

Rescue handling of electric vehicles EM1 e:



May 2023,
Honda Motor Co., Ltd.

INTRODUCTION

This document describes the items to pay attention to during rescue work for the electric vehicle "EM1 e:".

In order to perform the tasks safely, read this document thoroughly and adhere to the warning information.




The EM1 e: runs driving a motor on stored electricity without using gasoline.

This vehicle is equipped with two kinds of batteries: a 12 V battery for operating lights and electric accessories, and a battery for motor for driving an electric motor that propels the vehicle.

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Symbols relating to safety

Items with the following symbols are important items relating to safety. Please read before use.

 DANGER	Failure to follow this instruction will lead to death or serious injury.
 WARNING	Failure to follow this instruction may lead to death or serious injury.
 CAUTION	Failure to follow this instruction may result in injury.



※ High voltage warning marks as shown on the left are affixed to the high voltage area of the vehicle.

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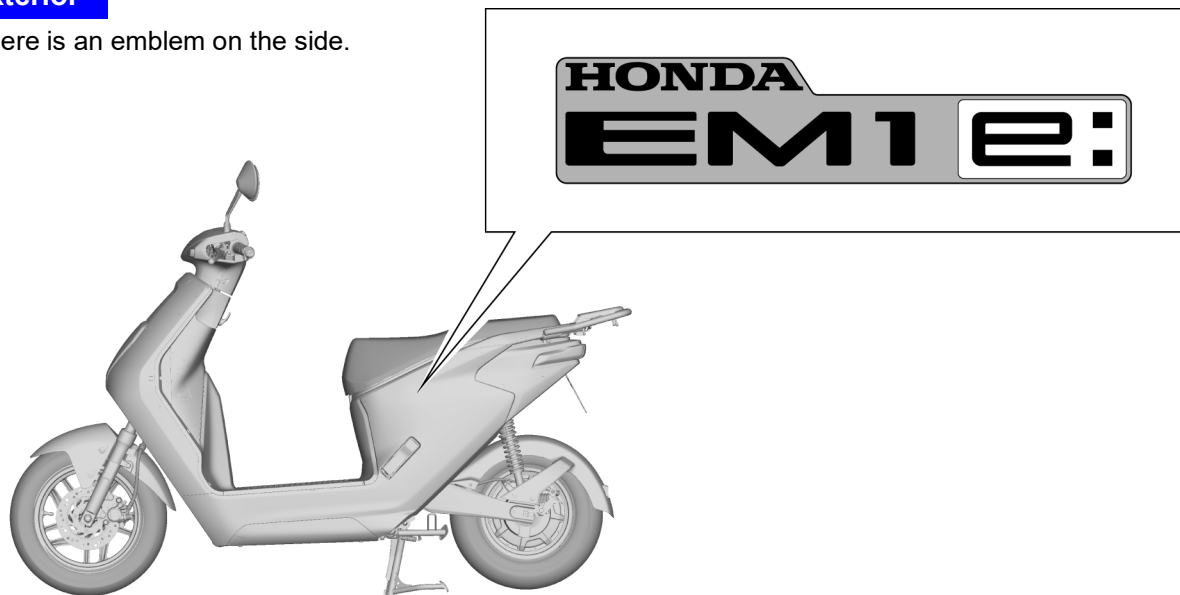
1. How to distinguish the EM1 e:

1. How to distinguish the EM1 e:

The exterior and features of the EM1 e: are introduced below. If a vehicle involved in an accident is an applicable model, adhere to the warning items in this document while carrying out rescue work.

Exterior

There is an emblem on the side.

