Mullen CAMPUS
Owner's Manual

California Proposition 65

⚠WARNING

Operating, servicing, and maintaining a passenger vehicle or off-highway vehicle can expose you to chemicals including phthalates and lead, which are know to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, wear gloves or wash your hands frequently when servicing your vehicle. For more information go to: www.P65Warnings.ca.gov/passenger-vehicle.

⚠WARNING

Certain components of this vehicle such as airbag modules and seat belt pretensioners may contain Perchlorate Material. Special handling may be required for service or vehicle end of life disposal. See www.dtsc.ca.gove/hazardouswaste/perchlorate.

⚠WARNING

Battery posts, terminals, and related accessories contain lead and led compounds. Wash hands after handling.

Important Information

Contact Us

For service and parts:

Call Mullen Headquarters at 1-248-988-4498**.**

Email: service@mullenusa.com

Mullen Automotive
5755 New King Dr.
Troy, MI 48098

Thank you for partnering with Mullen Automotive!

By operating a Mullen CAMPUS electric vehicle, you have joined a growing group of drivers who can fully appreciate the difference that a purpose-built vehicle can make.

Please take the time to familiarize yourself with this owner's manual, the supplemental quick-start guide, and the vehicle itself. The time you invest will ensure a great relationship with your Mullen electric vehicle.

We welcome any questions about the vehicle, feedback about this manual, and other comments or concerns. Please visit our website, ***www.mullenusa.com/mullen-vehicle-center*** or call us at 1-248-988-4498.

Thank you!

Your team at Mullen

1 Introduction

This owner's manual is for vehicles sold in the United States.

1.1 Operator/Driver Information

Visit *www.mullenusa.com/mullen-vehicle-center* for the most current version of this manual.

To receive email notifications regarding future updates, provide contact information on the website.

1.2 Safety Notifications

Before driving the Mullen CAMPUS all electric vehicle, review this manual for important information on how to safely drive and operate the vehicle.

This manual uses the following signal words: Danger, Warning, Caution, and Notice to identify areas of special concern.

⚠ DANGER

Content marked as "DANGER" indicates a hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations.

⚠ WARNING

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

⚠ CAUTION

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

NOTICE

Content marked as "NOTICE" indicates matters not related to personal injury. Matters relating to damage of equipment or property may be included in this category.

1.3 Configuration Options

Options identified by "(if equipped)" indicate an optional configuration is available for different models of this vehicle. Please refer to your actual vehicle to determine if it is configured with these options.

1.4 Electrical Equipment

This vehicle has two types of electrical components: low voltage and high voltage. The low voltage system is similar to traditional motor vehicle systems and includes lighting and instrumentation. The primary purpose of the high voltage system is to provide power for moving the vehicle. The high voltage system is also used to charge the 12 volt (12V) system. The vehicle will not move if the 12V system is depleted.

1.4.1 Low Voltage Equipment

The rated working voltage of low voltage electrical equipment is 12 volts. The low voltage system includes the instrument panel, audio-visual system, lights, speakers, fans, and combination switches.

1.4.2 High Voltage Equipment

High voltage electrical equipment includes the drive motor, motor control unit, high voltage battery, air conditioner compressor, and heater. High voltage cables and connectors are bright orange in color.

⚠ DANGER

High voltage components, usually identifiable by attached orange cables, present an electrical shock hazard. To avoid injury, do not touch high voltage components, including the high voltage wiring harness and connectors.

1.4.3 Maximizing High Voltage Battery Life

Maintaining the State of Charge (SOC) between 20% and 90% will help improve the longevity of the high voltage battery. Charge the high voltage battery pack immediately if the SOC is below 20%. When charging, set the maximum state of charge at 90%.

When not in use, the vehicle should be stored in temperatures between 32°F (0°C) and 113°F (45°C). If the vehicle will be parked for an extended period (e.g., 30 days or more), set the maximum state of charge at 50%.

NOTICE

If left unplugged, the vehicles will use energy from the high voltage battery to recharge the 12V battery when needed.

2 Before You Drive

2.1 Before Starting the Vehicle

1. Walk around the outside of the vehicle. Make sure the area around the vehicle is clear of people and obstructions. Ensure that the air intake areas of the radiator are free of debris.
2. Take five minutes to inspect the vehicle's tire pressure and overall condition prior to driving. Maintain proper tire pressure in all four tires as indicated on the decal affixed in the driver's door frame. Keep a tire pressure gauge in the vehicle for this purpose. Low tire pressure causes premature wear to the tires and other vehicle components and diminishes vehicle performance and efficiency. Once your exterior inspection is satisfactory, you may get in the vehicle.
3. Ensure the parking brake is on.
4. Adjust the seat and mirrors.
5. Fasten the seat belt.
6. Turn off unnecessary accessories.
7. Ensure the gear selector dial is in Neutral (N).
8. Turn the ignition switch to ON, but do not start the vehicle yet.
9. For a brief moment, you should see all the indicator lights on the instrument panel. Most of these lights will turn off. A few indicator lights will remain on until you start the vehicle.

2.2 Starting the Vehicle

1. Turn the ignition key to the START position to start the vehicle. The READY indicator turns on when the vehicle is running. At this point, all other indicator lights should be off.

2. With your foot on the brake pedal, release the parking brake by lifting up and pressing the button on the end of the lever. Then push the lever downward to its home position.
3. If the vehicle does not start as it should, turn the key switch to LOCK. Set the gear selector dial to Neutral (N), place your foot on the brake pedal, and then try starting the vehicle again.
4. Select desired gear on the gear selector dial: Drive (D), Economy (E), or Reverse (R).
5. Remove your foot from the brake pedal and use the accelerator to reach the desired speed.

2.3 Vehicle Operation

2.3.1 Uphill Start

If you are starting the vehicle on an upward incline, leave the parking brake engaged prior to starting the vehicle. Once the vehicle is started, select the correct gear, and slowly release the parking brake while using the accelerator pedal to reach the desired speed.

The motor will produce enough power to handle the incline.

2.3.2 Regenerative Mode

This vehicle features a regenerative mode, or 'regen', to extend the driving range. Regen relies on the motor as a generator to convert kinetic energy from an object in motion to electrical energy that recharges the high voltage battery.

When the operator presses the brake pedal, regen assists the brakes by employing the motor to act as a generator. The generating process creates resistance against the rotating wheels which, in turn, helps slow the vehicle. As the vehicle slows, electrical energy is used to replenish the battery.

By selecting Economy (ECO), and relying on the motor to help slow the vehicle, drivers may extend their driving range. When switching between ECO and Drive, drivers may notice slight differences in the amount of pressure needed on the brake pedal to slow or stop the vehicle. The instrument panel will indicate a negative amperage, when the high voltage battery is being replenished. Regen is reduced when the high voltage battery State of Charge (SOC) is above 95% and at low temperatures. During these times of reduced regen, additional brake input may be required.

⚠WARNING

Do not turn off the ignition key while driving. Without vehicle power, steering and braking are less effective.

2.3.3 Parking Brake

To engage the parking brake, ensure the vehicle is at a complete stop and pull the parking brake hand lever backwards into an upwards position. Do not press the release button while engaging the parking brake.

To disengage the parking brake, place your foot on the brake pedal and lift the parking brake hand lever while pressing the button on the end of the lever. Then push the lever down to its home position. Ensure that the parking brake indicator is no longer on prior to driving.

⚠WARNING

Failure to apply the parking brake may allow the vehicle to roll, potentially causing property damage and personal injury.

2.3.4 Anti-Lock Braking System (ABS)

When slowing or stopping the vehicle, apply steady pressure on the brake pedal with your foot, and do not pump the brakes when the anti-lock braking system (ABS) becomes active. The ABS performs best when steady pressure is applied to the brake pedal. Pumping the brakes will increase the stopping distance.

2.3.5 Electric Power Steering (EPS) System

The vehicle is equipped with an electric power steering system, which helps the steering action be light and smooth. Power steering is automatically activated after the vehicle is started.

If the EPS indicator light comes on, the EPS system is faulty and requires immediate attention. Do not drive the vehicle until it is repaired.

2.4 Driving Tips

2.4.1 Weather and Cruising Range

Temperature changes in the operating environment affect the high voltage battery capacity. Colder temperatures cause a decrease in the battery capacity and a corresponding decrease in the cruising range of the vehicle. This is normal and should be expected. Use of the air conditioning or heating system will also affect the cruising range.

NOTICE

At low temperatures, the vehicle performance will be reduced until the battery comes up to temperature through either preconditioning (charging) or driving.

2.4.2 Driving and Alcohol, Medications, and Drugs

The vehicle operator must never attempt to drive while under the influence of alcohol, some medications (prescription or otherwise) or drugs. Impaired driving can mean slower reactions to rapid events, distorted perceptions, and lapses in judgment. It is second only to excessive speed in causing traffic accidents.

2.4.3 Driving in Standing Water

Driving in standing water or large puddles presents challenges to any vehicle, as well as to the driver. Care must be used to avoid loss of control, accidents, or vehicle damage.

If it is necessary to drive through standing water, drive slowly.

⚠CAUTION

If standing water is higher than 4 inches (~10cm) DO NOT DRIVE THROUGH IT. Seek an alternate route.

2.4.4 Economic Driving Tips

For better battery performance:

- Use Economy mode by selecting E on the gear selector. This is especially helpful when going down a long slope where the motor can be used for regenerative braking.
- Perform preventive maintenance (PM) on schedule to ensure that the vehicle functions properly and efficiently. See "Maintenance Schedule" on page 72.
- Avoid aggressive acceleration and braking. These actions reduce electric vehicle operating range and increase wear on vehicle components.
- Turn off unnecessary lights and HVAC.

