MIGHTY (QTc) Electric Truck

Emergency Response Guide

HYUNDAI HELP LINE
0800 HYUNDAI (498 632)

⚠ WARNING

- If severe damage causes high-voltage components to become exposed, emergency responders should take appropriate precautions and wear appropriate insulated personal protective equipment.
- Do not attempt to remove the safety plug while standing in the water.
- Never cut or disconnect the high voltage orange cabling and connectors without first disabling the system by removing the safety plug.
- Exposed cables or wires may be visible inside or outside the truck. Never touch the wires, cables, connectors, or any electric components before disabling the system, to prevent injury or death due to electrical shock.

Failure to follow any of these instructions may result in serious injury or death by electrocution.

- Do not cut through any component of the Airbag (SRS) system (Supplementary Restraint System)
- SRS components may remain powered and active for up to 3 minutes after the 24V electrical system is shut off or disabled.

Disconnect the battery negative cable and wait for at least 3 minutes before beginning work.
Failure to follow any of these instructions may result in serious injury or death from accidental deployment of the airbag system.

December 2025
(PM)

Important Safety Information

This manual includes information titled as DANGER, WARNING, CAUTION & NOTICE.

These titles indicate the following:

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE indicates a situation which, if not avoided, could result in truck damage.

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Contents

Introduction

Document Purpose

The purpose of this document is to familiarise emergency responders and the towing/roadside assistance industry with the proper methods to handle the Hyundai MIGHTY Electric Truck in an emergency situation. This guide offers a basic overview of key truck systems and provides instructions for dealing with the different types of situations encountered by emergency responders. The emergency response procedures for this truck are somewhat similar to a conventional Diesel truck with additional information provided on dealing with the high-voltage electrical system.

Truck Description

As with other electric trucks/trucks, the Hyundai MIGHTY Electric Truck uses a high-voltage DC Traction Motor powered by a high-voltage battery to propel the truck.

MIGHTY Electric Identification

General Truck Description

The Hyundai MIGHTY Electric truck is built on a conventional MIGHTY chassis and therefore looks very similar to its conventional Diesel counterpart with a few notable exceptions. The safest method is to assume that any MIGHTY truck you respond to could be an electric truck until proven otherwise. Using the information provided in this section, responders will be able to differentiate between the two.

Identifying a Hyundai Electric Truck

"Electric" badge on front left (passenger side) body panel of the truck cab.

The Hyundai MIGHTY Truck can be easily identified by the 'electric' badge located on the front of the cab.

⚠ DANGER **Electrocution Risk**

Badging can become hidden after a crash due to damage to the truck. Always be sure to utilise additional methods if identification before determining there is no badge present.

VIN Number

The truck Identification Number (VIN) identifies the Electric truck with a “H” displayed in the 8th position, as shown in the below drawing.

The VIN is punched on chassis frame, the letter H in the 8th character of the VIN indicates that it is a electric truck.

LS1XXXXHXXXXXXX

VIN Example - LS1D221H1P0004093

8th digit

VIN stamped onto Chassis Frame, near the right-rear tyre

Also, the vehicle identification number is attached as shown in the illustration.

MIGHTY Electric Truck 7-Inch LCD Instrument Panel

The Electric Truck Instrument Cluster Panel displays the electric truck specific features that identify the MIGHTY Electric Truck.

