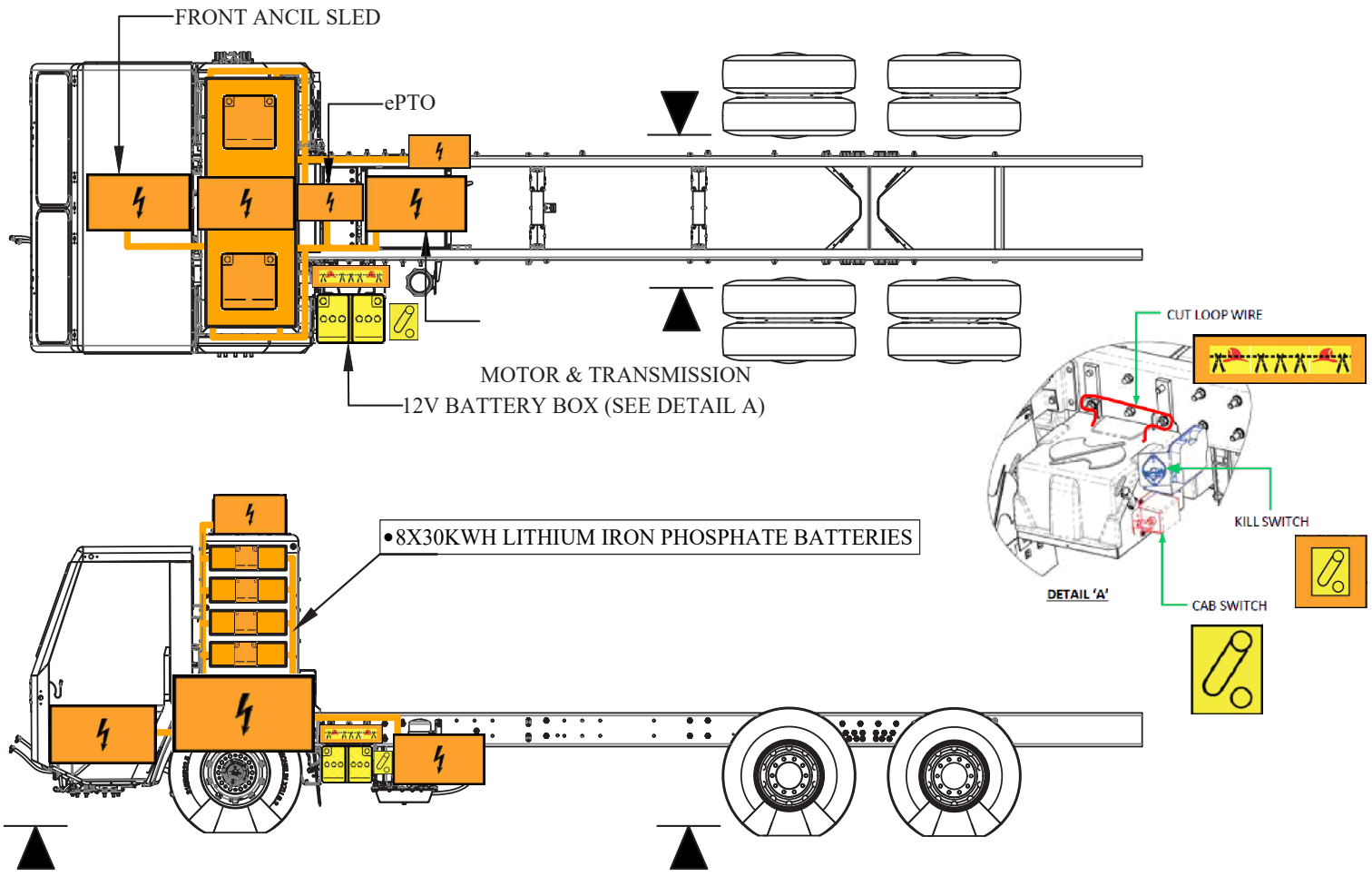
BATTLE MOTORS

Emergency Response Guide (ERG)

Battery Electric Vehicle (BEV)

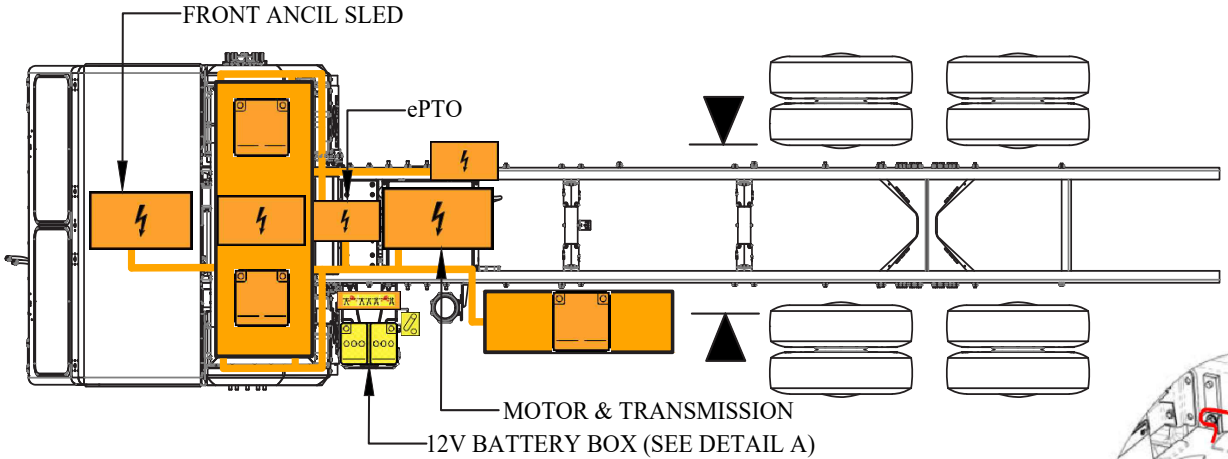
Contents

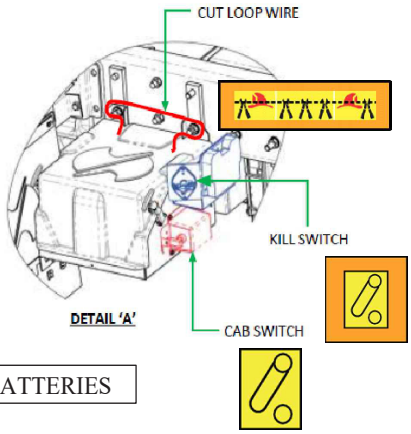
	Battle Motors **LNT/Striker, LET2/Raider** **Production start: 2022**	**BEV 240 System Components**