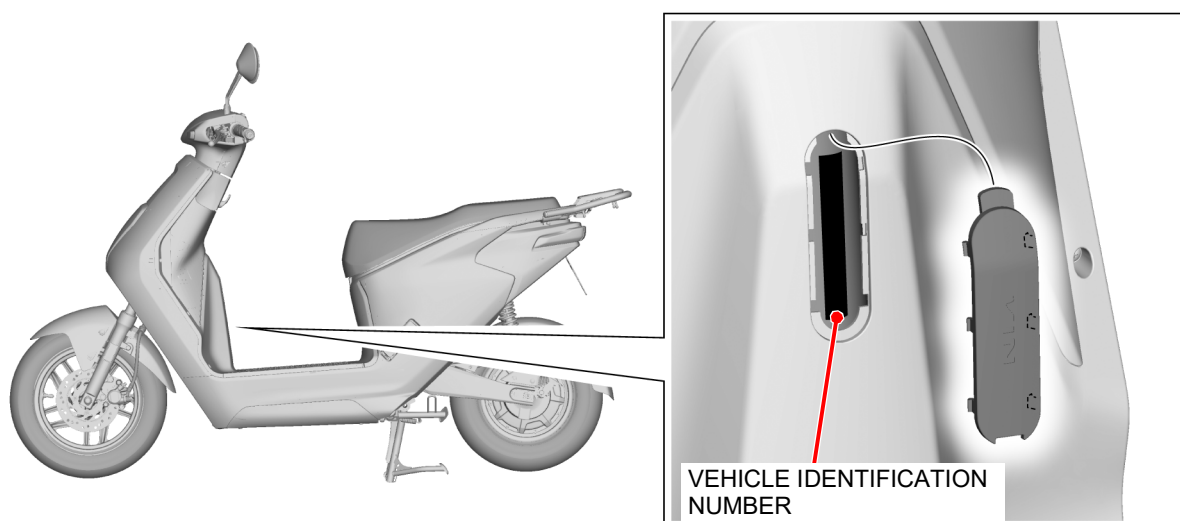


Identification by model

You can check the model and frame number inside the frame center. The first 4 digits of the frame number are the model number.

Example: EF16- xxxxxx (for Japan)

The first 4 digits "EF16" indicate the vehicle is a EM1 e: .



The frame number/VIN are to be addressed by the local subsidiary

2. About electric vehicles

The EM1 e: system uses a maximum voltage of about 58.0 V.

Therefore, caution and support are necessary when performing rescue work.

WARNING

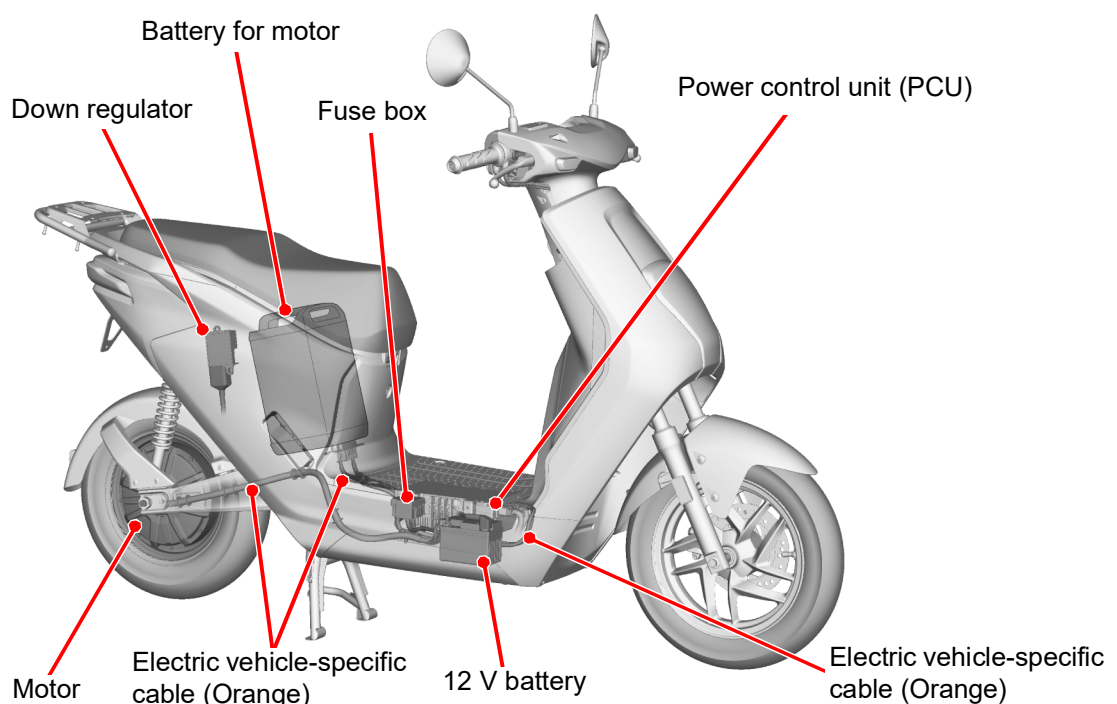
- If the electric vehicle-specific voltage cables (orange or violet) are damaged and the wiring or terminals are exposed, do not touch the exposed parts under any circumstances. Moreover, do not touch exposed wiring or terminals if unsure whether it is an electric vehicle-specific voltage section. Careless contact with the wiring or terminals may result in severe injury or death from serious burns or electrocution.
- If contact with an exposed section of electric vehicle-specific voltage cable or voltage parts is unavoidable, or if there is risk of contact, always use insulated protective equipment (insulated gloves, protective glasses, insulated shoes) which can endure the electric vehicle-specific voltage.
- When a concerned person is separated from the vehicle such as when it is put into storage after an accident, place the sign "Work in progress. Do not touch!" on the vehicle, so that other persons do not inadvertently touch the vehicle. (Copy and use the electric vehicle warning sign at the end of this document)