Motor Power Gauge

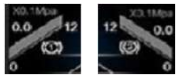
Main Display

Speed Gauge

Main Display

Main Display

Motor Speed



Airtank (Brakes) Pressure

MIGHTY Electric Main Systems

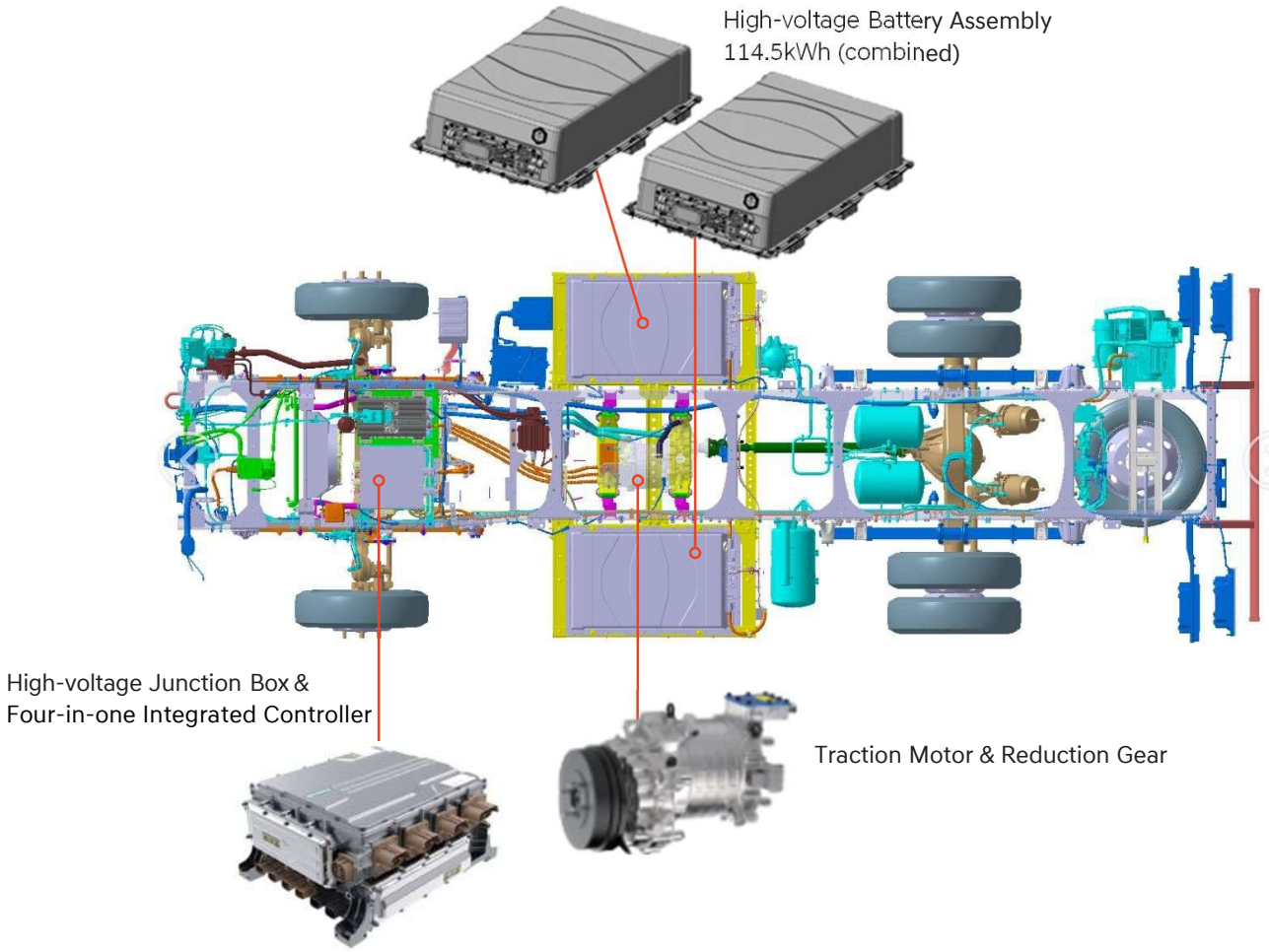
Key Specifications

Calculated Performance		
Application Motor		TZ230XSIN101
Max. Speed	km/h	100
Max. Gradeability	Tan0	0.17
AER (All-Electric Range)	Km	260 (actual road tests - It may vary depending on actual road driving conditions)
	Km	370 (based on Chinese Electric Efficiency Regulation : 40km/h Constant Speed Test)
Chassis Specifications		
Traction Motor		
Model		TZ230XSIN101
Brand		Suzhou Inovance Technology Co.,Ltd
Type		PMSM (Permanent Magnet Synchronous Motor)
Power (ps)	Rated	60KW
	Max	120KW
Torque (N.m)	Rated	150
	Max	320
High-Voltage Battery Pack		
Brand		CATL (Contemporary Amperex Technology Co., Limited)
Type		LFP (Lithium Iron Phosphate Battery / LiFePO)
Capacity (kWh)		114.5
Energy Density (Wh/kg)		159.79
Rated Voltage (V)		502.32
Operating Voltage (V)		390 ~ 569.79 (Cells 2.5v ~ 3.65v)
Weight (kg)		728
Thermal Management		Natural Cooling / Internal Heating
Charge		
On-board Charger OutPower (kW)		6.6
AC Charge Port		Type 2 (or MENNEKES)
DC Charge Port		CCS 2 (Combined Charging System)
Charging Time (min)		71 (SOC :8% → 100%) (w/100kW, 800v DC Rapid Charger) *Not Compatible w/ 50kW, 400v National Infrastructure

Key Specifications Cont.

