cells contact the skin, flush immediately with water and wash affected area with soap and water. For eye contact, flush with significant amounts of water for 15 minutes and see a physician immediately. Avoid inhaling vented gases. If a chemical burn occurs or if irritation persists, see a physician.

Battery disposal

The Tesla Roadster's lithium-ion batteries do not contain heavy metals such as lead, cadmium, or mercury. Therefore, they are

exempt from hazardous waste disposal standards in the U.S., as defined in the Universal Waste Regulations.

However, the battery cells do contain recyclable materials and Tesla Motors encourages recycling whenever possible. For information about recycling, contact Tesla Motors. If disposing without contacting Tesla, contact local, state, or federal authorities for information about the appropriate methods for disposal and recycling. Disposal regulations vary depending on location.

Composition and information on Battery materials

The batteries in the Tesla Roadster consist of hemetically sealed lithium-ion cells that contain various chemicals and materials as detailed in the following table.

Note: Under normal conditions, there is no risk of exposure. The cells do not contain metallic lithium.

Materials/Ingredients	**Approx. % by weight**	**CAS No.***	**OSHA PEL****	**ACGIH*** (TLV****)**
$LiCoO_2$ (Lithium Cobalt Oxide)	25-35	12190-79-3	0.1 mg/m^3 TWA (as cobalt)	0.02 mg/m^3 TWA (as cobalt)
Graphite	7-10	7782-42-5	5 mg/m^3 TWA (total dust) 15 mg/m^3 TWA (respirable fraction)	2 mg/m^3 TWA (respirable fraction)
Hexafluoroprophylene-vinylidene fluoride Copolymer	3-15	9011-17-0	None established	None established
Lithium Hexofluorophosphate	0-5	21324-40-3	None established	None established
Acetylene Black	0-2	1333-86-4	3.5 mg/m^3 TWA (as carbon black)	3.5 mg/m^3 TWA (as carbon black)
Dimethyl Carbonate	0-15	616-38-6	None established	None established
Ethyl Methyl Carbonate	0-15	623-53-0	None established	None established
Ethylene Carbonate	0-15	96-49-1	None established	None established

*CAS - Chemical Abstract Service established by the American Chemistry Society, which assigns identifiers (CAS Nc.) to chemicals.

**PEL - Permissible Exposure Limit in the USA for personal exposure to a substance. A PEL is defined by the U.S. Occupational Safety and Health Administration (OSHA).

***ACGIH - American Council of Governmental Industrial Hygienists.

****TLV - Threshold Limit Values are personal exposure limits determined by ACGIH.

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