[Items to prepare] Prepare the following items before carrying out rescue work on the EM1 e: .

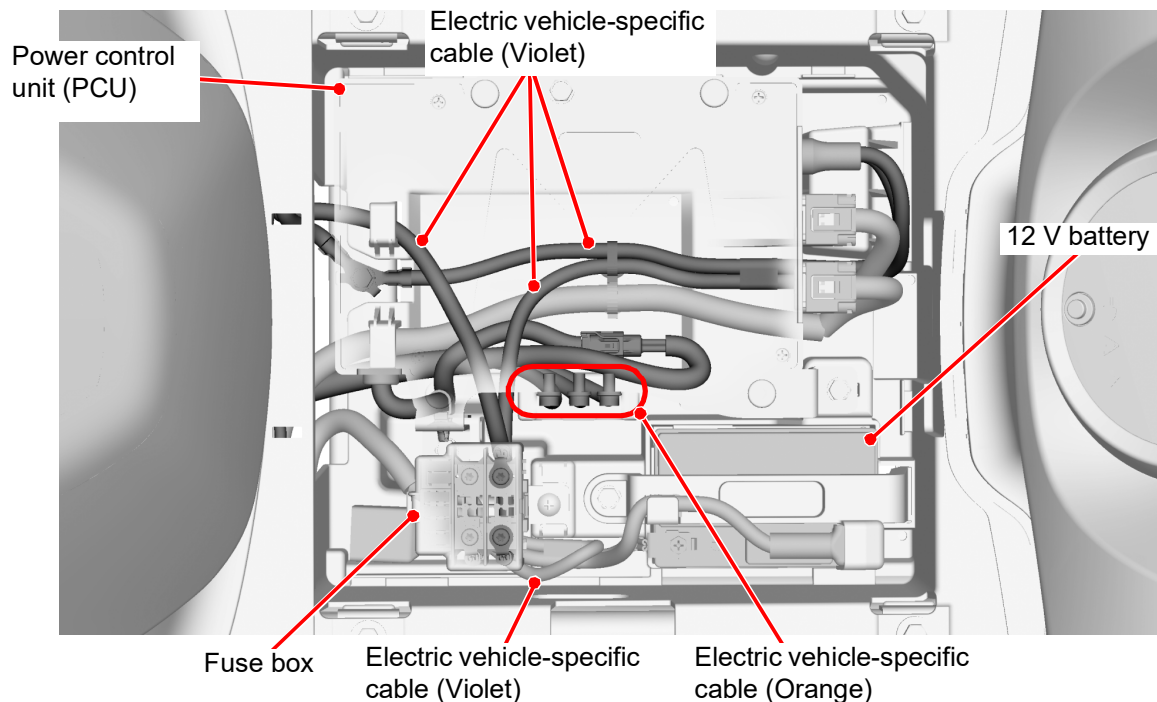
1. Insulated protective equipment (insulated gloves, protective glasses, protective shoes)
2. ABC fire extinguisher
3. Protective equipment that is resistant to solvents (gas mask (for organic gases), rubber gloves (chemical-resistant))
4. wipes, old towel