Propellershaft		
Model		BJ130
Type		Tubular, Forged steel ends
Size (Diameter x Thickness)		Φ63.5×2.5t
Rear Axle		
Model		050C160295A
Type		Full Floating Type
Capacity	kg	5,000
	Type	Single Speed Reduction, Hypoid Gear
Final Reduction Gear	G/Ratio	5.375
Gear Oil		API Gl-5,Sae85w/90 Synthetic Oil,3.5L
Front Axle		
Type		Reverse Elliott Type "I" Beam
Capacity	kg	2,300
Tyre & Wheel		
Type		Single Front, Double Rear
Tyre	Front / Rear	205/75R17.5-14PR
Wheel	Front / Rear	ST/AL: 17.5×6.00
Steering		
Type		Electro Hydraulic Power Steering
Steering Wheel	Manual	-
Diameter (mm)	Power	400mm
Tilting Angle		-3.7°~+5.8°
Telescopic Stroke	mm	-30~+30mm
Overall Steering	Manual	-
Gear Ratio	Power	22.6
Turning Angle	Inner / Outer	38°/32°

Electric Components Location



⚠ WARNING

Electrocution Risk!

- Never cut or disconnect the high voltage orange cabling and connectors without first disabling the system by removing the safety plug.
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Failure to follow these instructions can lead to death by electrical shock.

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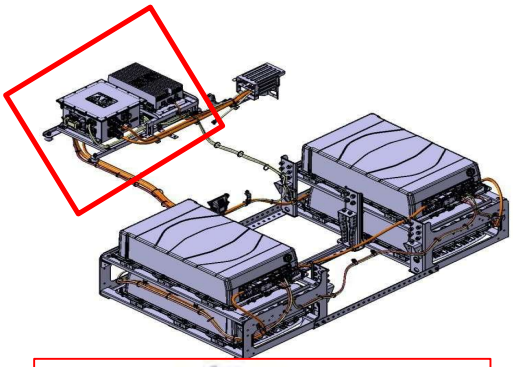
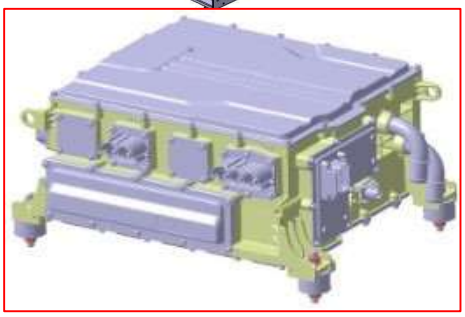
Electric Traction Motor Control Unit

The inverter coverts the direct current of the high-voltage battery to the alternative current and supplies the current to the driving motor and converts the alternative current of the regenerative current to the direct current to charge the high-voltage battery. The inverter is equipped with a Motor Control Unit (MCU) to control the motor torque. When dealing with the high-voltage related Items, stand by for about 5 to 10 minutes in order to discharge the high-voltage charged in the capacitor (condenser) located in the inverter.



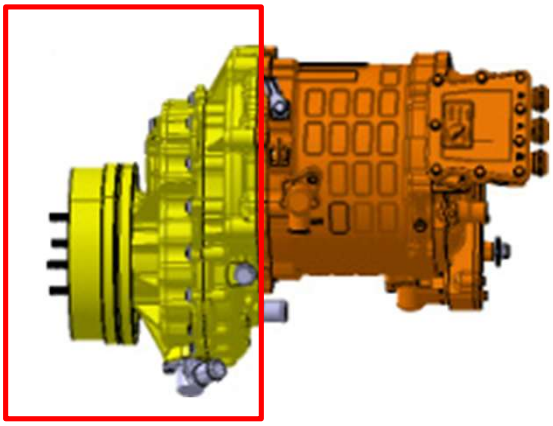


Electric Traction Motor

Mounted in power battery module compartment with the gear reduction unit, the Electric Drive Motor is used for truck propulsion. During deceleration or braking, it acts as an alternator and charges the high-voltage battery by converting the truck's kinetic energy into electrical energy.

Reduction Gear, with Dial Type Shift By Wire

It is a reducer which fixes the speed ratio. It is used to increase torque.