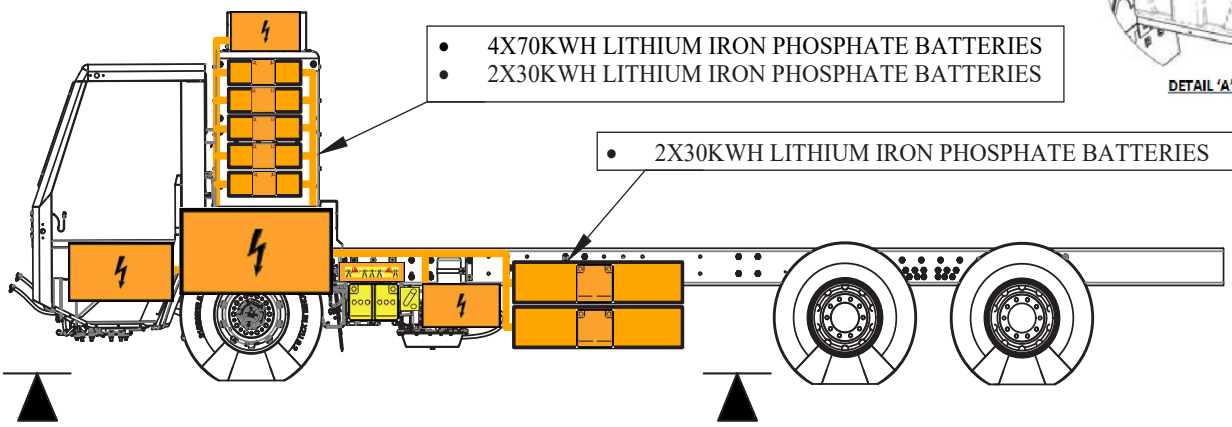


	HIGH VOLTAGE COMPONENTS		HIGH VOLTAGE LITHIUM IRON PHOSPHATE (LiFePo4) BATTERIES		CAB SWITCH DISCONNECT
	CABLE CUT		LOW VOLTAGE BATTERY		HIGH VOLTAGE DISCONNECT
	LIFT POINT		HIGH VOLTAGE POWER CABLE		

	Battle Motors **LNT/Striker, LET2/Raider** **Production start : 2022**	**BEV 400 System Components**

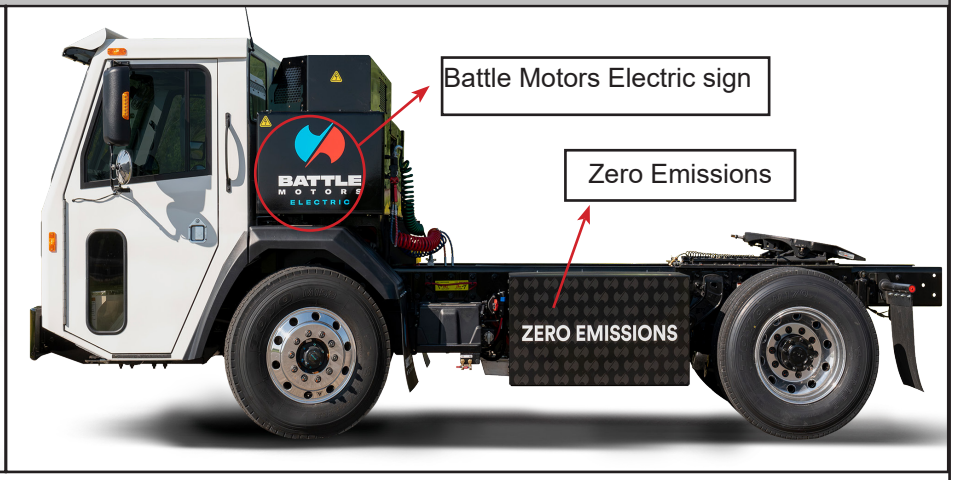






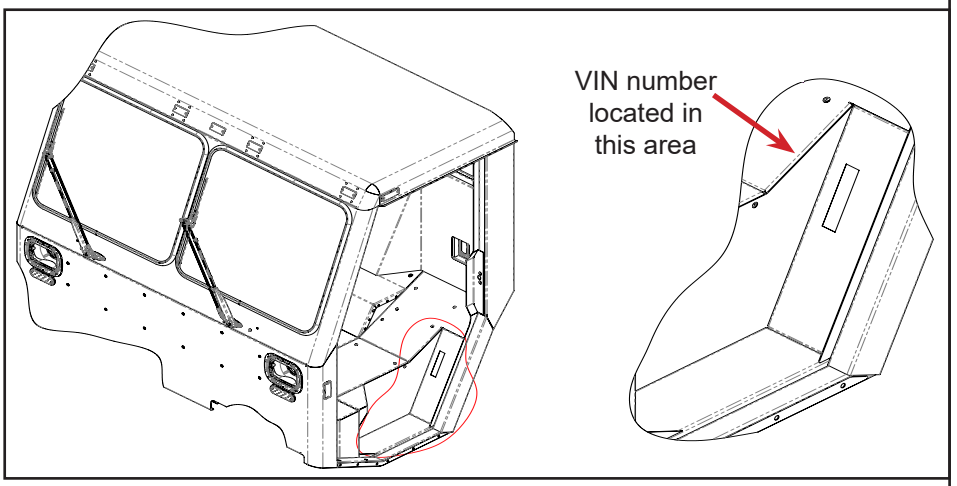
	HIGH VOLTAGE COMPONENTS		HIGH VOLTAGE LITHIUM IRON PHOSPHATE (LiFePo4) BATTERIES		CAB SWITCH DISCONNECT
	CABLE CUT		LOW VOLTAGE BATTERY		HIGH VOLTAGE DISCONNECT
	LIFT POINT		HIGH VOLTAGE POWER CABLE		

1. Identification / recognition



Vehicle Identification Numner (VIN)
The full 17-digit Vehicle Identification Number (VIN) and Engine/Motor Serial Number can be found on a printed sticker near the center of the cab in the left-hand side foot well or can be found in the left-hand doorjamb depending on model.

Vehicle Serial Numner
The vehicle serial number is the last seven (7) digits of the VIN. The serial number is also stamped on the outer web of the left side frame rail directly next to the cab latch. It can be viewed after safely tilting the cab forward.



Tilting, raising, and lowering the cab

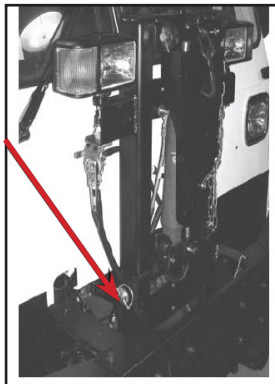
Tilting the cab

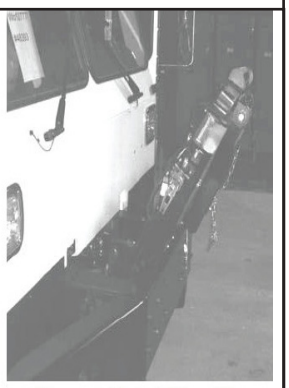
Battle Motors snow plow hitch option

Units with the factory-installed Battle Motors plow hitch require tilting of the hitch prior to raising the cab. To tilt the plow hitch, support the hitch and remove the retaining pin. Lower the hitch away from the cab.

Note: Plow hitch must be tilted prior to tilting the cab. Failure to tilt plow hitch prior to tilting the cab will result in damage to the cab and/or plow hitch.

Apply the parking brakes to prevent vehicle movement and possible injury or death.

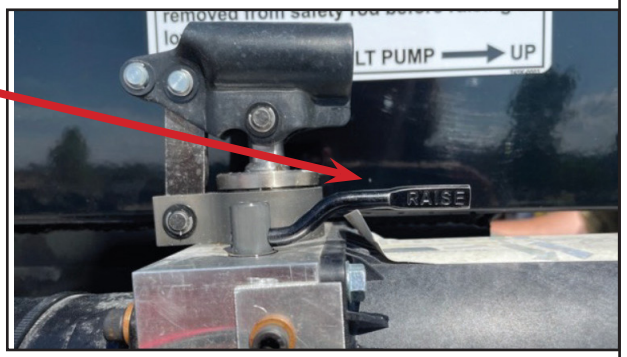

Plow Hitch Jack Handle Storage


Plow Hitch Tilted to Raise Cab

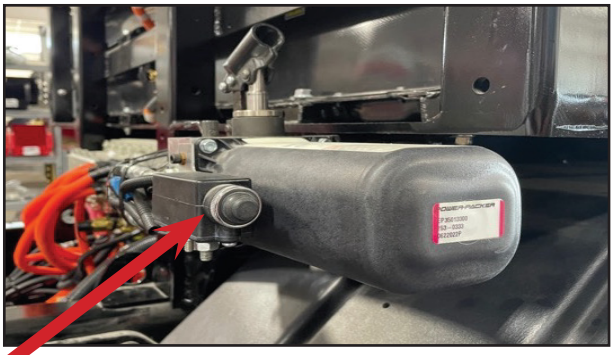
Raising the cab

Note: Before raising or lowering the cab, the transmission must be in neutral, turn off the ignition, all items inside the cab must be secure, the area in/around the cab must be clear, and the doors must be closed and latched. Read the label with cab tilting information.