■ Main components

Main parts are shown below.



2. About electric vehicles



■ Battery for motor

In addition to the 12 V battery, the EM1 e: is equipped with a lithium-ion battery (battery for motor) that support electric vehicle-specific voltages. These batteries have total voltage of 35 to 57.4 V.

These batteries for motor are stored under the seat. Also, since the electrolyte is sealed inside the battery, replacement/replenishment is not necessary.

Even in the event of the battery for motor being damaged, there is no risk of the electrolyte leaking in large quantities. Read the following page for the measures in case of liquid leakage.



⚠ DANGER

Failure to observe the following items may cause the battery for motor to generate heat, smoke, ignition, or a burst.

- Do not apply water to the battery for motor or do not submerge it.
- Do not leave the battery for motor in the vicinity of fire or a heater, or in a high-temperature place such as under direct sunlight.
- Do not give a strong shock to the battery for motor or throw it. Also, do not apply any external force that will be opened the hole or deformed.

⚠ WARNING

When the battery for motor electrolyte leaks or smells odor, keep the battery for motor away from sources of fire immediately.

■ Measures in case of battery for motor leakage

A volatile organic solvent is used for the electrolyte of the battery for motor on the EM1 e: . The electrolyte is colorless and transparent so it cannot be identified simply by sight.

If leakage has occurred in the vicinity of the battery for motor and it is suspected to be electrolyte: (Turn the main switch OFF "○" when the battery is mounted on the vehicle.) Leave it until smoking or liquid leakage cease, wear solvent-resistant protective equipment (gas mask (for organic gas), rubber gloves (chemical-resistant)), and wipe away the leaked liquid with a dry cloth.

Store used cloths in a sealable bag or container, and dispose of them appropriately as industrial waste.

WARNING

The electrolyte in the battery for motor is harmful to humans, so it may cause loss of eyesight or injury if it comes into contact with the eyes or skin. In the event electrolyte comes into contact with the eyes or skin, apply plenty of water to the affected area and seek medical treatment immediately.

■ Power control unit (PCU)

The PCU is located inside the floor step, and it starts up the system, shuts down the power supply, detects faults, and controls the motor.

■ Motor

The motor is located the rear wheel and drives the rear wheel.

■ 12 V battery

The 12 V battery is located inside the floor step and supplies power to the system startup power supply and electrical components.

3. Cautions when performing rescue work

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■ Overview of measures

The EM1 e: is equipped with two high-voltage lithium-ion batteries which require caution and treatment for high voltage.

Read the following items carefully, and address according to the situation when performing the actual work.

■ Interception of the motor-specific voltage

The EM1 e: is equipped with a system that can interrupt the motor-specific voltage.

- The interruption of the voltage circuit of the electric vehicle is linked to the main switch. When the main switch turns OFF "○", the voltage circuit for motor is cut off.
- In the event of a short circuit or overcurrent due to collision or submersion, the motor-specific voltage is interrupted by the battery management unit. The motor-specific voltage is also interrupted when a fuse melts.

<Label affixed to the battery>



- Caution labels are attached to the motor-specific voltage parts.

■ Cautions and measures in case of fire

Use the electric fire extinguisher or ABC fire extinguisher (suitable for oil and electric fires).

Avoid extinguishing with water in case of vehicle fire. In case of a battery only fire it is also possible to extinguish with water.