High-voltage Battery

High-voltage system is located behind the cab area, in the m iddle of the truck chassis and protected with a steel casing. The system consists of battery cells. Each cell is sealed with an aluminum case to protect from an electrolyte spillage. There is rare possibility that electrolyte could occur in the cell if a battery module is compromised. For safety, an over-current protection and ceramic coating isolation layer are used. Anti-flammable material electrolyte is applied to prevent explosions or fire in an emergency case such as a car accident.

The battery, of the highest water tightness grade of IP68, is positioned 240 mm above the ground surface to prevent water contact and any associated failures.

1. The high-voltage wiring (housed in orange conduit) is connected to the battery system with DC converter.

2. There is a high-voltage regulator to control the high-voltage system. In addition, there is a high-voltage fuse and safety plug to separate the electrical sources in the system for safety.

Watertightness Grade IP68, advanced watertightness that prevents any entry of dust and moisture, of a level that keeps the battery usable even when submerged in water.

3. High-voltage system voltage (power battery system):

- 390V < DC ≤ 569V (114.52 kWh)

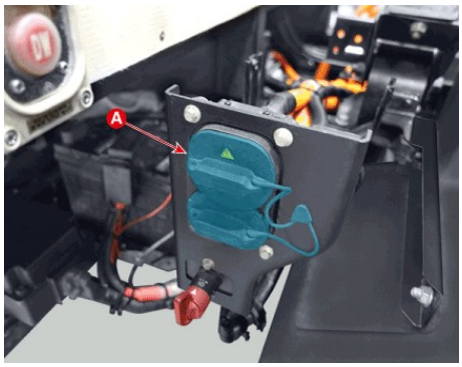
High-voltage warning signs and markings:

- The high-voltage wiring harness uses orange high-voltage cables, and the grounding wire uses woven mesh grounding wire.

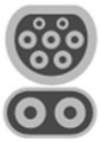
- High-voltage warning signs are placed on various components (ie High-voltage Battery), as shown in the figure on the right.

Charging Port (CCS-2)

The Combined Charging System (CCS) Type 2 is a standard fo r charging Hyundai electric trucks and trucks. The CCS-2 allows AC charging (slow) using the Type 2 connector. For DC charging it uses the AC charging port and lower DC port



DC Charging (Rapid)



CCS2

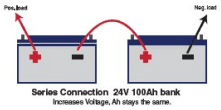
AC Charging (Slow)

Mennekes (Type 2)

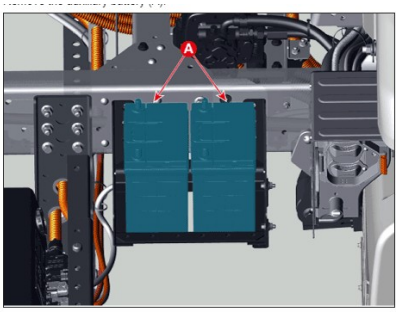
High-voltage Cable

Orange cables can also be seen at the bottom of the truck. The cable is connected from the high-voltage box to the power battery and motor.

24-Volt Auxiliary Batteries



MIGHTY Electric Truck, also uses a traditional 24V battery system to power other low-voltage systems its made up of 2 x 12v batteries, wired in series to create the 24v system.



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Airbag System (SRS : Supplemental Restraint System)

Airbag – Driver & Passenger

The MIGHTY Electric is equipped with one (1) Driver's Airbag & one (1) Passenger Airbag. Before starting any emergency procedure, make sure the truck ignition is turned off, disconnect the negative cable from the 24V auxiliary battery to prevent accidental deployment of the airbag.

⚠ WARNING

- Do not cut through any component.
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Failure to follow any of these instructions may result in serious injury or death from accidental deployment of the airbag system.

Initial Response :

The following procedures should be used whenever you are dealing with a MIGHTY Electric Truck at an emergency scene. All other operations should be consistent with your department's standard operating procedures or guides. Electric trucks/trucks damaged by a crash may have compromised high-voltage safety systems and present a potential high voltage electrical shock hazard. Exercise caution and wear appropriate personal protective equipment (PPE) safety gear, including high voltage safety gloves and boots. Remove all metallic jewelry, including watches and rings.

Identify :

When dealing with a MIGHTY Truck at the scene of an accident, emergency responders should always assume that it is an electric model until it can be proven otherwise using the identification features outlined in this ERG. External badging will usually be the first clue but it can often be hidden by damage caused in a crash. Always be sure to inspect multiple sides of the truck.