2.4.5 Special Tips for Driving Electric Vehicles

Note that the vehicle does not turn off when it is stopped or reached a motor speed of zero. The vehicle is still running if the 'READY' indicator light is on.

Electric Vehicle (EV) performance differs from gas or diesel powered vehicle performance. EV performance is generally regarded as smoother. The driver does not feel or hear the switching of gears as they typically would in gas or diesel powered vehicles.

3 Operation

3.1 Charging Procedure

3.1.1 Charging Preparation

Before charging the vehicle, engage the parking brake, turn the ignition key to LOCK and remove the key.

Locate the charging cable and charging adapter. Ensure they are in good condition and look for signs of cracks or tears in the insulation. Ensure the connection ports are free of corrosion, water, or debris. Do not modify the cable in any manner, and do not use a charging cable with signs of damage.

Figure 1: The charging port door is located at the lower-left corner of the front passenger door.

The charging port of this vehicle is located near the passenger door, as shown. Inside the small door is a port for charging.

⚠WARNING

Damage to the charging port may affect the ability to charge the vehicle and may create an unsafe condition. Please have the vehicle serviced immediately.

Figure 2: To provide access to the charging port, the charging port door is opened by pulling a handle at the driver's position.

3.1.2 Charging Operation

⚠CAUTION

The access end of the Alternating Current (AC) charging power supply line must be equipped with a 20 amp (A) circuit breaker and be grounded.

Do not move the vehicle during charging.

Do not use extension cords with the charging cable. Only use cables provided by Mullen.

1. Pull the release handle for the charging port door.

Figure 3: Pull the left handle to open the charging port door.

2. At the charging port door, press release on the right side of the orange cover to open it and swing the cover to the left.
3. Ensure the charging adapter is attached to the charging cable.
4. Plug the charging cable into the 20 amp wall outlet.

Figure 4: Press the button to open the cover.

The home screen on the instrument panel should display "charging."

5. Press the button on the charging plug to unlatch the handle and unplug the charging plug from the charging port.
6. Close the orange cover to keep the port clean.

3.2 Battery Discharge Alert

Avoid completely discharging the battery. The instrument cluster will sound an alarm when the battery charge is less than 20%. Charge the battery when the alarm sounds to avoid damage to the battery.

3.2.1 Charging Information

The Mullen CAMPUS electric vehicle requires a 240-volt AC (VAC) outlet with a minimum 20A dedicated circuit when charging with the supplied charge cable and adapter. When using Level 2 charging stations with a J1772 male connection, the supplied adapter is required to connect to the Mullen CAMPUS charge port. In this scenario the on-board charger (OBC) of the Mullen CAMPUS will limit charge capacity to 3.3kW regardless of power output capabilities of the charge station.

3.2.2 Stored Vehicle Battery Renewal

If the vehicle is parked for an extended period, (e.g., more than 20 days), the 12V auxiliary battery may lose charge and fail to start the vehicle. To prevent the auxiliary battery from becoming depleted, periodically start the vehicle to allow the 12V battery to charge.

1. Apply the parking brake.
2. Turn the ignition key switch to the START position.
3. The READY telltale will display on the dash cluster.
4. Let the vehicle sit in READY state for 2 hours.

5. Then, turn the ignition key switch to the OFF position, the 12v battery should be fully charged.

Consider using a trickle charger on the auxiliary battery if the vehicle will not be driven for more than 20 days. Keep the doors fully closed and locked when parking the vehicle to prolong the battery life.

3.3 Keys and Locks

3.3.1 Remote Control Keys

Each vehicle is equipped with two remote control keys. The keys can unlock/lock the doors and the lift gate from outside the vehicle. The remote fob and the key are a single device.

Please keep the spare key in a safe place other than in the vehicle.

Figure 5: Remote control keys

FCC Information

See ***Radio Frequency Certification Labels*** on page 27.

3.3.2 Replacing a Lost Key

Replacement keys may be obtained by contacting your service department.

3.3.3 Doors and Latches

The driver door, front passenger door and the lift gate can be opened and locked with the keys, or remotely with the fobs. The vehicle will not lock if any door other than the lift gate is not completely closed. Any attempts to lock the vehicle from within while a door is not fully closed will be rejected and the lock will revert to the unlocked position.

With a door ajar, attempts to lock the vehicle remotely will cause the exterior lights to flash and the horn to sound three times briefly. This is to notify the driver that a door is not fully closed.

The vehicle has a safety feature to automatically lock the doors under certain conditions. If you use the remote to lock and then unlock the doors without entering the car within 90 seconds, the car will automatically revert to being locked.

As a convenience, the lift gate can remain fully opened as the rest of the vehicle is locked, manually or remotely. The lift gate will lock when you close it.

⚠CAUTION

Never leave the keys with children or in a vehicle that is unattended.

Never leave children or pets in a locked vehicle.

Outside the vehicle:
You can use the key to lock or unlock the doors from outside.

Driver side: Turn the key clockwise to lock the door. Push on the key while turning it clockwise to lock all doors. Turn the key counterclockwise to unlock. Pull on the key while turning it counterclockwise to unlock all doors.

Figure 6: Turn the key to lock or unlock the door.

Passenger side: Turn the key counterclockwise to unlock the door. Turn the key clockwise to lock the door. The passenger side door lock does not have the ability to lock and unlock all doors. After unlocking, the door can be opened by pulling the door handle.

Set the interior door lock to desired position as illustrated in figure 8.

There are buttons on the remote control key fob. Press the lock button to lock the door. Press the unlock button to unlock the door.

Figure 7: Lift the door handle to open the door.

Figure 8: The door lock is located with the door handle. When the red indicator shows, the door is unlocked.

3.4 Lifting the Hood

To open the hood:

1. Ensure that the vehicle is turned off, the gear selector dial is set in Neutral, and that the parking brake is fully engaged.
2. Locate the hood release on the lower left of the instrument panel and pull the lever to release the hood latch.

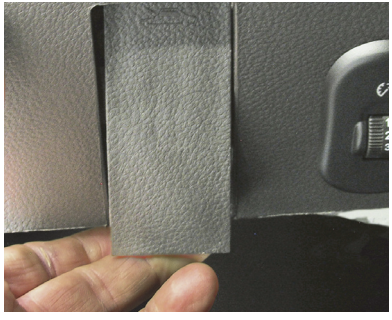


Figure 9: Pull the hood release, located near the driver's left knee, to release the primary hood latch.

3. Exit the vehicle and lift up the hood slightly.
4. Lift up the secondary hood release lever to fully release the hood latch.

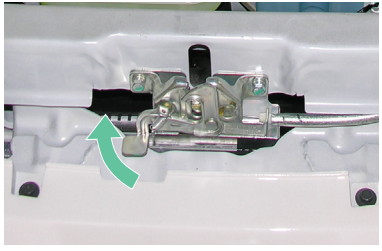


Figure 10: Lift the lever on the secondary release to lift the hood.

5. Raise the hood and locate the hood support rod to the right of the hood compartment.
6. Lift the hood support rod and position it into the corresponding opening underneath the hood, as shown to the right.

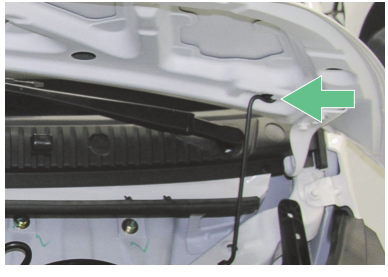


Figure 11: The hood support rod secures the hood in the open position.

3.5 Closing the Hood

To close the hood:

1. Ensure tools, supplies and hands are clear of the hood.
2. Return the hood support rod to the home position and secure it in the clip.
3. Allow the hood to drop, from a height of about six inches (15 cm), to close and latch itself.
4. Ensure the hood is secure. If not, open it and close it again. Do not slam or force the hood.

4 Safety

4.1 Shifting

Ensure the instrument panel displays the selected gear when shifting to a new gear (Drive, Economy or Reverse). Drivers must press the brake pedal while shifting. The vehicle will NOT shift to a new gear if the brake pedal is not pressed while shifting.

For example, if you are backing out of a parking space and are ready to move forward; if you take your foot off the brake as you select Drive, when you press the accelerator pedal, the vehicle will remain in Reverse and will move backwards.

⚠WARNING

When changing gears, ALWAYS verify that the selected gear is displayed on the instrument panel. Improper shifting could cause the vehicle to move in an unexpected direction.

4.2 Seat Belts

Seat belts are one of the most important safety devices for drivers and passengers. Remember to use a seat belt, and fasten it before driving.

⚠WARNING

Incorrect use of the seat belt may lead to severe injuries in the event of an accident.

⚠WARNING

Each seat belt can only be used for one person, and should never be used to secure more than one person at a time, especially children.

Seat belts should not have contact with fragile items, such as pens and glasses in clothes pockets. Otherwise, the user may be injured.

Do not change any component of the seat belt device.

While driving, do not adjust the seat when the seat belt is fastened.

Pregnant women should position the seat belt below their abdomen such that the shoulder strap only crosses the center of their chest. Pregnant women and others with special medical conditions should consult their doctor with any driving concerns.

4.2.1 Correct Use of Seat Belts

Follow these steps to correctly use a seat belt:

1. First, adjust the seat to sit up straight. The backrest should not be reclined excessively. The adjustment range of the backrest in normal use is between 95 and 120 degrees.
2. Slightly pull out the latch plate from the withdrawal device, and do not twist the seat belt as you position it across your chest.
3. Pull the seat belt quickly to check whether the seat belt retractor locking function is working correctly.