Do not rely on hydraulic pressure to hold the cab in a partially tilted position. Always fully tilt the cab and put the lock pin in the safety bar to prevent personal injury or death.



1. Park on a flat, even surface before you begin.



2. Check and correct the following:

   - All areas in and around the cab are clear.
   - All items in the cab are secure.
   - The doors are closed and latched.

3. Place the pump selector lever in the “RAISE” position.

4. Press and hold the electric cab jack button until the cab has moved over center and into its full tilt position.

5. Place the lock pin into the safety bar. The pin is attached to a cable located on the passenger’s side of the vehicle.

Lowering the cab

Note: Before tilting the cab back down, always make sure the area under the cab is clear and the pin has been removed from the safety bar. Keep clear of the cab when it is raised and lowered. Read the label with cab tilting information

1. Remove the lock pin from the safety bar.

2. Check and correct the following:
   - All areas in, under and around the cab are clear.
   - All items in the cab are secure.
   - The doors are closed and latched.

3. Place the pump selector lever in the “LOWER” position.

4. Press and hold the electric cab jack button until the cab has tilted back over center and into its original position. The hydraulic latch will automatically engage.

Note: The pump lever must remain in the “LOWER” position anytime the cab is down.

Note: If for some reason the battery is disconnected or has lost its charge, the pump can be operated manually. Instead of pressing and holding the electric cab jack button, you will need to use the manual pump handle to raise or lower the cab. The handle can be found mounted near the bottom of the passenger’s seat. Slide the handle into the pump and move it in an up and down motion to raise or lower the cab.

2. Immobilization / stabilization / lifting

This electric vehicle does not have an internal combustion engine. Lack of noise does not mean the vehile is OFF. Always approach the truck from the sides to stay clear of the potential travel path. Due to the reduced noise of the electric vehicle it could be difficult to determine if the truck is moving or charging.

1. Bring the truck to a complete stop. Pull to apply the parking brake.

2. Position chocks in both the front and back of each wheel.

Failing to completely stop the vehicle and apply the parking brake before exiting the cab can cause pinching or crushing. Do not exit the vehicle without first applying the parking brake.

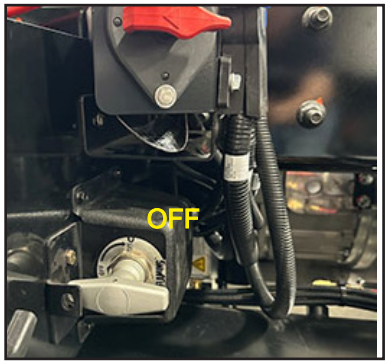
3. Disable direct hazards / safety regulations

- When shutting down the high voltage system wait at least fifteen minutes for the complete discharge of high voltage capacitors.
- HV system shutdown procedure is designed to disable the vehicles HV system, not to discharge the High Voltage (HV) battery. **THE BATTERY WILL REMAIN ENERGIZED.**
- After performing any HV shutdown procedure to disable the HV system, never assume the system is no longer energized. Always use appropriate HVPPE (including high voltage, Class 0 (1000V) rubber insulated safety gloves and self-contained breathing apparatus (SCBA)) and verify de-energization with a multimeter.

Use the following procedures to disable the High Voltage Energy in an emergency situation.

Primary Procedure

1. If the vehicle is on (ignition key is in RUN position), turn the ignition key counterclockwise to OFF position (vertical to horizon) and remove the key.



2. Turn the Master Disconnect (Kill Switch) counterclockwise to the OFF position (horizontal to horizon).

NOTE: All the components are designed to discharge their own capacitance within 5 (five) mintues.

If unable to perform the primary procedure

1. Go to the left side of the vehicle.

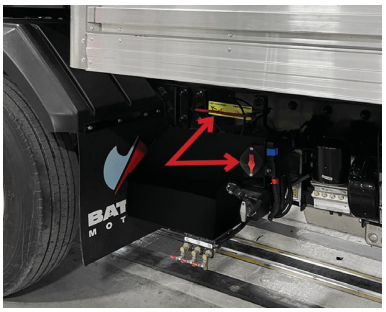
2. Behind the cab, typically on the left side of the vehicle, locate the Safety Circuit Cut Loop found near the 12V DC Battery Box. This circuit section can be used to disable the High Voltage system. See picture below of the Safety Circuit Cut Loop.

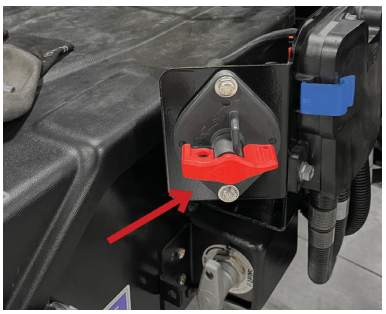
3. Turn the Master Disconnect (Kill Switch) counterclockwise to the OFF position (horizontal to the horizon).

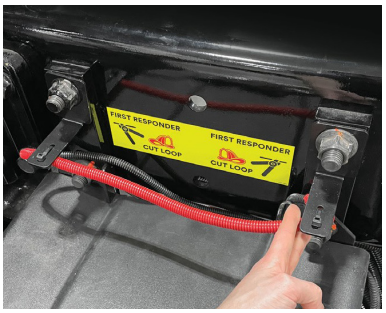
4. In the event of an EMERGENCY, locate the Safety Circuit Cut Loop as indicated.

5. Use bolt cutters to cut the Safety Circuit Cut Loop on each side of the label to disconnect the traction voltage supply from the traction batteries.

6. Remove a one (1) foot or 12-inch section of wire.







Manual Service Disconnect (MSD) removal

If the traction batteries are damaged, there is a risk of thermal or chemical reaction.

Always wear appropriate Personal Protective Equipment (PPE) including high voltage, Class 0 (1000V) rubber insulated safety gloves and self-contained breathing apparatus (SCBA).

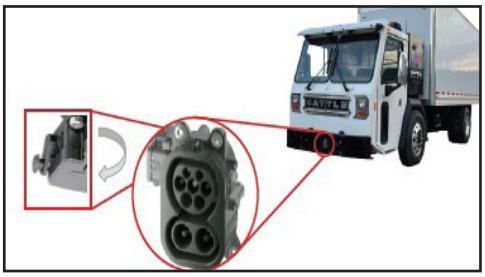
When the vehicle is involved in a collision, the entire vehicle could be energized. Do not perform any operation on a damaged truck without appropriate HVPPE.

In case of a Traffic Accident

1. Safely stop the vehicle, open the door, carefully evacuate all passengers, remove the key and if conditions permit, raise the cab to remove the Manual Service Disconnects (MSD). To remove the MSDs, push inward on the tab located on the lever. Pull the lever up part way and push the tab a second time. Pull the lever the rest of the way, in an upward fashion, and then remove the MSD by sliding it out of its inlet.
2. Handle the traffic accident according to local regulations.
3. Have the unit towed to an authorized Battle Motors dealer for safety inspection prior to driving the vehicle.