Immobilise :

The next step is to immobilise the truck to prevent any accidental movement that can endanger the emergency response personnel and any crash victims. Since the MIGHTY Electric Truck doesn't have an engine, there will be instances where the truck may appear to be off because of the absence of engine noise. When it is in "READY" mode, the truck can move almost silently using the electric drive motor. Responders should approach the truck from the sides and away from the front or rear as they are both potential paths of travel.

Disable :

The final step in the initial response process, conducted after the truck is secured to prevent movement, is to disable the truck, its SRS components and the high-voltage electrical system. To prevent current flow through the system, use one of the following procedures to disable the truck.

Disabling the System

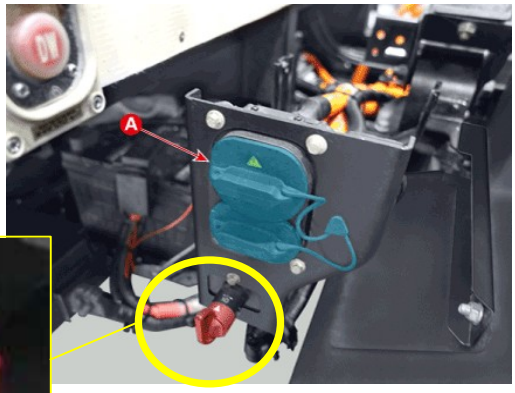
1. Check the status of the READY light on the instrument panel. If the READY light is illuminated, the truck is on.

   a) If the READY light is NOT illuminated, the truck is off. Do not rotate the ignition key because the truck may restart.

   b) To turn off the system, lift on the hand brake lever. Rotate the ignition key on the right side of the steering column cover. Wait for truck to power down. READY light should turn off.

2.

   a) Turn off the 24V Power Main Switch, below the charging port (A).



   b) Disconnect the negative (-) 24V battery cable to further prevent the risk of accidental restart.

⚠ CAUTION

- Once the 24V battery is disconnected, power controls will not operate.

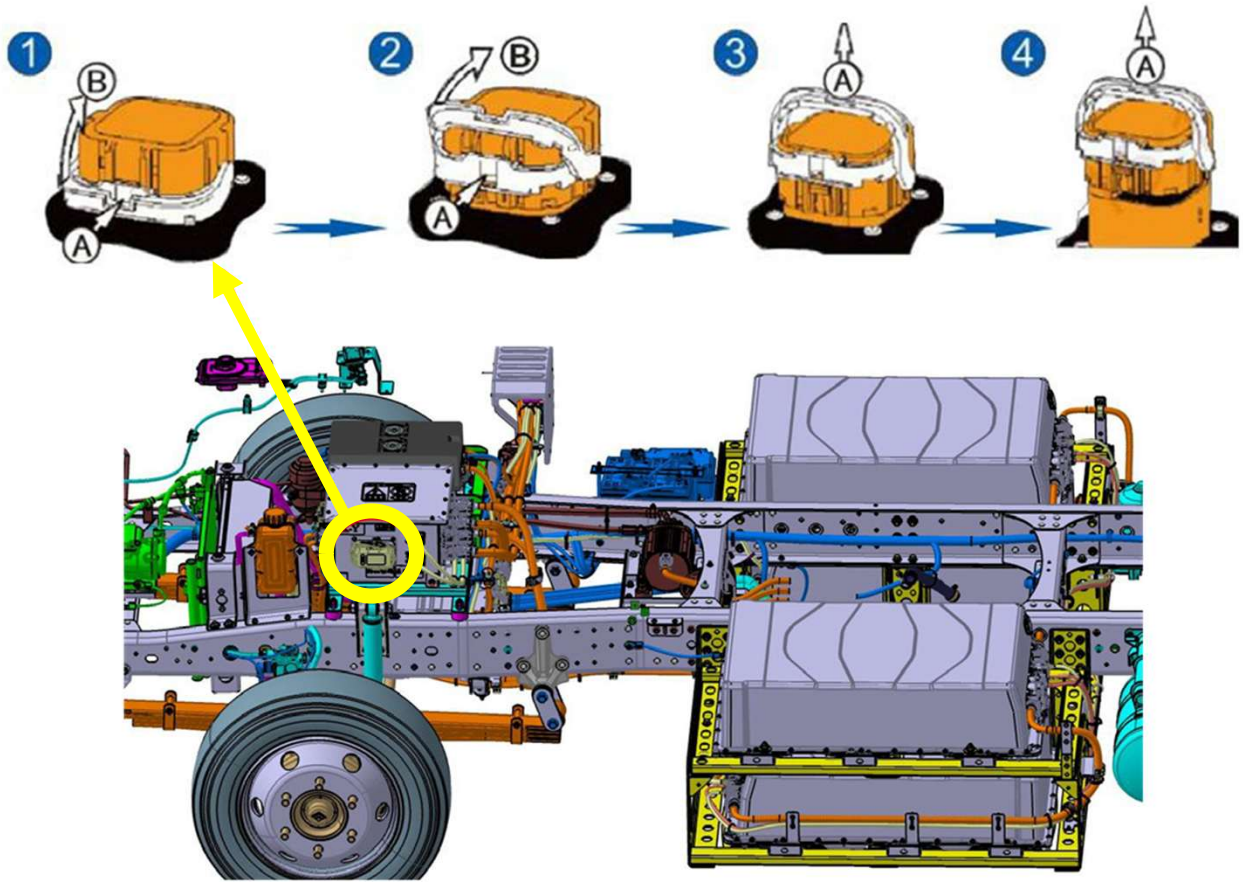
3. Use the following procedure to disable the high-voltage battery.