4.2.2 Fastening the Seat Belt

1. Pull the seat belt down from the retractor.
2. If the seat belt locks while pulling it out, release the belt and let it retract. After the belt retracts, pull it out to the required length.
3. Position the shoulder belt over your shoulder and the lap belt across your pelvis.
4. Insert the latch plate into the buckle until a click sound is heard.

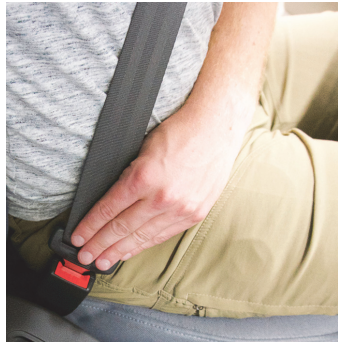


Figure 12: Insert the latch plate into the buckle.

The click indicates the seat belt is securely fastened.

4.2.3 Unfastening the Seat Belt

Press the red buckle button to unfasten the belt. The belt will withdraw automatically.

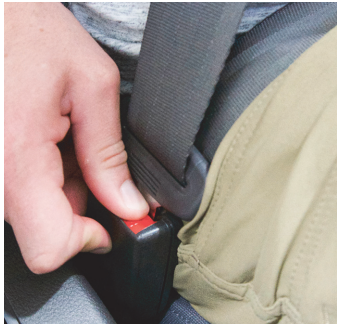


Figure 13: Press the red button to unfasten the belt.

4.2.4 Seat Belt Reminder Warning

The seat belt warning will activate if the driver or passenger (if occupied) seat belt is not fastened when the vehicle is powered on. The seat belt warning light will stay on and a warning chime will sound until the driver's and passenger's (if applicable) seat belts are fastened.

NOTICE

Placing heavy objects in the passenger's seat may inadvertently activate the seat belt reminder for the passenger's seat.

4.2.5 Proper Use and Maintenance of Seat Belts

Keep the seat belt clean and dry. Avoid soiling the seat belt with food, drinks, oils, and chemicals. Neutral liquid soap can be used to carefully clean the seat belt.

Make sure that the seat belt is not damaged by sharp objects. Inspect the seat belt regularly for signs of damage, including fraying, and replace damaged components.

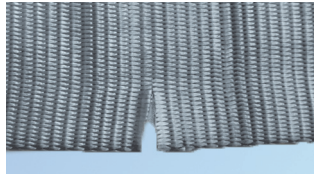


Figure 14: Replace worn, cut, or frayed belts.

⚠CAUTION

Regularly check all seat belt components and replace the seat belt assembly if any component is damaged.

If a seat belt is torn, worn, or otherwise damaged, it may not be able to restrain forward motion during a a car accident, and the impact force may break the belt. IMMEDIATELY REPLACE A DAMAGED SEAT BELT WITH A NEW ONE.

Replace seat belts after an accident, even if they do not appear damaged. The force of an impact weakens seat belts, and they cannot be reliably reused for safety.

4.3 Head Restraints

Front seats are equipped with adjustable head restraints. The driver should not operate the vehicle until head restraints, for all occupants, are in the proper position to minimize the risk of neck injury in the event of a crash.

⚠WARNING

No one, including the driver, should operate a vehicle or sit in a vehicle's seat until the head restraints are placed in their proper positions to minimize the risk of neck injury in the event of a crash.

Rear passenger head restraints are not adjustable.

⚠WARNING

Occupancy should never exceed the number of seat belts present.

4.4 Child Safety

NOTICE

Mullen builds vehicles custom designed for commercial use. We strongly advise against allowing children under 12 to ride in any position of the vehicle.

Any child too small for a seat belt should be properly restrained in a child seat. A larger child should be properly restrained with a seat belt, using a booster seat if necessary.

Child restraint systems are designed to be secured in vehicle seats by lap belts or the lap belt portion of a lap-shoulder belt.

Children could be endangered in a crash if their child restraints are not properly secured in the vehicle.

When using a child seat, follow the child seat manufacturer's instructions for proper use and position. Use the seat belt to secure the child seat in place.

1. Slowly pull the shoulder part of the belt all the way out until it stops. This activates the lockable retractor.
2. Let the seat belt retract a few inches and check that the retractor has switched modes by pulling on the seat belt. It should not pull out again until it is reset by removing the latch plate from the buckle. If you are able to pull the shoulder belt out, the lockable retractor is not activated. Slowly pull the seat belt all the way out, and repeat steps 1-2.
3. Insert the latch plate into the buckle until a click sound is heard.
4. Pull back on the latch to ensure the buckle is locked.

DANGER

Placing a rear-facing child seat in the front seat can result in serious injury or death during a crash.

WARNING

Rear-facing child seats should never be installed in a forward-facing position.

4.5 Tires

Each tire, including the spare (if provided), should be checked monthly. Conduct checks prior to driving, which heats the tires. Tires should be maintained at the inflation pressure recommended by the vehicle manufacturer, which is provided on the vehicle placard or tire inflation pressure label. If your vehicle has tires of a different size than the size indicated on the vehicle placard or tire inflation pressure label, you should determine the proper tire inflation pressure for those tires.

4.5.1 Tire Air Pressure

Check tire pressure at least twice per month. Check the spare tire at the same time. Maintain the spare tire pressure at the higher pressure used for the rear tires. In the event the spare tire is used on the front axle, release air from the spare to reduce the excess tire air pressure accordingly. Reference the tire label located in the driver's door frame for proper tire inflation specifications.

⚠WARNING

Excessive tire wear can cause a tire to burst if the tire pressure is too low or too high.

Table 1: Tire Pressures

Front wheel (full load)	44 psi (303 k Pa)
Rear wheel (full load)	54 psi (372 k Pa)
Spare (full size)	54 psi (372 k Pa)

NOTICE

Always readjust air pressure after tire rotation.

4.6 Vehicle Loading Capacity

The maximum load capacity, the Gross Vehicle Weight Rating (GVWR), of the vehicle is the maximum total mass of the vehicle allowed, including cargo and passengers. **Do not overload the vehicle.** Consider driver and passenger weight in addition to cargo weight. Refer to Table 2.

Table 2: Campus Weight Limits [a]

		2 Seat Model	5 Seat Model
Weight Limit	**Curb weight**	3152 lbs (1430 kg)	3208 lbs (1455kg)
	Maximum total mass	4881 lbs (2218 kg)	
	Rated load mass	1729 lbs (786 kg)	1673 lbs (760 kg)

a. Data is based on current information and subject to change.

⚠WARNING

Exceeding the maximum weight capacity of the vehicle may cause injury to vehicle occupants or invalidate the warranty.

4.7 Precautions for Loading Goods

The following precautions should be taken when loading goods:

- Stow goods so they are stable and will not shake or slide when the vehicle moves.
- When loading, stack goods in the forward area of the cargo space.
- Do not overload the vehicle.

⚠WARNING

Exceeding the maximum weight capacity of the vehicle may cause injury to vehicle occupants or invalidate the warranty.

4.8 Other Important Systems

4.8.1 Anti-Lock Braking System (ABS)

This vehicle uses an electric vacuum pump to assist the hydraulic braking system. If a braking system component fails, the ABS light will illuminate, and the code "107" will appear on the instrument panel. This is to notify the driver that additional pressure is required on the brake pedal to stop the vehicle. Service on the vehicle must be completed as soon as possible.

4.8.2 Electric Power Steering System (EPS)

The vehicle is equipped with an electric power steering (EPS) device, which helps the steering action be light and smooth. When you start the vehicle, the power steering function is automatically activated.

If the power steering indicator light remains on after starting the vehicle, the electric power steering system has a fault. Please contact the designated repair station for maintenance.

NOTICE

Do not disassemble the electric power steering system.

When making sharp turns, do not hold the steering wheel at the extreme left or right position. When you reach either the right or left turning limit, relax the wheel position slightly.

4.9 Vehicle Modifications

⚠WARNING

Do not modify the vehicle. Modification may affect vehicle safety, handling, performance, and longevity.

Installation or modification of electrical or mechanical equipment may void the vehicle warranty.

Unreasonable installation of electrical equipment on vehicles, such as alarm devices or light bars may interfere with the ignition system and the vehicle's electrical signals, affecting its performance.

4.10 Vehicle Safety Labels

Safety labels provide drivers and passengers essential safety information pertaining to the vehicle.

4.10.1 Refrigerant Warning Label

The air conditioning system relies on refrigerant that requires special handling equipment and techniques. Any service must be performed by a qualified technician. The label is found on the underside of the front hood.

Figure 15: Refrigerant warning

4.10.2 Tire and Loading Information

The tire and loading information label identifies seating capacity, tire size dimensions, and tire pressure. The label is found on the driver's door post.

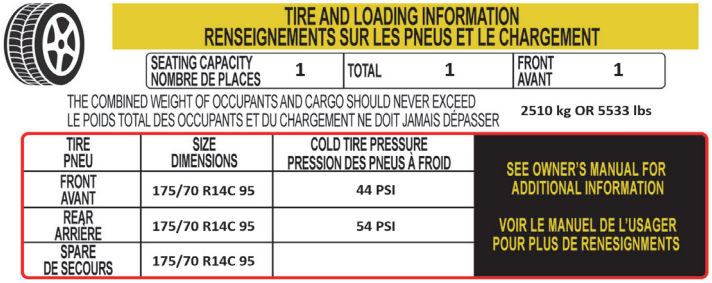


Figure 16: Tire and Loading Information

4.10.3 First Responder Label

Emergency response information is available by using the QR code. This label is located inside the charging port door and inside the glove compartment.

Figure 17: Emergency response information is accessible by using the QR code.

5 Consumer Information

5.1 Child Safety

The National Highway Traffic Safety Administration recommends that all children ages 12 and under be properly restrained in a rear seat. Some states have laws restricting where children may ride.