If Truck is charging

If no visible sign of danger, carefully remove the charging plug from the charging inlet. See Figure below.



If the charging plug cannot be pulled out - Retract the pin manually

1. Turn off the master disconnect (counterclockwise so it is horizontal to the horizon) to initiate the high voltage disconnection process.

2. Rotate the lever and remove the charging plug.

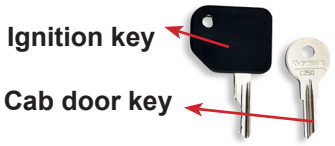
Post-Battery Damage Observation

- Risk of delayed fire can happen after the fire suppression or if the Lithium Iron Phosphate batteries are damaged.
- Park the BEV truck involved in an accident in a suitable place maintaining a safe distance from the other vehicles, buildings, and combustible objects (50ft or more).
- Observe the truck for a minimal period of 48 hours using a thermal infrared camera.

If high voltage battery is damaged, store vehicle at least 50 feet from structures or vehicles.

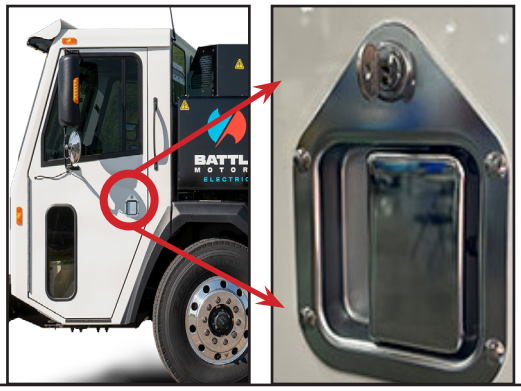
4. Access to the occupants

Note: The ignition key and the door key are separate keys. The key to the door is small and silver with a rounded top. The ignition key has a square top and is covered in black plastic.



Opening door from the outside

1. Insert the key in the door lock and turn it clockwise to unlock the right-hand side door.



2. Insert the key in the door lock and turn it counterclockwise to unlock the left-hand side door.

3. To open the door, grasp the handle and pull out while exerting some force on the door.

Opening door from the inside

1. To open the door from inside the cab, pull the handle while exerting some outward force on the door.

Standard seat adjustments

1. Move the lever under the front of the seat base.

2. Slide the seat fore or aft to the desired position and release the lever to lock the seat in position.

Sears Atlas air suspension seat adjustment

1. **Backrest adjustment:** Pull up on the handle located on the left-hand side just below the backrest. Move the backrest to the desired position and release the handle.

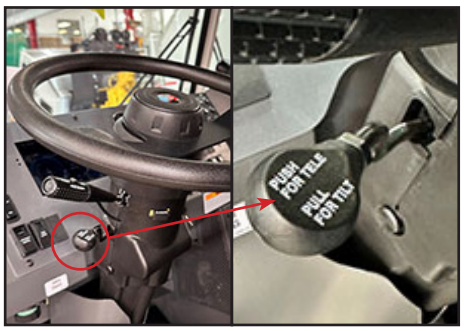
2. **Slide adjustment:** Lift the handle to adjust seat to desired fore-aft position.

3. **Suspension height adjustment:** Push the chrome knob located on the right-hand back rest bracket inward to inflate and raise the suspension. To deflate and lower the suspension, pull out on the chrome knob.

Steering column adjustment

1. Push the telescopic steering adjust lever to adjust the height of steering wheel (telescopic length of the column).

2. Pull the telescopic steering adjust lever to adjust the angle of the steering wheel (tilt of the column).



Windows and wind screen

1. The wind screen is made of laminated glass.

2. The rear and side windows are made of tempered glass.

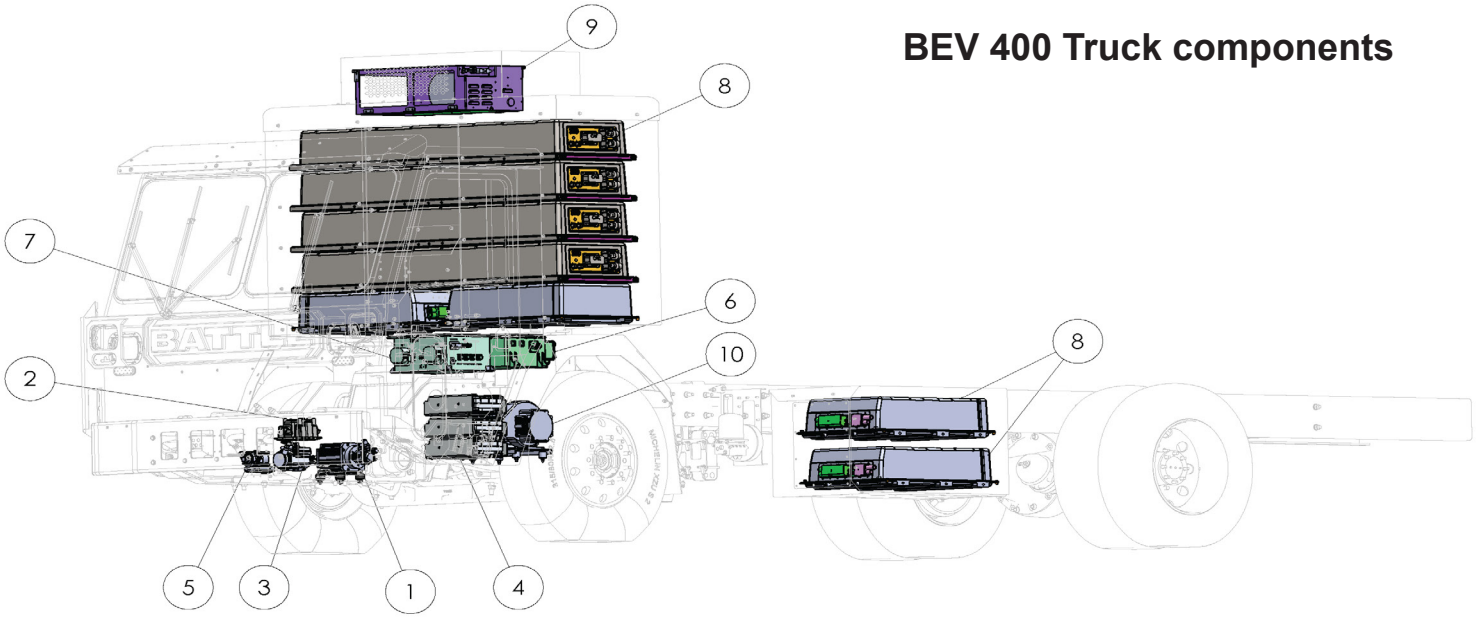
3. In some cases, when there is a folding door present, the bottom window on the door is Lucite.

High strength zone

NOTE: There is no High-Strength and Ultra-HighStrength Steel in the cab. The cab structure is made predominantly of plain carbon sheet steel that does not exceed 413 Mpa.