During a fire, a short circuit occurs due to the insulation coating of the electrical wiring burning, and the motor-specific voltage is interrupted. A short circuit also occurs when a large amount of water is applied, causing the motor-specific voltage to be interrupted. Depending on the location of the fire, the motor-specific voltage may not be interrupted, so after fire burns out, refer to "How to interrupt the motor-specific voltage system" on page 8 for details on how to interrupt the motor-specific voltage. [Reference] No explosive materials are used in the motor-specific voltage system of the EM1 e: .

3. Cautions when performing rescue work

■ Cautions and measures in case of submersion

During submersion of the vehicle, a short circuit occurs due to the penetration of water, causing the motor-specific voltage to be interrupted. In cases where the water is shallow or water penetrates parts that do not cause a short circuit to occur, the motor-specific voltage may not be interrupted, so where possible, interrupt the voltage by referring to "How to interrupt the motor-specific system" on page 8.

WARNING

- When the vehicle is submerged, never turn on the main switch. There is a risk of serious injury or death due to electric shock.

■ Cautions and measures in case of damage to the battery for motor

If the lithium-ion battery (Battery for motor) is damaged due to a collision or other event, adhere to the following warnings.

If a leakage is suspected, refer to "Measures in case of battery for motor leakage" on page 5 for details.

WARNING

- If the orange or violet voltage cables are damaged and the wiring or terminals are exposed, do not touch the exposed parts under any circumstances. Moreover, do not touch exposed wiring or terminals if unsure whether it is a motor-specific voltage section. Careless contact with the wiring or terminals may result in severe injury or death from serious burns or electrocution.
- If contact with an exposed section of motor-specific voltage cable or voltage parts is unavoidable, or if there is risk of contact, always use insulated protective equipment (insulated gloves, protective glasses, insulated shoes).

3. Cautions when performing rescue work

■ How to interrupt the motor-specific voltage system

Depending on the state of damage to the vehicle, it may be necessary to interrupt the motor-specific voltage manually. The motor-specific voltage can be interrupted in the following way. Normal rescue work is possible after interrupting the motor-specific voltage.

⚠ CAUTION

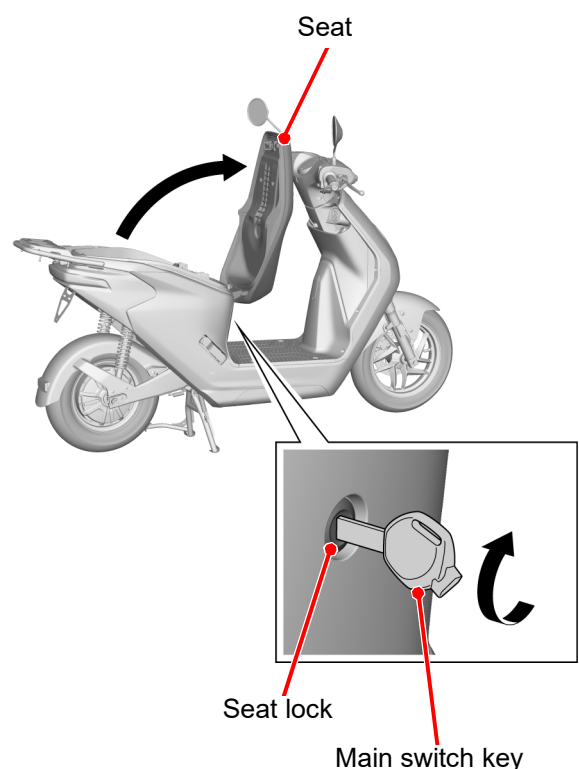
If the seat cannot be opened, the motor-specific voltage cannot be reliably interrupted. If the motor-specific voltage section is damaged and the wiring or terminals are exposed, carry out rescue work with extreme caution so as not to touch exposed parts, nor for exposed parts to come into contact with the vehicle or body.