5.2 Radio Frequency Certification Labels

Remote Control Keys

The device listed above complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

This device may not cause harmful interference, and

This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by Mullen Automotive could void your authority to operate the equipment.

NOTICE

FCC Radiation Exposure: This equipment complies with FCC radiation exposure limits for an uncontrolled environment.

This equipment and its antennas must not be co-located or operated with any other antenna or transmitter.

This equipment has been tested and found to comply with the limits for a Class B digital device(s), pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

5.3 Vehicle Data Recording, Security, and Privacy

This vehicle is equipped with an Event Data Recorder (EDR). The main purpose of an EDR is to record data that will assist in understanding how a vehicle's systems performed during a crash or near crash-like situation such as an air bag deployment or hitting a road obstacle. The EDR is designed to record data related to vehicle dynamics and safety systems for a short period of time, typically 30 seconds or less. The EDR in this vehicle is designed to record such data as:

- How various systems in your vehicle were operating;
- Whether or not the driver and passenger safety belts were buckled/fastened;
- How far (if at all) the driver was depressing the accelerator and/or brake pedal; and,
- How fast the vehicle was traveling.

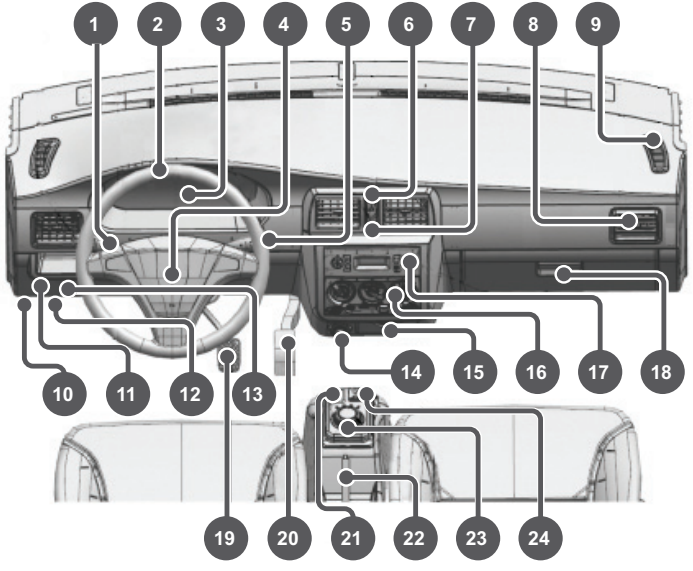
These data can help provide a better understanding of the circumstances in which crashes and injuries occur.

NOTE: EDR data are recorded by your vehicle only if a nontrivial crash situation occurs; no data are recorded by the EDR under normal driving conditions and no personal data (e.g., name, gender, age, and crash location) are recorded. However, other parties, such as law enforcement, could combine the EDR data with the type of personally identifying data routinely acquired during a crash investigation. To read data recorded by an EDR, special equipment is required, and access to the vehicle or the EDR is needed. In addition to the vehicle manufacturer, other parties, such as law enforcement, that have the special equipment, can read the information if they have access to the vehicle or the EDR.

Mullen will not share EDR information without the expressed consent of your corporate entity except if officially requested by law enforcement or government agencies. Additionally, Mullen collects safety and operational data to evaluate and improve existing vehicles and service solutions, as well as to develop new products. Mullen meets relevant security standards to protect your cooperate entity's data from unauthorized use. However, to further mitigate events that may compromise this data, please follow your corporate information security policies and only connect authorized devices and networks to the vehicle's systems.

6 Features and Controls

6.1 Driver Controls Overview



1 Headlamp Switch
2 Steering Wheel
3 Instrument Panel
4 Horn Pad
5 Windshield Wiper and Washer Switch
6 Emergency Flasher Switch
7 Rear Fog Lamp Switch
8 Heating/Ventilation/Air Conditioning (HVAC) Side Vents
9 Side Window Defroster Vents
10 Charging Port Door Release
11 Hood Release
12 Unused
13 Headlamp Adjustment
14 12 Volt Accessory Outlet
15 Coin Tray
16 Heating/Ventilation/Air Conditioning (HVAC) Control Panel
17 Audio System Controls
18 Glove Compartment
19 Brake Pedal
20 Accelerator Pedal
21 Cargo Area Light Switch
22 Parking Brake
23 Gear Selector Dial
24 USB Port

6.1.1 Charging Port Door Release

Pull the handle to open the charging port door.

Figure 18: Pull the left handle to open the charging port door.

6.1.2 Ignition Key Switch

LOCK: Turn the key to the LOCK position when the vehicle is parked.

The key can only be removed when it is in the LOCK position.

The steering column locks when the key is removed.

Unlock the steering column by inserting the key and turning it clockwise to the ACC (accessory) or ON position. If it is difficult to turn the key, rotate the steering wheel slightly left and right while trying to turn the key.

ACC: When the key is turned to the ACC position, accessories such as wipers, radio, and the USB port will be powered on, but no power will be supplied to the drive train.

ON: When the key is turned to the ON position, power is supplied to all vehicle devices. The motor remains in stand-by for starting.

START: With the gear selector in Neutral (N), and parking brake engaged, turn the key to the START position for 5 seconds. When the instrument panel displays “Ready,” release the key, and it will return to the ON position, starting the vehicle.

⚠CAUTION

Do not remove the key while the vehicle is moving, or the steering column will lock, creating a hazardous situation.

Never leave the keys in a vehicle that is unattended or with children.

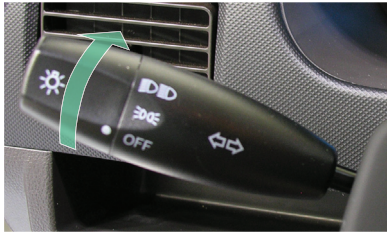
Never leave children or pets in a locked vehicle.

NOTICE

When the vehicle is parked, turn the key from the ON position to LOCK to prevent battery drain.

6.1.3 Steering Column Controls

Headlamp Control: Turn the knob at the end of the left lever on the steering column to control the lights. There are three control positions, described below.



NOTICE

Headlamps do not automatically shut off when the vehicle is turned off. The headlamp switch must be manually switched to the OFF position to shut off the headlamps.

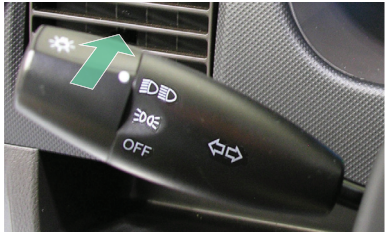
If the headlamps are left on when the key is removed from the ignition, the running light indicator will remain on as a signal that the headlamps are on.

OFF: All lights turn off.

Running Lights: Running lights turn on including parking lights, tail lights, license plate light and instrument panel lights.

ON: Headlamps (the low beam lamps) turn on along with all running lights and all other lights listed above.

High Beams: With the low beam headlamps on, push the left control lever forward until the high beam lights turn on along with the high beam indicator light on the instrument panel. To turn the high beam headlamps off, pull the left control lever back.



Flash-to-Pass: The flash-to-pass feature allows high beam flashing. To momentarily flash the high beam headlamps, pull the left control lever and release it quickly.

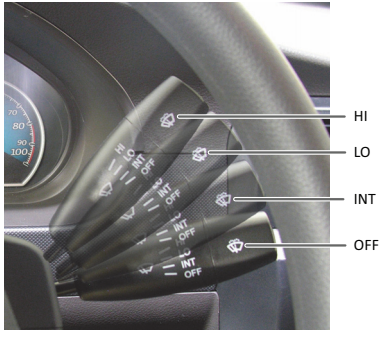
The flash-to-pass feature and turn signals can be used at the same time.

Turn Signals: Lift the left control lever upwards to engage the right turn signals, front and rear. The green right-turn indicator arrow on the instrument panel will flash.

Push the control lever downwards to engage the left turn signals, front and rear. The green left-turn indicator arrow in the instrument panel will flash.

Windshield Wiper Switch:

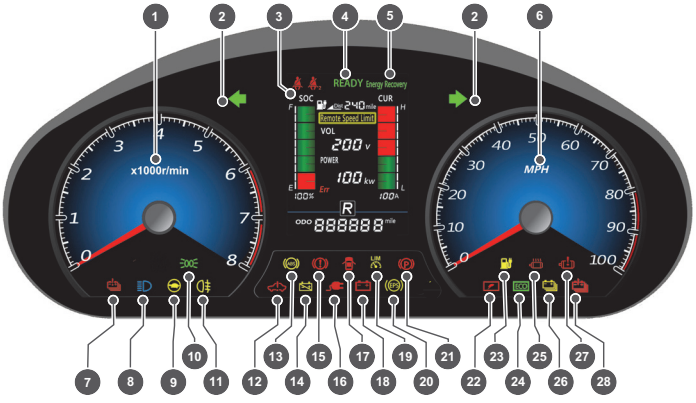
With the ignition switch in the ACC or ON position, push the right control lever upward to set the speed of the windshield wipers: INT (intermittent), LO (low), or HI (high). When the wiper switch is turned to the OFF position, the wiper blade arms will return to their normal position at the base of the windshield.



Windshield Washer Switch:

With the ignition switch in the ACC or ON position, pull the right control lever to spray washer fluid on the front windshield as the wipers cycle to clean the windshield. Release the right control lever, and the wipers will continue to cycle a few times to eliminate any residual cleaning fluid.