   If the safety plug is accessible on the side of Electric Traction Motor Control Unit, remove the Service Safety Plug as shown below.

   a) Tilt the cap in accordance with the cap tilting procedure. Remove the safety
   b) plug using the following procedure: 1: Unlock → 2: Release

⚠ WARNING **Electrocution Risk!**

- Even after the safety plug is removed, wait for about 5 ~ 10 minutes in order to allow discharge of the high-voltage capacitor (condenser) located in the inverter.



Submersion

Some emergency responses can involve a submerged truck. A MIGHT Electric Truck that is submerged does not have high-voltage component on the truck's body or framework. It is safe to touch the truck's body or framework if there is no severe damage to the truck, whether it is in water or on land. In the event the truck is submerged or partially submerged, remove the truck from the water before attempting to disable the truck. Drain the water from the truck.

⚠ WARNING

- If severe damage causes high-voltage components to become exposed, responders should take appropriate precautions and wear appropriate insulated personal protective equipment.
- Do not attempt to remove a Service Safety Plug while in the water

Failure to follow any of these instructions may result in serious injury or death by electrocution.

Truck Fire

After Initial Emergency Response Procedures have been applied, Firefighting Procedures may begin. Hyundai recommends that each response team follow their own department's standard operating procedures for fighting truck/truck fires in combination with the MIGHTY Electric Truck specific details that are covered in this s ection.

Firefighting Operations - If the high-voltage battery pack is either involved in or at risk of being involved in a fire in a MIGHTY Electric Truck, strict cautions must be taken while conducting firefighting operations due to the following reasons:

- May burn rapidly with a flare-burning effect.
- Even after the high-voltage battery fire appears to have been extinguished, renewed or delayed.
  - Use a thermal imaging camera to ensure the high-voltage battery is completely cooled before leaving the incident.
  - Always advise second responders that there is a risk of the battery re-igniting.
  - Fire, submersion or a collision that has compromised the high-voltage battery, always store it in an open area with no exposures within 15 meters.
- A burning battery could release hydrogen fluoride, carbon monoxide, and carbon dioxide gasses. Use NIO SH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.
- Even if the high-voltage battery pack is not directly involved in a truck fire, approach the truck with extreme caution.

Extinguishers

In a fire where the high-voltage battery is not involved; extinguish the fire using an ABC fire extinguisher rated for an electric fire.

In fires where the high-voltage battery is involved, or the high-voltage battery is heating:

Extinguish fires using large and sustained amount of water to cool the high-voltage battery. Do not extinguish fire with a small amount of water. Firefighters should not hesitate to pour large amounts of water on the truck.

⚠WARNING **Electrocution Risk!**

- Before engaging in emergency response procedures, ensure the truck is disabled and wait for more than 5 minutes to allow the capacitor in the high voltage system to discharge to avoid electrocution.
- Exposed cables or wires may be visible inside or outside the truck. To prevent injury or death due to electrical shock, never touch the wires or cables before disabling the system, to prevent injury or death due to electrical shock.