⚠ WARNING

- If the orange or violet voltage cables are damaged and the wiring or terminals are exposed, do not touch the exposed parts under any circumstances. Moreover, do not touch exposed wiring or terminals if unsure whether it is a motor-specific voltage section. Careless contact with the wiring or terminals may result in severe injury or death from serious burns or electrocution.
- If contact with an exposed section of motor-specific voltage cable or voltage parts is unavoidable, or if there is risk of contact, always use insulated protective equipment (insulated gloves, protective glasses, insulated shoes).

Open the seat

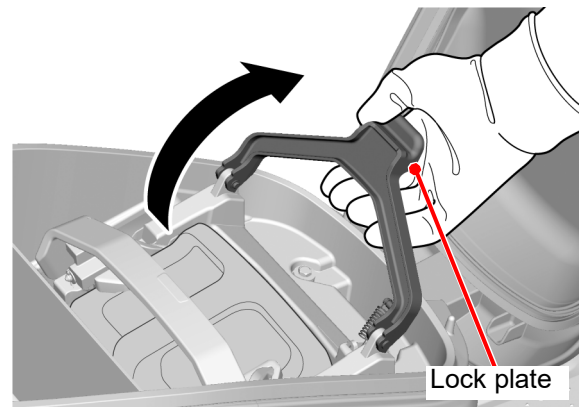
1. Insert the main switch key into the seat lock.
2. Turn the main switch key clockwise to open the seat.



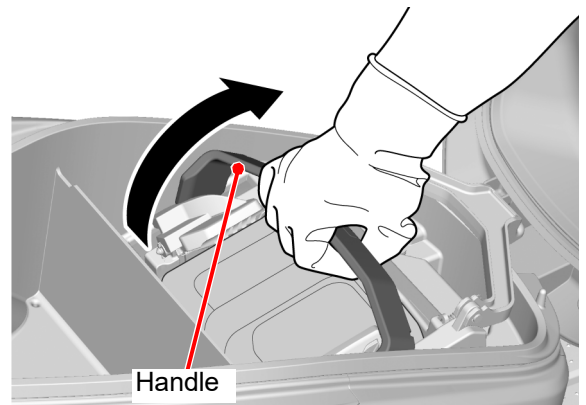
3. Cautions when performing rescue work

Remove the battery for motor

1. Tilt the lock plate forward.



2. Tilt the handle forward.



3. Pull out the battery for motor.



CAUTION

Wait 1.0 seconds for the battery for motor to discharge after disconnecting the battery before starting the work.

Start the rescue work

4. Accident vehicle transportation procedure

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WARNING

- If the orange or violet voltage cables are damaged and the wiring or terminals are exposed, do not touch the exposed parts under any circumstances. Moreover, do not touch exposed wiring or terminals if unsure whether it is a motor-specific voltage section. Careless contact with the wiring or terminals may result in severe injury or death from serious burns or electrocution.
- If contact with an exposed section of motor-specific voltage cable or voltage parts is unavoidable, or if there is risk of contact, always use insulated protective equipment (insulated gloves, protective glasses, insulated shoes).

■ Vehicle data


Item \ Model	Overall length (mm)	Overall width (mm)	Overall height (mm)	Minimum ground clearance (mm)	Wheel base (mm)	Curb weight (kg)
EM1 e:	1,860	680	1,080	135	1,300	95

■ Vehicle transportation procedure

When transporting the vehicle, adhere to the following.

- When loading on to a four-wheeled vehicle, take care not to scratch or damage the vehicle.
- Do not use motor-specific wiring or cables to secure the vehicle for transportation.
- Refer to "3. Cautions when performing rescue work" for details on interrupting the motor-specific voltage circuit.

Electric vehicle-specific voltage warning sign

<hr/>	
<hr/>	
<p>Worker name _____</p>	
<p>Electric vehicle</p> <p>Work in progress.</p> <p>Do not touch!</p>	
<hr/>	
	<p>Electric vehicle</p> <p>Work in progress.</p> <p>Do not touch!</p>
<p>Worker name _____</p>	
<hr/>	

Take a copy of this sign, fold it and display it on the vehicle while work is in progress.