6.2 Instrument Panel and Indicators



1 Motor Tachometer
2 Left/Right Turn Signal Indicator
3 Driver's/Passenger's Seat Belts
4 Ready Indicator
5 Regen Indicator
6 Speedometer
7 High Voltage Battery Fault
8 High Beam Indicator
9 Drive Power Limit Indicator
10 Running Lamp Indicator
11 Rear Fog Lamp Indicator
12 Vehicle Disabled Indicator
13 ABS Malfunction Indicator
14 High Voltage Battery Disconnect
15 Brake Malfunction Indicator
16 Charging Indicator
17 Door Ajar Indicator
18 12-Volt Disconnect
19 Speed Limiter Indicator
20 EPS Malfunction Indicator
21 Parking Brake Indicator
22 High Voltage Battery Insulation Fault Indicator
23 High Voltage Battery Charging Indicator
24 Economy Mode Indicator
25 Motor/Electronic Controller Fault
26 DC-DC Fault Indicator
27 Motor Fault Indicator
28 Abnormal High Voltage Battery Temperature

Motor Tachometer

The rotation of the motor is measured in units of 1000 revolutions per minute (RPM) and displayed on the tachometer.

The red area on the tachometer represents extremely high RPM, which is dangerous to the vehicle.

Figure 19: Motor tachometer

Speedometer

The speedometer shows the speed of the vehicle in miles per hour (MPH) units.

Figure 20: Speedometer

State of Charge (SOC) and Odometer Display

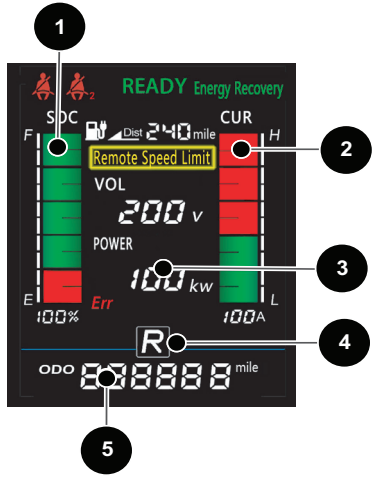


Figure 21: Home Screen and Odometer Display

1 Displays the power battery State Of Charge (SOC)."F" means full charge state; "E" indicates that the power is running out and needs to be charged.

2 Indicates the total current of the Power Battery.

3 During standard operation the display will show the amount of power the vehicle has in reserve (at 0 mph it will display 60 kW). After pressing the mode button, the display will show power being used at 0 mph it will display 0 kW).

4 Indicates the selected gear (Drive, Economy, Neutral, Reverse)

5 Displays the total mileage, and trip odometer. Switch between total mileage, and trip odometer by short-pressing the mode button briefly. When the trip odometer is displayed, press and hold the Mode Button to reset the trip odometer to zero. Total mileage cannot be cleared. In the event of a failure, this common space will display an error code such as Err – XXX. The error code (if any) and the power will be displayed alternately.

Mode Button

The mode button is located to the left of the speedometer. Press briefly to cycle between total mileage and trip odometer. Press and hold to clear the trip odometer mileage.

6.2.1 Instrument Panel Indicators

Instrument panel indicators are described below and are arranged by color (red, yellow, green, blue).

6.2.1.1 Red Indicators

Seat Belt Indicator

When the ignition switch is in the ON position, the seat belt indicator will display until seat belts for occupied seats are fastened.

Door Open Indicator

The door open indicator illuminates when any door is not fully closed (including the lift gate). When all the doors are fully closed, the indicator light goes out.

⚠WARNING

It is dangerous to drive the vehicle with the doors or lift gate open or not fully closed. Secure the lift gate and all doors prior to driving the vehicle.

Parking Brake Indicator

The parking brake indicator will display when the parking brake is engaged.

Brake System Fault

The brake system fault indicator signals that the brake fluid level is low. If the light comes on, confirm that it remains lit when the vehicle is on level ground. If so, add brake fluid to the brake fluid reservoir, while observing the minimum and maximum fluid level lines (labeled 'Max' and 'Min').

Charging Indicator

The charging indicator, when lit, shows the high voltage battery is charging.

System Fault Indicator

The system fault indicator signals that the vehicle is experiencing system distress and should be stopped as soon as it is safe to do so.

Abnormal Battery Temperature

When the temperature of the battery exceeds 140°F (60°C), the abnormal battery temperature indicator will light. Allow the battery to cool until the temperature is normal. Arrange for battery testing or replacement as needed.

DC-DC Fault Indicator

There is a DC-to-DC converter fault when the DC-DC indicator lights. The system should be inspected and repaired.

High Voltage Battery Fault Indicator

The battery system requires inspection and repair when the high voltage battery fault indicator displays.

High Voltage Battery Insulation Fault Indicator

The high voltage battery insulation fault indicator lights when the battery's insulation capability is reduced. This can be caused by excessive moisture. Allow the battery to dry for a few days and check it again. Battery replacement may be necessary.

Motor Fault

When illuminated, this indicator means the motor is not operating properly. When safe to do so, stop the vehicle and turn the vehicle off. Seek service if your vehicle experiences a motor fault.

Motor/Electronic Control Fault Indicator

The motor/electronic control fault indicator illuminates when the electronic control module requires attention. Arrange for diagnostic service and repair.

6.2.1.2 Yellow Indicators

High Voltage Battery Disconnect

Disruptions to battery connections will cause the high voltage battery cut indicator to light, requiring inspection and repair of the battery connections.

EPS Malfunction Indicator

When the ignition switch is turned ON, the indicator light comes on for a few seconds. If the light does not go out after starting, or comes on while driving, the electronic power steering system (EPS) requires attention.

ABS Indicator Lamp

When the ignition switch is turned ON, the indicator light comes on for a few seconds. If the light does not go out after starting, or comes on while driving, the anti-lock brake system (ABS) requires attention or the ABS System is active.

NOTICE

When the ABS is active, expect to feel vibrations through the brake pedal and to hear sounds from the ABS cycling. This is normal. Continue braking consistently. Do not pump the brakes.

Driving Power Limit Indicator

The driving power limit indicator will light if the vehicle has a secondary fault. The vehicle needs attention in this event, but it is drivable in what is sometimes called “limp-home-mode” where the power is limited and the speed is reduced. Once you have limped home, or to a similar safe location, make arrangements for diagnostic service and vehicle repair.

High Voltage Battery Charging Indicator

The high voltage battery charging indicator lights when the vehicle’s high voltage battery is charging.

6.2.1.3 Green Indicators

Ready Indicator

READY

When the vehicle starts normally and passes its internal self-test, the ready indicator activates, indicating the vehicle is ready tor drive.

Left/Right Turn Signal Indicators

When the left or right turn signal is engaged, the corresponding indicator flashes. Both arrows flash when the Emergency Flasher Switch is engaged.

ECO

The vehicle is running in economy mode when the ECO mode indicator is active.

Running Lamps Indicator

This running lamps indicator signals that the running lamps (position/parking lights) are on.

6.2.1.4 Blue Indicators

High Beam Indicator

The high-beam indicator displays when the high beam headlamps are on, or when the flash-to-pass is being used.

6.3 Lighting System

The lighting system includes exterior lights, such as: headlamps, reverse lights, brake lights, turn signals and emergency flashers. Interior lights include a dome light, for the driver and passenger, and a cargo area light.

6.3.1 Rear Fog Lamp

The rear fog lamp will only operate when the headlamps are on. When the headlamps are on, this control will have an orange back light. Upon pressing the button, the back light will change to an amber color which indicates the rear fog lamp is active.

Push the button a second time to turn off the rear fog lamp.

Figure 22: Rear Fog Lamp switch and indicator

6.3.2 Headlamps

The vehicle is equipped with two multi-beam forward headlamps.

6.3.2.1 Aiming Headlamps

Headlamp aim has been set at the factory and should not need adjustment.

In the event of a vehicle crash, the headlamp aim may be affected and will need to be readjusted by a qualified technician. See dealer for service.

6.3.2.2 Headlamp Adjustment

There are four positions (0, 1, 2, 3), which can adjust the angle of the low beam lamps. The initial state is position 0 and the lowest at position 3.

The aim of the headlamps can be adjusted to compensate for vehicle load in the rear. Use care to select one of the four positions that minimizes glare for anyone ahead.

Figure 23: Headlamp adjustment dial

6.3.3 Reverse Lights

Reverse lights, or “backup lights,” are used to warn others that the vehicle is about to move backwards. Reverse lights also provide illumination behind the vehicle when it is backing up in the dark.

6.3.4 Brake Lights

Brake lights come on when the brake pedal is pressed.

Figure 24: Brake lights

6.3.5 Turn Signals

Lift the left control lever on the steering column upwards to engage the RIGHT front and rear turn signals. The green right-turn indicator arrow on the instrument panel will flash.

Push the left control lever on the steering column downwards to engage the rear LEFT front and rear turn signals. The green left-turn indicator arrow on the instrument panel will flash.

Figure 25: Turn signals

6.3.6 Emergency Flasher Switch

Pressing the emergency flasher switch will cause the exterior turn signal lights to flash as hazard warning lights, indicating an emergency or hazardous condition. Press the switch again to turn the emergency flasher lights off.

When the ignition switch is in the LOCK position, the emergency flasher lights are still available.

Figure 26: Emergency flasher switch

NOTICE

Avoid unnecessary use of the emergency flasher lights to conserve the battery charge.

6.3.7 Interior Lighting

Driver and passenger lighting is provided by a dome/map light. The switch on the top of the light has three positions: auto, on, and off.

Figure 27: Dome light

Move the switch to the auto position on the right, to have the light turn on when a front door is open and turn off when the front doors are closed.

Move the switch to the left to have light on, regardless of doors being opened or closed.

Move the switch to the center position, to turn the light off.

Cargo area lighting is controlled by a rocker switch on the gear selector panel.