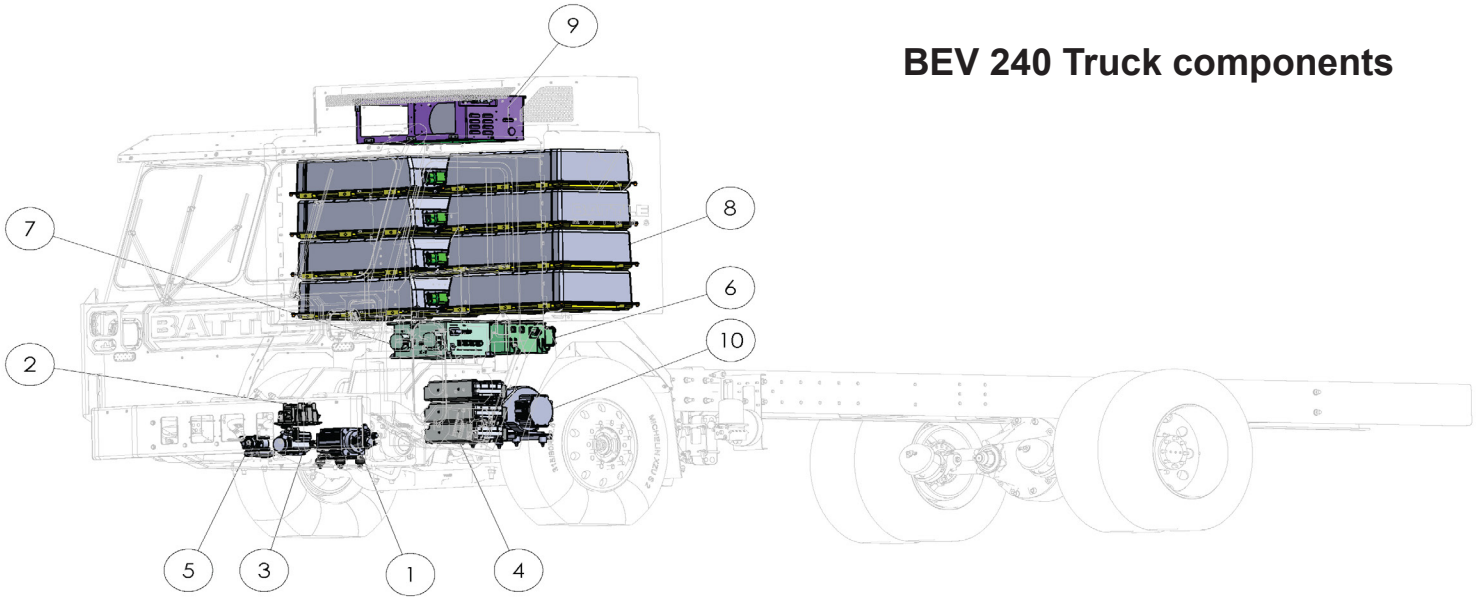
5. Stored energy / liquids / gases / solids

BEV 400 Truck components



1. Power steering pump: 4 KW power steering pump.	**6. PDU:** Power distribution unit receives 700V DC input from the S-box and distributes to the high voltage components. It also includes a DC/DC converter to charge the 12V batteries.
2. EVCC: Electric vehicle charge controller (EVCC) is part of the Electric Charging Subsystem, facilitating communication between wall charger and vehicles, as well as providing shock and thermal protection while providing high voltage contact control.	**7. S-Box:** Smart junction box receives 700V input from the high voltage batteries and acts as the main circuit breaker for the high voltage system.
3. A/C Compressor: 3 KW A/C compressor.	**8. HV Battery (396 KW system):** Four 70 KW and two 30 KW LI-ION batteries located behind the cab and two 30 KW batteries located on the side of the frame.
4. On board charger (OBCC): Three 6.6 KW on board chargers that take the AC input from the wall charger to charge the high voltage batteries at 19.8 KW.	**9. Chiller:** 7 KW chiller provides the cooling system for the high voltage batteries.
5. Heater pump: 12 KW heater pump.	**10. Air compressor:** 7 KW Air compressor.

BEV 240 Truck components



1. **Power steering pump:** 4 KW power steering pump.	6. **PDU:** Power distribution unit receives 700V DC input from the S-box and distributes to the high voltage components. It also includes a DC/DC converter to charge the 12V batteries.
2. **EVCC:** Electric vehicle charge controller (EVCC) is part of the Electric Charging Subsystem, facilitating communication between wall charger and vehicles, as well as providing shock and thermal protection while providing high voltage contact control.	7. **S-Box:** Smart junction box receives 700V input from the high voltage batteries and acts as the main circuit breaker for the high voltage system.
3. **A/C Compressor:** 3 KW A/C compressor.	8. **HV Battery (240 KW system):** Eight 30 KW LI-ION batteries located behind the cab.
4. **On board charger (OBCC):** Three 6.6 KW on board chargers that take the AC input from the wall charger to charge the high voltage batteries at 19.8 KW.	9. **Chiller:** 7 KW chiller provides the cooling system for the high voltage batteries.
5. **Heater pump:** 12 KW heater pump.	10. **Air compressor:** 7 KW Air compressor.

6. In case of fire

Never attempt to penetrate the high voltage battery or its casing to apply water.	First responders must be approved to wear SCBA breathing apparatus.
Avoid contact with orange high voltage cabling and areas identified as high voltage risk by High Voltage warning labels.	Failure to disable the low-voltage system prior to occupant extraction may cause supplemental restraint system (i.e. airbags) to deploy causing injury or death.
Allow 2 minutes for the high voltage system to de-energize after disabling the high voltage disconnect switch.	Always wear appropriate Personal Protective Equipment (PPE) including high voltage, Class 0 (1000V) rubber insulated safety gloves and self-contained breathing apparatus (SCBA).
Always assume that all high voltage components are energized. Cutting, crushing, or touching high voltage components can result in serious injury or death.	When handling a submerged vehicle, failure to wear proper PPE could result in serious injury or death.
When fire is involved, consider the entire vehicle energized and do not touch any part of the vehicle.	Hot metals may be ejected during high voltage lithium battery fires, failure to wear proper PPE could result in serious injury or death.

1. If the circumstances permit, disable the system using The Primary Procedure as mentioned in the Disable direct hazards / safety regulations section above (page 7) before performing steps 2 and 3.
2. If occupants are still inside the vehicle or are trapped, use a CO2 or dry chemical fire extinguisher to protect the occupants until a hose line is available or until the occupants are removed.
3. Establish a 50-foot secure perimeter around the vehicle.

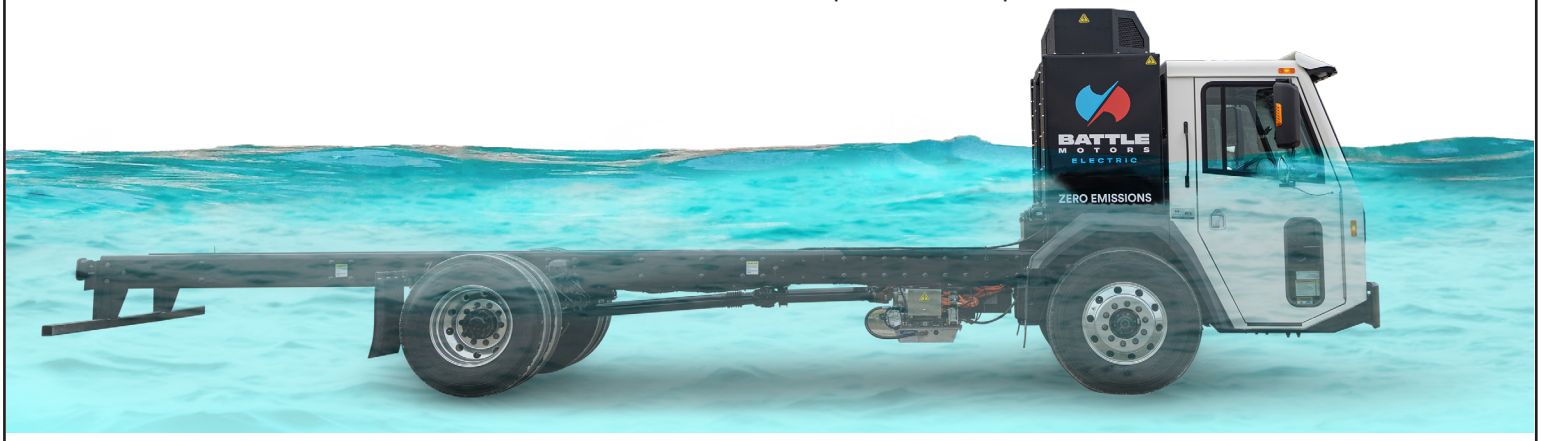
7. In case of submersion

1. Avoid any contact with the traction voltage cables and electric components.
2. Handling a submerged truck without the appropriate PPE may result in serious injury or death due to electric shock.