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⚠WARNING **Explosive Risk!**

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High-Voltage Battery Damage and Fluid Leaks

The HV Battery assembly is enclosed in a sturdy metal case that is rigidly mounted to structural components of the truck. This construction helps prevent damage to the HV Battery assembly even in severe crashes. This section provides emergency responders with information regarding how to mitigate the severity of a damaged HV Battery assembly or gel electrolyte spill, however unlikely that might be.

- Cease all smoke, spark, flame activity around the truck.
- Electrolyte solution is a skin irritant.
- Do not touch or step on the spilled electrolyte.
- If electrolyte leak occurs, wear appropriate solvent resistant PPE and use oil, sand, or a dry cloth to clean up the spilled electrolyte. Be sure to adequately ventilate the area.

⚠ WARNING **Irritant Substance Risk!**

- Internal components of HV Batteries are irritants and sensitizers.
- To avoid contact with these irritants and sensitizers wear positive pressure self- contained breathing apparatus (SCBA) and other personal protective equipment (PPE) designed for use with these types of hazards.

Failure to wear proper SCBA and PPE can result in serious injury or death

- Electrolyte solution is an eye irritant – If contact with eyes, rinse with plenty of water for 15 minutes.
- Electrolyte solution is a skin irritant. Therefore, if there is contact with skin, wash off with soap.
- Electrolyte liquid or fumes that have come into contact with water vapors in the air will create an oxidized substance. This substance may irritate skin and eyes. In these cases, rinse with plenty of water and see a doctor immediately.
- Electrolyte fumes (when inhaled) can cause respiratory irritation and acute intoxication

Move to a well ventilated location for fresh air and wash mouth with water. See a doctor immediately.

To Jump-start the Truck

1. Make sure the booster battery is 24 volt supported.
2. If the booster battery is in another truck, do not allow the trucks to touch.
3. Turn off all unnecessary electrical loads.
4. First, connect one jumper cable to the positive (+) battery terminal of the discharged battery andconnect the other end to the positive (+) battery terminal for the jump-start.

Connect the second jumper cable to the negative (-) battery terminal for the jump-start and connect the other end to an unpainted robust fixed metal away from the battery.

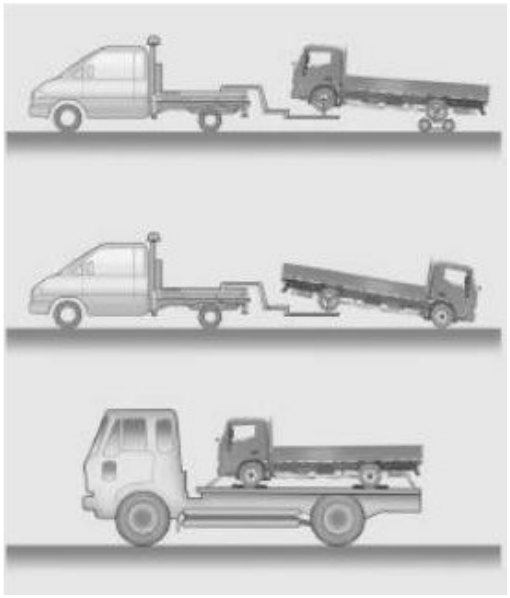
⚠ CAUTION

- Do not connect the cables to or near any part that moves when the truck is started.
- Do not allow the jumper cables to contact anything except the correct battery terminals or the correct ground.
- Do not lean over the battery when making connections.

Towing

When towing MIGHTY Electric truck, all wheels should be off the ground and not in contact with the road. If emergency towing is necessary, we recommend having it arranged by an authorised Hyundai Commercial Dealer or a commercial tow-truck service. The use of wheel dollies or flatbed is recommended.

- The truck's driveline can be damaged if towed incorrectly.
- Be sure the driveline is in neutral.
- When the truck will not "READY", be sure the steering is unlocked by placing the Ignition Key in the 'ACC' position.
- When towing the truck, take care not to cause damage to the bumper or underbody of the truck.
- Never tow the truck with the rear wheels on the ground, as this may cause a fire and/or damage the electric motor system or driveline.
- If the truck has to be towed with front wheels lifted, the use of wheel dollies or a flatbed is recommended.



⚠ CAUTION

- Do not tow the truck backwards with the front wheels on the ground as this may cause damage to the truck.
- Do not tow with sling-type equipment. Use wheel lift or flatbed equipment.
- Never tow the truck with the front wheels on the ground (forward or backward), as this may cause damage to the truck.

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