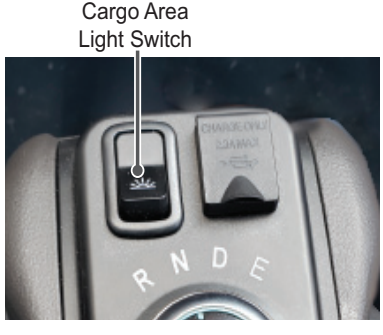


Figure 28: Cargo area light switch

6.4 Operator Controls

6.4.1 Horn

Sound the horn by pressing the pad in the center of the steering wheel. The horn can function without keys in the ignition.

6.4.2 Floor Pedals

Use the floor pedals to accelerate and stop the vehicle.

Figure 29: Horn pad is located in center of steering wheel

The areas around and behind the floor pedals must be kept clear of debris or obstructions. If floor mats are used, ensure they fit properly and cannot interfere with the accelerator or brake pedals.

Figure 30: Driver's floor pedals

NOTICE

Prior to starting the vehicle, press the brake pedal, and ensure that the vehicle is set in Neutral (N). Once the vehicle is running, and the brakes are still applied, the driver may select the desired gear.

6.4.3 Gear Selector Panel

6.4.3.1 Cargo Area Light Switch

Use the cargo area light switch to turn the lights on/off in the cargo area.

6.4.3.2 USB Charging Port

The USB charging port is an accessory power outlet that can charge and operate small electronic devices such as a mobile phone, computer tablets, or music players. The maximum power output is two amps. The port is only capable of providing power. The port does not provide media or data connectivity.

Figure 31: Gear selector panel

6.4.3.3 Gear Selector Dial

With the brake pedal pressed, position the gear selector to the desired gear:

R Reverse
N Neutral
D Drive
E Economy

NOTICE

Reverse (R) can only be selected after the vehicle has stopped completely for several seconds, and your foot remains on the brake pedal while selecting reverse.

Economy Mode

During normal driving, the driver may turn the gear selector to E mode and continue driving. Drivers may increase the driving range, prolong the service life of the battery, and achieve the best economic benefits by driving conservatively.

6.4.4 Parking Brake

To engage the parking brake, with the vehicle at a complete stop, lift the parking brake handle. The greater the lift stroke, the greater the braking capacity of the vehicle. However, under normal conditions, the maximum lift stroke should not exceed 12 teeth.

Figure 32: Engaging the parking brake

To release the parking brake, lift the handle slightly while pressing the button on the end and return the lever back down to the released position.

⚠CAUTION

When the driver leaves the vehicle, they must set the gear selector dial to Neutral (N). Then set the parking brake fully.

When the vehicle is running, the parking brake must be released fully; otherwise, it may cause permanent damage to the braking system and damage other components.

⚠CAUTION

If the parking brake cannot be completely released, or the vehicle cannot be parked reliably, the vehicle must be repaired immediately.

6.5 Heating/Ventilation/Air Conditioning System

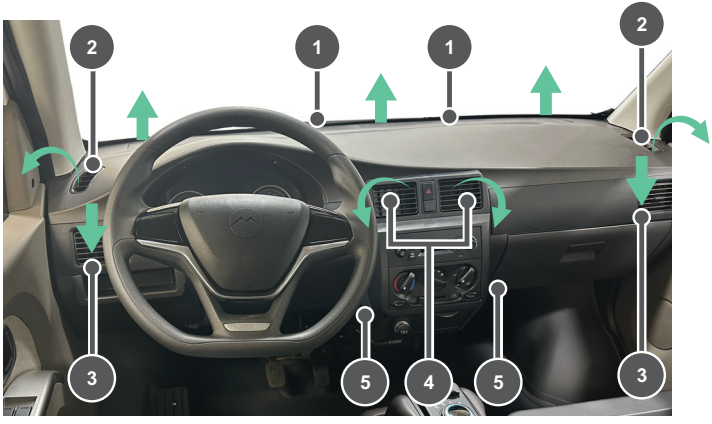


Figure 33: Heating/Ventilation/Air Condition (HVAC) controls and vents

1 **Windshield Defroster Vents**
Air flow is directed to the front windshield.

2 **Side Window Defroster Vents**
Air flow is directed to the front door windows.

3 **Left- and Right- Side Vents**
Air flow is directed to the passenger compartment through left and right air vents.

4 **Central Upper Vent**
Air flow is directed to the passenger compartment through the central upper vent.

5 **Central Lower Vent**
Air flow is directed to the passenger compartment of the vehicle through the central lower vent.

NOTICE

HVAC vents with handles can also be used to change the direction of air flow.

6.5.1 HVAC Control Panel

Figure 34: Cabin climate controls

1 Temperature Selector Dial

Turn the dial to red for heat and to blue for air conditioning. Adjust the dial between the blue and the red to set the desired temperature.

2 Fan Speed Dial

Turn this dial counter-clockwise for lower fan speeds, and clockwise for higher fan speeds.

3 Air Flow Selector

Air Flow Selector Settings

Use this dial setting for upper air flow.

Use this dial setting for upper and lower air flow.

Use this dial setting to direct air flow to the floor.

Use this dial setting to defrost/defog the windshield and side windows, while engaging lower heat at the same time.

Use this dial setting for defrosting/defogging the windshield and side windows.

4 Air Conditioning Button

Push the air conditioning button in to engage the air conditioner. An indicator light appears when the air conditioning is on. Push the button a second time to turn the air conditioning off. The indicator light will tun off.

5 Recirculate/Fresh Air Control

To direct fresh air into the vehicle, slide the recirculate/fresh air control lever to the left.

To recirculate the passenger compartment air, slide the recirculate/fresh air control to the right.

When activated, the vehicle's air conditioning (AC) system recirculates the air inside the car for cooling, instead of intaking air from the outside. Use the air recirculation button when the AC is on, but not when the heater is on.

6 PTC Heater Button

With the AC button turned off, push the positive temperature coefficient (PTC) button to heat the passenger compartment of the vehicle. A PTC heater provides the heat source in an electric vehicle (EV). A PTC heater is safer and more reliable than a traditional heater.

NOTICE

Vehicle air conditioning and PTC heater cannot be used at the same time.

If possible and safe, avoid using the HVAC systems when the battery is low.

NOTICE

Run the air conditioning at least once per month, even during winter, for a minimum of 10 minutes, to prolong the life of the AC system.

6.6 Audio System

Figure 35: AM/FM radio

The vehicle is equipped with a radio that operates on the AM and FM bands. Speakers are located in the driver and passenger doors. The radio also accepts input from an AUX cable. The radio can be used when the ignition key is in the ON or the ACC (accessory) position.

6.7 Power Window Switches

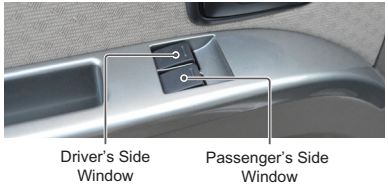


Figure 36: Side window controls

Side window controls are located in the door armrest. To lower a side window, push down on the corresponding side window switch.

To raise a window, lift up on the corresponding side window switch.

The driver has the ability to raise or lower both side windows. The passenger side armrest has a switch for the passenger side window.

6.8 Seating

NOTICE

Seating positions are based on the number of seat belts. Do not sit in a location without a seat belt installed by the manufacturer.

6.8.1 Front Seat Adjustments

⚠CAUTION

Do not adjust the seat while driving. Ensure that seat adjustments are correctly secured prior to driving the vehicle.

1 Fore/Aft Lever

Lift the fore/aft lever to position the seat forward or backward. Release the handle when the seat in desired location.

2 Recliner Lever

To adjust the angle of the seat back, lift and hold the recliner lever until the desired position is achieved, and then release the lever.

The adjustment range of the seat back in normal use is between 95 and 120 degrees.

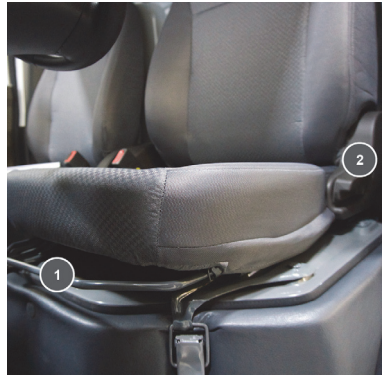


Figure 37: 1) Fore/aft lever. 2) Recliner lever

To gain access to the area behind either front seat, lift the recliner lever to allow the seat back to angle forward fully.

6.8.2 Access Under Driver Seat

The driver seat can be flipped backward to service equipment underneath. The driver sits above the auxiliary (12 V) battery

which powers the lighting system and the dashboard. To gain access under the seat, flip the seat backward, as follows:

1. Lift the fore/aft lever and position the seat midway on its track.
2. Lift the recliner lever and bring the seat back forward and down fully.
3. Locate the seat latches at the base of the seat.
4. Push in the orange tab while lifting on the seat latch until it is unfastened. The seat has two latches.
5. Flip the seat backward and ensure that it is secured, prior to accessing the auxiliary battery.
6. To return the seat to its normal position, follow these steps in the reverse order.

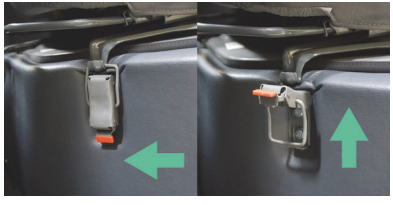


Figure 38: Latch secured-left, latch released-right

6.8.3 Access Under Passenger Seat (if equipped)

The front passenger seat can be flipped backward to service equipment underneath. To gain access under the seat, flip the seat backward, as follows:

1. Lift the fore/aft lever and position the seat midway on its track.
2. Lift the recliner lever and bring the seat back forward and down fully.
3. Locate the seat latches at the base of the seat.
4. Push in the orange tab while lifting on the seat latch until it is unfastened. The seat has two latches.
5. Flip the seat backward and ensure that it is secured, prior to accessing the auxiliary battery.
6. To return the seat to its normal position, follow these steps in the reverse order.