1. Never come into contact with a submerged BEV truck or the water surrounding it without proper Personal Protective Equipment (PPE) including high voltage, Class 0 (1000V) rubber insulated safety gloves and self-contained breathing apparatus (SCBA). Electrocution causing serious injury or death may result.
2. Water intrusion can damage all electrical components regardless of system voltage.
3. The damage level of a submerged vehicle may not be visible.
4. Submersion in water can damage 12V and 700V Lithium Iron Phosphate components.

Vehicle Immersion scenario: Pay attention to the following items if the vehicle is accidentally immersed in water,

1. Do not turn on the power supply.
2. Have vehicle towed to an authorized Battle Motors dealer for inspection and repair. See Section 8.



If possible disable direct hazards as described in section 3.

Vehicle wading in water scenario:

Pay attention to the following items if the vehicle is traveling on roads with water:

Depth	Speed	Time
≤12 in	≤5 mph	≤10 min

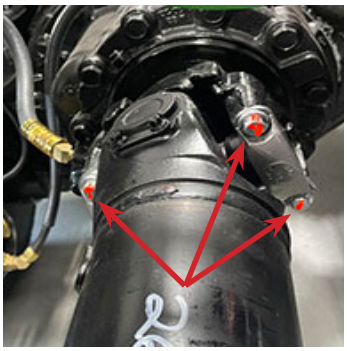
8. Towing / transportation / storage

Before towing the truck, it is mandatory to disconnect the drive shaft from the wheels.

Warning signs of hazardous damage: Sparks, smoke, increasing temperature gurgling/bubbling sounds from high voltage battery.If any of these signs are observed, ventilate the vehicle immediately and park away from other structures and vehicles. The high voltage battery may be giving off harmful/flammable gases and may become a delayed fire hazard.

The electric motors can produce electricity when moving the truck with the rear drive tire on the ground. This remains a potential source of electric shock even when the high voltage system is disabled. Do not touch the truck when it is in motion.

Before towing the truck, it is mandatory to disconnect the drive from the wheels.Use a 13mm 12 point socket to remove the four bolts connecting the U-joint straps on each side of the driveshaft (8 bolts total). This will allow removal of the driveshaft before towing.



If high voltage battery is damaged, store vehicle at least 50 feet from structures or vehicles.

Maximum loading during lifting and towing:

This information specifies the loading which can be applied when using towing hook, towing hitch cross-member, axle and torque stay anchorages.

Single towing hook: Do not load the hook more than vehicle gross weight.

Double towing hooks: Do not load each hook more than half the vehicle gross weight.

Towing hitch, towing hitch cross-member: Max. 200mm (7.8 inches) from center of member web.

- Lengthwise: 20 tons
- Vertically (lift): 7 tons
- Sideways: 17 tons

NOTE: When the vehicle is towed with the rear suspension lifted, the steering wheel must be locked with a steering lock.

NOTE: If roof deflector cannot be removed, tow from the front of the vehicle only.

9. Important additional information

Never cut orange high voltage cables. Always assume the orange cable is energized.

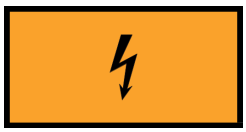
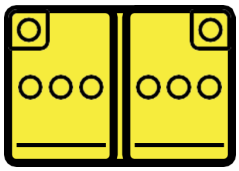
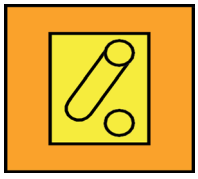
Never touch damaged or submerged high voltage cables or components.

Do not perform any operation on a damaged truck without appropriate HVPPE.

Remove all metallic jewelry including watches, rings, or glasses containing metal. Failure to follow these instructions may result in serious personal injury or death.

Always wear appropriate Personal Protective Equipment (PPE) including high voltage, Class 0 (1000V) rubber insulated safety gloves and self-contained breathing apparatus (SCBA).

10. Explanation of pictograms used

	Electric Vehicle
	High-voltage component
	Lithium Iron Phosphate batteries
	Low-voltage battery
	Cable cut
	Disconnect high-voltage device
	High-voltage power cables
	General warning sign
	Warning, Electricity
	Lift points

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Rev. 11/2025
122-1547

BATTLE MOTORS

Rescue Sheet (RS)

Battery Electric Vehicle (BEV)

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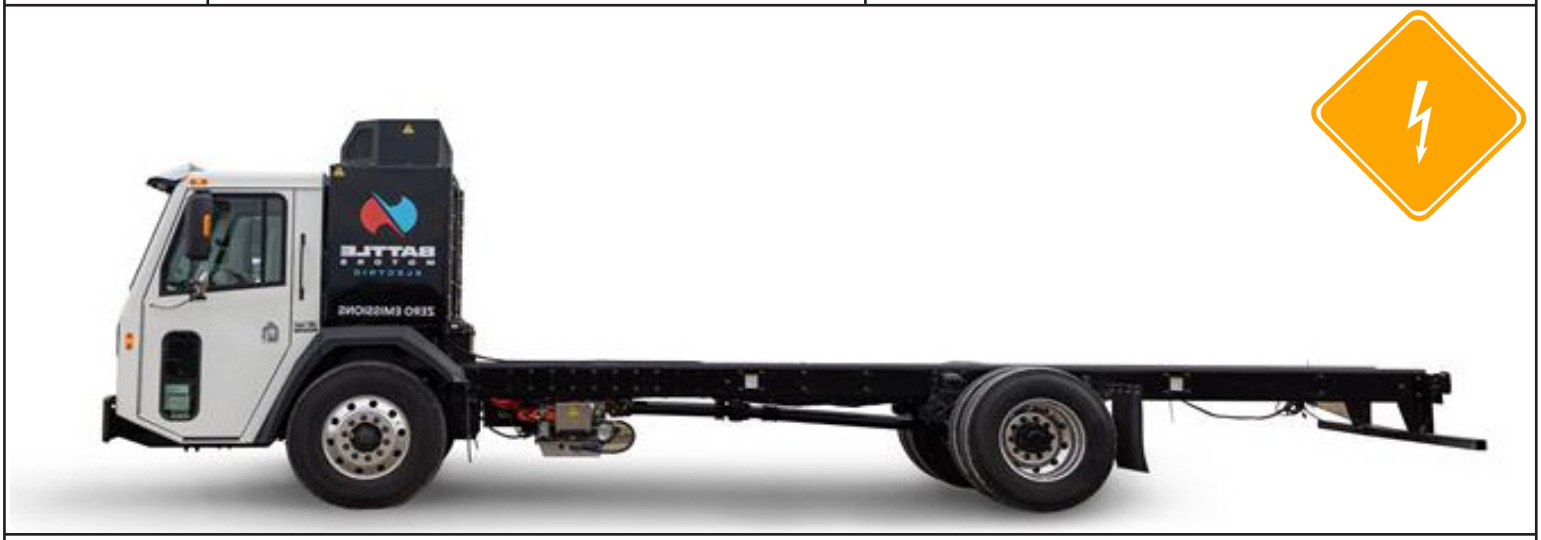