6.8.4 Center Seat (if equipped)

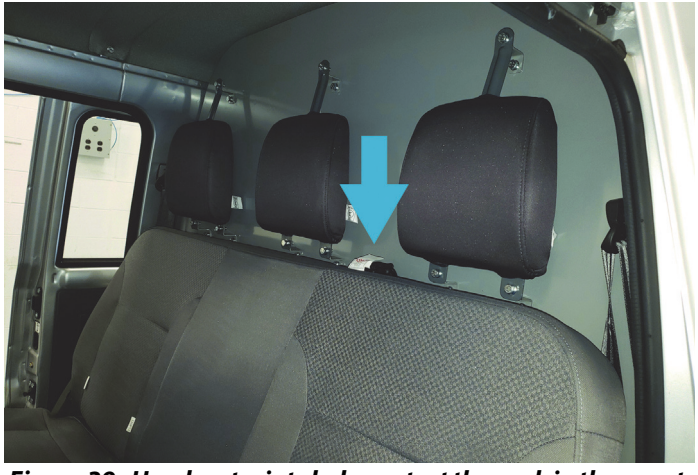


Figure 39: Head restraints help protect the neck in the event of a collision.

For models featuring a seat in the rear of the passenger compartment, notice the third shoulder harness seat belt. The rear seat does not have adjustments.

6.8.5 Head Restraints

6.8.5.1 Adjusting Head Restraints

The position of a head restraint should be adjusted so the top of it is level with the top of the user's head and comfortable. Tall people may need the head restraint adjusted to its highest position.

Figure 40: Front seats are equipped with adjustable head restraint.

To adjust the head restraint:

1. Lift to raise the head restraint so the top of the restraint is even with the top of your head.

2. To lower the head restraint, apply downward force while pressing the lock button.

Figure 41: Pressing the lock button allows lowering, or removal, of the head restraint.

6.8.5.2 Removing Head Restraints

To remove the head restraint:

While pressing the button, lift the head restraint until it is free of the guides.

⚠CAUTION

If a head restraint is removed, it must be reinstalled to properly protect occupants.

6.8.5.3 Reinstalling Head Restraints

To reinstall the head restraint:

1. Place the two head restraint guide rods in the guide channels in the top of the backrest.
2. Slide the head restraint downward until the head restraint engages the first notch. Typically you will hear an audible click.
3. To verify engagement, lift the head restraint to the highest level and confirm the head restraint cannot be removed.

6.9 Mirrors

⚠CAUTION

Only adjust the mirrors while the vehicle is parked. Make the proper adjustments to all mirrors prior to driving the vehicle.

6.9.1 Left and Right Exterior Rear View Mirrors

The left and right exterior mirrors are adjusted manually. An assistant is recommended to help adjust the passenger side mirror while the driver is behind the wheel. Be careful, the mirrors are adjustable, but the housing are not.

Figure 42: Adjust the glass mirror inside the housing.

6.9.2 Interior Rear View Mirror

The interior rear view mirror is mounted on a pivot ball; make adjustments accordingly.

6.10 Accessory Power Outlet

The accessory power outlet provides power for electronic devices such as laptops, phones, and tablets. Power for the outlet is supplied by a circuit with a 15A fuse.

Figure 43: The accessory power outlet provides 12-volt power for accessories.

6.11 Tools

The tool bag is stored in the vehicle's glove compartment, and contains the following items:

1 Lug Wrench for Wheel Nuts
2 Combination Screwdriver
3 Tow Ring
4 Tool Bag
The following items are located under the front hood:

5 Crank Rod for Scissor Jack
6 Scissor-Style Vehicle Jack

Figure 44: Tool set

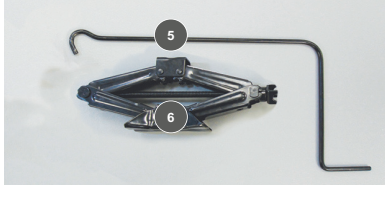


Figure 45: Scissor jack and crank rod

6.11.1 Jack Storage

The scissor-style jack and crank rod are stored under the vehicle's hood. Follow the instruction for lifting the hood (See ***Lifting the Hood*** on page 16.) and then look for the jack storage housing near the base of the windshield.

The crank rod is in front of the jack housing and clips into place. Note that the left end of the crank rod is parked between the fire-wall and condensation lines.

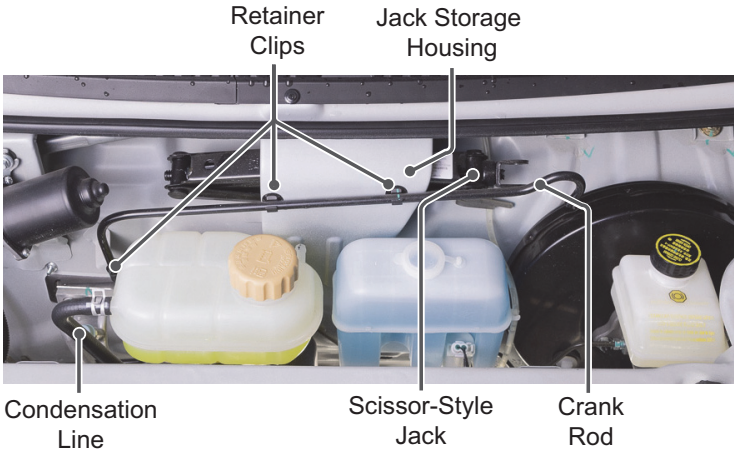


Figure 46: Jack and crank rod storage location

Use care when removing or returning the crank rod to avoid disrupting any components under the hood. Remove the crank rod prior to removing the jack, and start on the left end of the crank rod when removing it from its retainer clips.

To release and remove the jack from the housing, turn the crank on the right end counterclockwise, to compress the jack. Use the crank rod or the screwdriver from the tool kit if necessary.

To store the scissor jack and crank rod, follow the previous steps in reverse. When the jack is back in its housing, use your hand or the crank rod to extend the jack enough to lock into place. Then return the crank rod to its retainer clips, starting with the left side.

Figure 47: Stowing the jack

7 Emergency Situations and Handling

7.1 Vehicle Fails to Start

7.1.1 Charging Stop Mode

The vehicle has entered charging stop mode; please check whether the charger is connected to the power grid. Unplug the charger and plug it back in to restart charging.

7.1.2 Low Voltage (Auxiliary) Battery Failure

Use a voltmeter to measure the open circuit voltage of the low voltage (auxiliary) battery. If voltage is lower than 12 volts, charge the auxiliary battery. Try starting the vehicle once the auxiliary battery shows a charge greater than 12 volts. If necessary, the vehicle can be jump-started.

7.1.3 Jump-Starting the Vehicle

The auxiliary battery provides initial power to turn on the vehicle. In the event the auxiliary battery becomes depleted, the vehicle cannot start without another power source. Unlike jump-starting a gasoline powered vehicle, which requires considerable power to crank a starter motor, Mullen CAMPUS low speed, electric vehicles only require enough power to switch the power on. When jump-starting these vehicles, there is no need to wait for the auxiliary battery to charge before starting the vehicle. As soon as a charged battery is connected with jumper cables, the vehicle can be started. The high voltage battery will begin recharging the auxiliary battery as soon as the vehicle is started.

⚠WARNING

If the operator is unfamiliar with the jump-starting process, it is advisable to have someone assist who has experience jump-starting electric vehicles. Ask your fleet manager to have a technician demonstrate the correct jump-starting process.

Only 12-volt batteries can be used for jump-starting.

Do not touch the on-board charging system during charging or jump-starting.

Use high quality jumper cables and ensure that their insulation is not frayed or damaged.

Keep jumper cable clamps away from any objects that are near the battery. Do not allow clamps to touch each other or any metal except for the correct battery terminals and vehicle grounding point.

NOTICE

The vehicle cannot be 'push-started'.

To jump-start a vehicle with another vehicle, follow these steps:

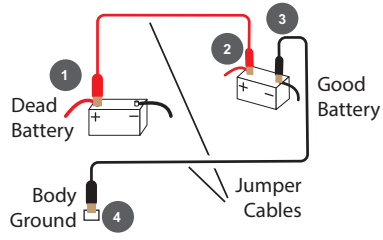


Figure 48: Connection diagram for jump-starting.

1. Turn off all lights and accessories in both vehicles. If the charged battery is in another vehicle, do not allow the two vehicles to touch.
2. Select Neutral (N) on the gear selector dial in the uncharged vehicle and engage the parking brake fully.
3. Turn the ignition key to the LOCK position on the uncharged vehicle.
4. Connect the positive terminals of both batteries (the charged battery and the dead battery) with the red jumper cables.
5. Connect the black cable to the negative terminal of the charged battery.

6. Connect the other end of the black cable to a secure metal grounding point on the body of the uncharged vehicle, away from the battery.
7. Try starting the uncharged vehicle. If it does not start, check your jumper cable connections.
8. Try starting the uncharged vehicle again.
9. Once the uncharged vehicle starts, turn off the other vehicle.
10. Remove the negative (black) jumper cables then remove the positive (red) jumper cables.

Determine the cause of the battery becoming drained. Were lights or accessories left on? If the cause is not apparent, contact your service department for an inspection of the vehicle's charging system.

7.2 Vehicle Breakdown

Should the vehicle stop running while driving, guide it safely to a stop and turn on the emergency flashers. Park in a safe area. Take note of any fault indicators displayed on the instrument panel. Call for assistance and provide fault code information.