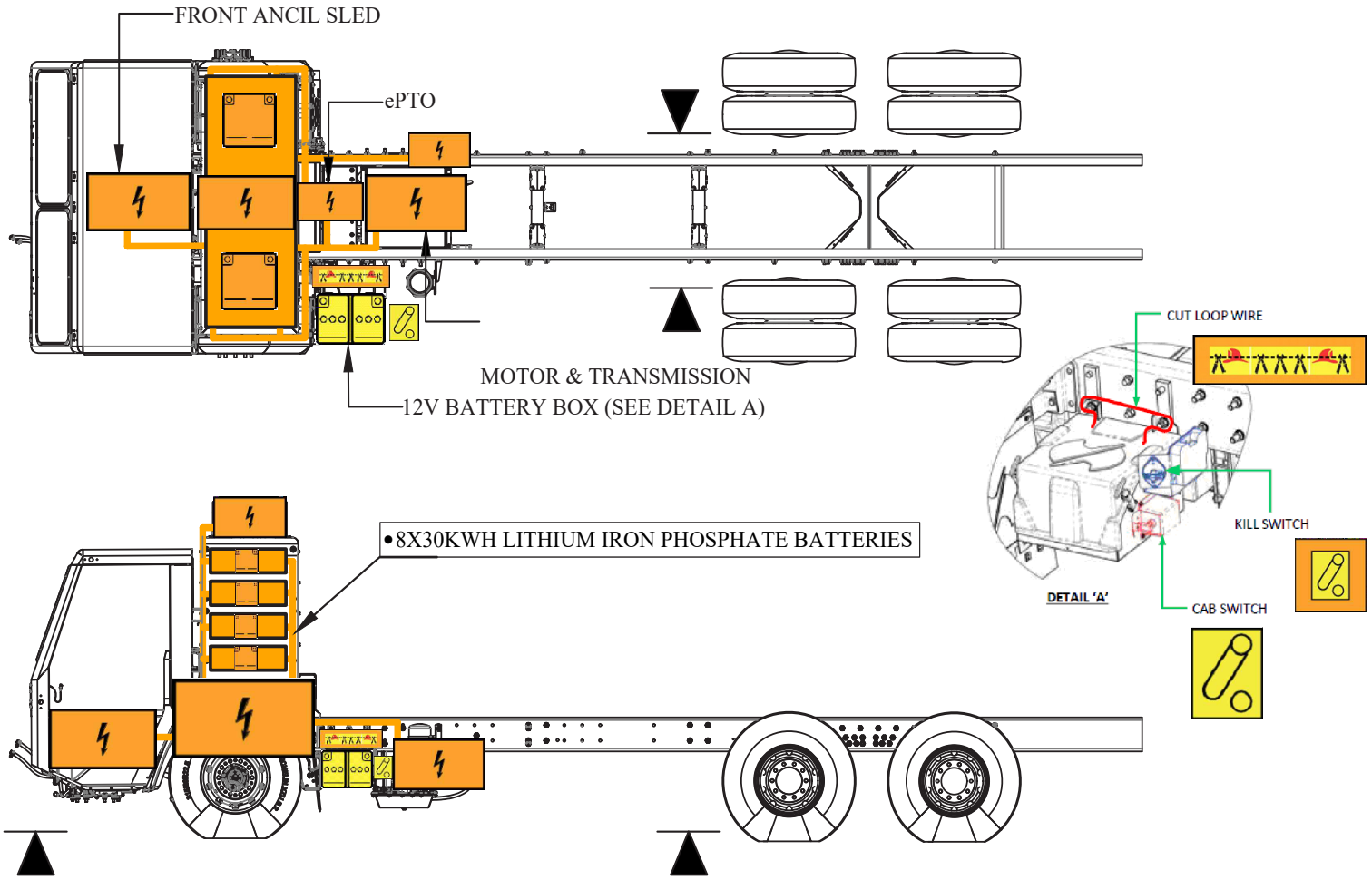

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	CABLE CUT		LOW VOLTAGE BATTERY		HIGH VOLTAGE DISCONNECT
	LIFT POINT		HIGH VOLTAGE POWER CABLE		

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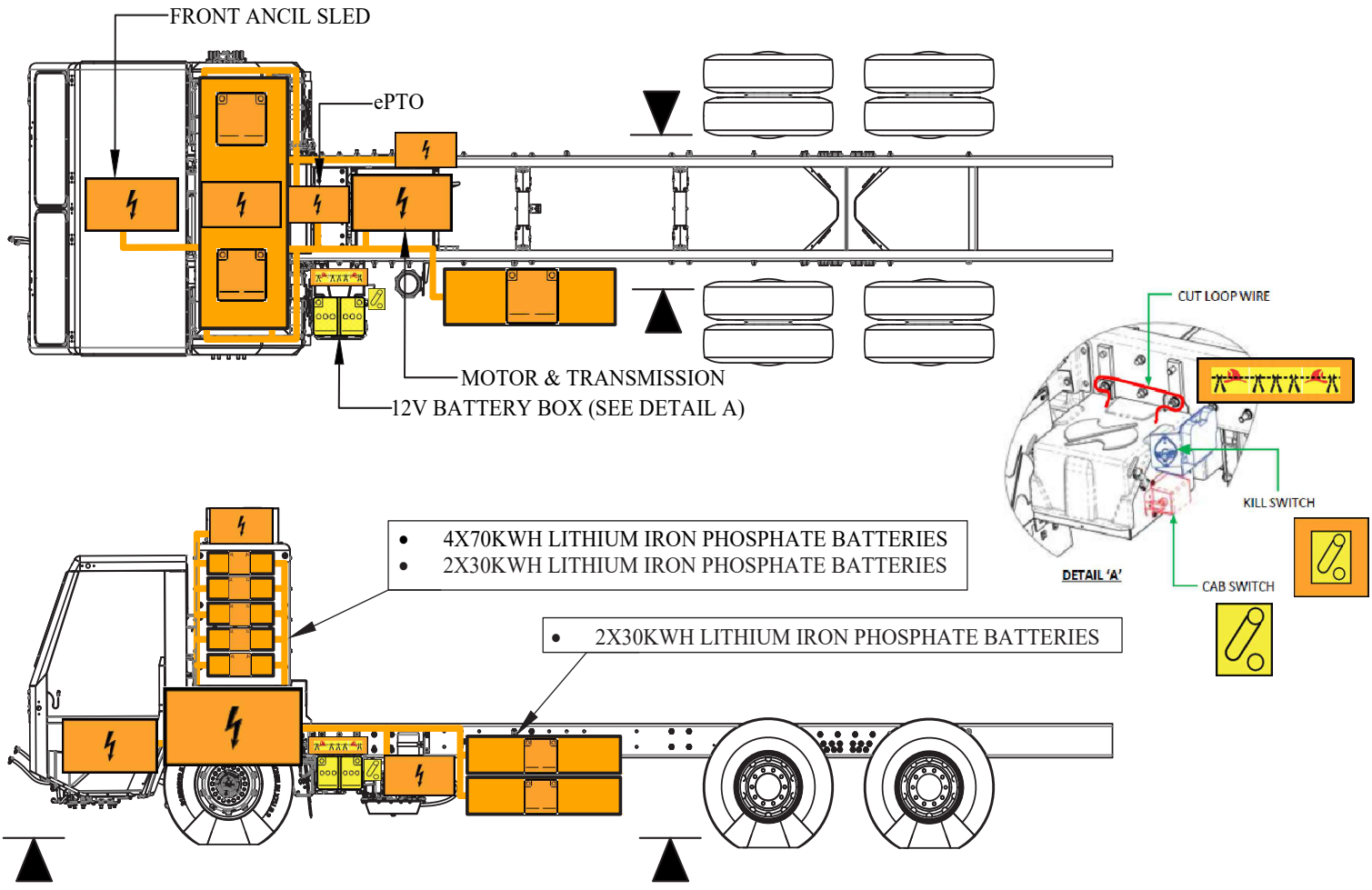
Production start : 2022

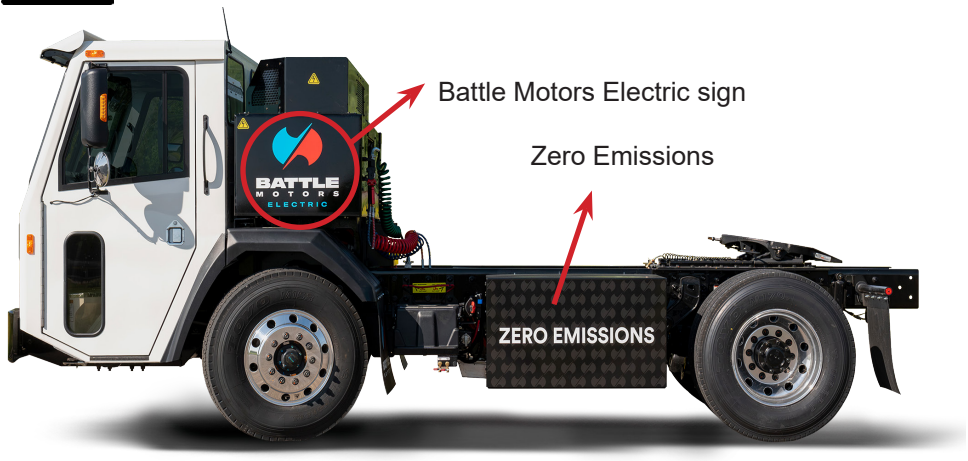
BEV 400 System Components



	HIGH VOLTAGE COMPONENTS		HIGH VOLTAGE LITHIUM IRON PHOSPHATE (LiFePo4) BATTERIES		CAB SWITCH DISCONNECT
	CABLE CUT		LOW VOLTAGE BATTERY		HIGH VOLTAGE DISCONNECT
	LIFT POINT		HIGH VOLTAGE POWER CABLE		

1. Identification / recognition

If any damage is present to either high voltage battery box do not touch or come in contact with any portion of the vehicle unless you are protected by the correct high voltage personal protective equipment (HVPPE).



Battery Electric Vehicle

2. Immobilization / stabilization / lifting

This electric vehicle does not have an internal combustion engine. Lack of noise does not mean the vehile is OFF. Always approach the truck from the sides to stay clear of the potential travel path. Due to the reduced noise of the electric vehicle it could be difficult to determine if the truck is moving or charging.

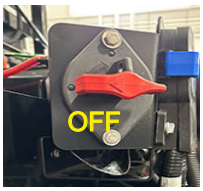
1. Bring the truck to a complete stop. Pull to apply the parking brake.
2. Position chocks in both the front and back of each wheel.

Failing to completely stop the vehicle and apply the parking brake before exiting the cab can cause pinching or crushing. Do not exit the vehicle without first applying the parking brake.

3. Disable direct hazards / safety regulations

- When shutting down the high voltage system wait at least fifteen minutes for the complete discharge of high voltage capacitors.
- HV system shutdown procedure is designed to disable the vehicles HV system, not to discharge the High Voltage (HV) battery. **THE BATTERY WILL REMAIN ENERGIZED.**
- After performing any HV shutdown procedure to disable the HV system, never assume the system is no longer energized. Always use appropriate HVPPE and verify de-energization with a multimeter.

Use the following procedures to disable the High Voltage Energy in an emergency situation.



1. If the vehicle is on (ignition key is in RUN position), turn the ignition key counterclockwise to OFF position (vertical to horizon) and remove the key.
2. Turn the Master Disconnect (Kill Switch) counterclockwise to the OFF position (horizontal to horizon).

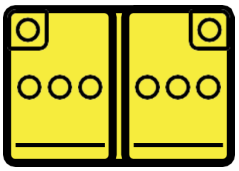
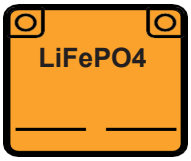
NOTE: All the components are designed to discharge their own capacitance within 5 (five) mintues.

4. Access to the occupants

Note: The ignition key and the door key are separate keys. The key to the door is small and silver with a rounded top. The ignition key has a square top and is covered in black plastic.

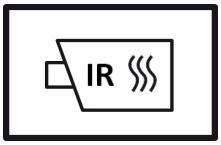
Two exit doors, one on each side.

5. Stored energy / liquids / gases / solids

 Low-Voltage Battery	 Flammable	 Corrosives	 Health Hazards	
 High-Voltage Battery	 Hi-Voltage Warning	 Flammable	 Corrosives	 Health Hazards

6. In case of fire

Always wear appropriate Personal Protective Equipment (PPE) including high voltage, Class 0 (1000V) rubber insulated safety gloves and self-contained breathing apparatus (SCBA).

 Use water to extinguish Li-ion fires	 Gases emitted from battery pack are toxic
 Potential for eye, nose and throat irritation	 Potential for battery re-ignition. Check battery pack temperature using a thermal infrared camera.

7. In case of submersion

Vehicle Immersion scenario: Pay attention to the following items if the vehicle is accidentally immersed in water,

1. Do not turn on the power supply. Follow section 3 to disable direct hazards.
2. Have vehicle towed to an authorized Battle Motors dealer for inspection and repair.

8. Towing / transportation / storage

Before towing the truck, it is mandatory to disconnect the drive shaft from the wheels.

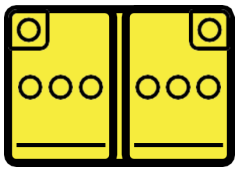
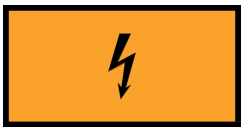
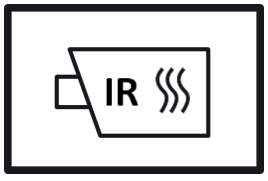
Warning signs of hazardous damage: Sparks, smoke, increasing temperature gurgling/bubbling sounds from high voltage battery.If any of these signs are observed, ventilate the vehicle immediately and park away from other structures and vehicles. The high voltage battery may be giving off harmful/flammable gases and may become a delayed fire hazard.

The electric motors can produce electricity when moving the truck with the rear drive tire on the ground. This remains a potential source of electric shock even when the high voltage system is disabled. Do not touch the truck when it is in motion.

9. Important additional information

Never cut orange high voltage cables. Always assume the orange cable is energized.
Never touch damaged or submerged high voltage cables or components.
Always wear appropriate Personal Protective Equipment (PPE) including high voltage, Class 0 (1000V) rubber insulated safety gloves and self-contained breathing apparatus (SCBA).
Do not perform any operation on a damaged truck without appropriate HVPPE.

10. Explanation of pictograms used

	Electric Vehicle		Low-voltage battery
	High-voltage component		Cable cut
	Lithium Iron Phosphate batteries		Disconnect high-voltage device
	High-voltage power cables		General warning sign
	Warning, Electricity		Corrosives
	Flammable		Health hazards
	Use water to extinguish Li-ion fires		Potential for battery re-ignition. Check battery pack temperature using a thermal infrared camera.
	Risk of acute toxicity		Lift points