7.3 Brake Failure

⚠WARNING

Vehicle brake failures or other brake problems must be taken seriously. Do not continue driving the vehicle if it exhibits a compromised braking system. Follow the steps for handling a *Vehicle Breakdown* on page 58.

7.4 Steering Failure

⚠WARNING

Steering problems or failures must be taken seriously. Stop driving the vehicle if the steering system exhibits problems. Follow the steps for handling a *Vehicle Breakdown* on page 58.

7.5 Bulb Replacement

⚠CAUTION

Use care when replacing light bulbs and other lighting components. Allow lights to cool before attempting to replace bulbs or headlights. Do not touch the new bulbs with bare hands as the natural skin oils will shorten the life of the bulb. Wear gloves while installing new bulbs.

If any lighting components require frequent replacement, it

indicates an issue with the electrical system. Arrange for the vehicle to be inspected and serviced.

7.6 Wheels and Tires

If the tire(s) or wheel(s) are damaged, it is important to stop the vehicle as soon as it is safe to do so. Maintain control of the vehicle, and avoid panic as you stop.

7.6.1 Flat Tire Procedure

1. Turn on the emergency flashers.
2. Carefully guide the vehicle to a stop and park in a safe area. Seek a parking area that is level and with firm ground or pavement.
3. Turn the vehicle OFF and engage the parking brake fully.
4. Wedge solid objects, or chocks, beneath the front and rear tires in a way that will prevent the vehicle from moving forwards or backwards. If proper wheel chocks are not available, improvise with large rocks or pieces of appropriately sized wood.
5. Use tool kit items to remove and replace the damaged tire or rim as explained below.

Locate the Spare Tire and Tire Tools

⚠ CAUTION

Keep feet from the area under the tire. If possible, wear safety shoes when changing the tire.

6. The tool kit ordinarily is in the glove compartment in a bag. Carry this bag to the tire or rim that needs service. Bring the lug wrench with you to the rear of the vehicle. The spare tire is under the back of the vehicle.
7. Open the rear lift gate.
8. Fit the lug wrench to the bolt head in the top of the rear bumper. Turn the lug wrench counterclockwise to lower the spare carrier cage.

Figure 49: Use the lug wrench to lower and release the cage that supports the spare.

9. Once the spare is lowered, wearing gloves, manually release the carrier from the lowering device and remove the tire from the carrier.
10. Carry or roll the tire to the damaged tire and rim.

Figure 50: Manually release the carrier from the lowering device.

11. Leave the tire storage cradle in the lowered position for now.

Figure 51: Spare tire in the carrier cage.

Changing the Tire

⚠WARNING

When fixing a flat tire, ensure that the vehicle is OFF. Never go under the vehicle while it is on a jack.

12. Loosen, but do not remove the wheel lug nuts on the affected wheel with a lug wrench by turning the wheel lug nuts in a counterclockwise direction.

Figure 52: Loosen the wheel lug nuts before lifting the wheel off the ground.

⚠CAUTION

Use care with the lug wrench to keep the wrench from slipping.

13. Locate the scissor jack and crank rod under the hood, as shown.

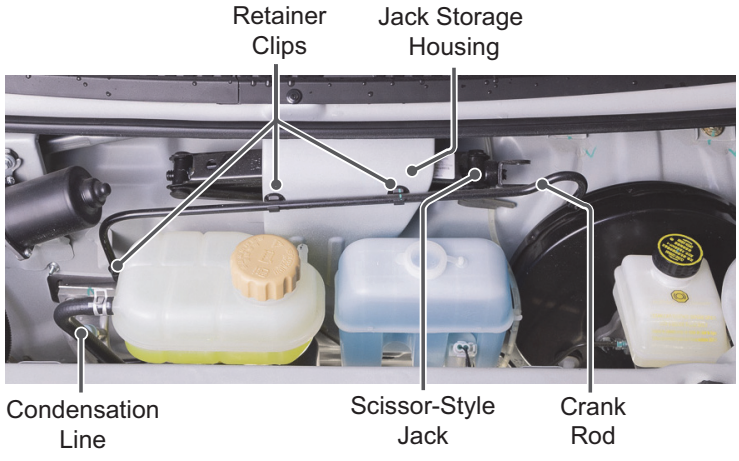


Figure 53: Jack and crank rod storage location

Positioning the Jack

14. Position the scissor jack beneath the vehicle at the appropriate lift point near the tire needing service.

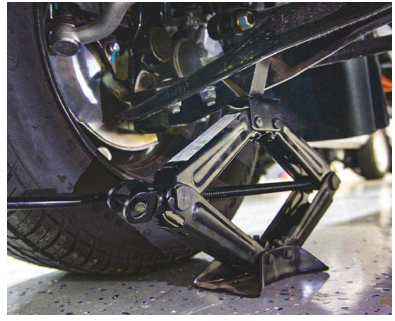


Figure 54: Front jacking position

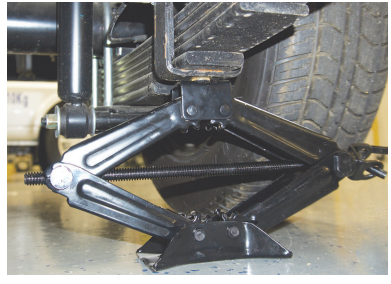


Figure 55: Rear jacking position

15. With the scissor jack in position, place the curled end of the crank rod into the cranking point of the scissor jack.

Figure 56: Scissor jack and crank rod

16. Use the handle end of the crank rod and turn it clockwise to raise the vehicle.
17. Lift the vehicle carefully until the tire is 1 inch (2.5 cm) off the ground.

⚠CAUTION

Wear gloves when handling the distressed tire/wheel to avoid injury.

18. Remove the wheel lug nuts you loosened and set them safely aside.
19. Remove the tire and place it at the rear of the vehicle for now. Place the tire/rim flat on its side to prevent unintended rolling.

20. Before installing the spare, use a cloth to wipe away any rust or dirt on the brake drum and disc brake. Do the same with the interior rim of the spare tire/rim, if necessary.

The goal is to have clean metal-to-metal contact between the rim and the vehicle components. Any breach in this contact may cause an improper fitting of the rim or may loosen wheel lug nuts while driving.

21. Position the spare over the wheel studs. See figure 57.

⚠WARNING

Do not apply grease or lubricant on the wheel studs. Doing so can cause wheel lug nuts to loosen on their own while driving.

⚠CAUTION

It is important to ensure the rim and mounting surfaces are clean. Failure to clean contacting surfaces could cause a wheel to fall off while driving.

Figure 57: Place the wheel over the wheel studs.

22. Install each of the 5 wheel lug nuts to the studs, by hand. Turn clockwise, but only hand-tighten them for now. See figure 58.

Figure 58: Install the wheel lug nuts by hand, leaving them finger tight.

23. Use the lug wrench and begin to tighten the wheel lug nuts, paying careful attention to the sequence shown in figure 59. The goal is to balance the tightening process between each of the wheel lug nuts, but in sequence. Do not tighten one nut fully and then move on.

Figure 59: Tighten the wheel lug nuts in a star pattern.

24. Turn the crank handle on the scissor jack counter-clockwise to lower the vehicle back to the ground. Do so in a smooth and consistent manner.
25. Remove the scissor jack from beneath the vehicle and set it aside for now.
26. Tighten the wheel lug nuts to a torque of ~65 - 80 foot pounds (90-110 Nm.)

⚠WARNING

After replacing a wheel with a spare, it is essential to re-tighten the wheel lug nuts after 50 miles (80km) to ensure that vibration has not caused them to loosen.

Returning Items to Their Storage Location

27. Place the bad wheel into the storage cradle beneath the rear of the vehicle. Reverse the steps used to remove the spare, and ensure that the bad wheel is properly secured. If you are uncertain about how to properly secure the bad wheel in the tire storage cradle, you may alternatively place the bad tire/rim in the cargo area of the vehicle temporarily, and then coordinate proper storage with the service department later.
28. Return the tools to their bag, and place them back in the vehicle's glove compartment.
29. Resume driving after turning off the emergency flashers and releasing the parking brake.
30. Arrange for proper disposal of the bad wheel and acquire a new spare.

7.7 Towing the Vehicle

- All four tires/wheels must be off the ground for towing. Arrange for a flat-bed style ('roll-back') tow truck to collect the vehicle and bring it to the service garage. Follow the instructions of the tow truck driver, including staying in the vehicle for steering, braking, or ignition key position adjustments. Exit the vehicle when advised to do so.
- Do not allow occupants in the vehicle while it is being towed.
- Ensure that all accessories and lights are turned off prior to the vehicle being towed.

7.7.1 Moving or Pulling a Disabled Vehicle

NOTICE

This procedure is intended for short distances only. If the vehicle needs to be moved long distances, refer to the towing section above.

If the vehicle must be dragged or pushed out of the way, do the following:

- Turn on the emergency flashers.
- Release the parking brake, place the vehicle in Neutral (N), and move it to a safe destination.

- If pulling the vehicle, use a chain, pull-strap, or rope that is appropriate for the task. Install the tow ring in the front bumper for use when pulling.
- Safely get the vehicle to the intended location.
- Once the vehicle is out of the way, and in a safe place, re-engage the parking brake. Leave the emergency flashers on until help arrives. The vehicle, and any lights or accessories (other than the emergency flashers) should be turned off.
- If the driver must leave the vehicle, lock all doors, and arrange to get the keys to the tow truck driver.

Figure 60: The tow ring threads into the front bumper.

7.8 Accident Response

In the event of a vehicle accident:

1. Remove the key from the ignition switch.
2. Apply the parking brake.
3. Activate the emergency flashers.
4. Lock and leave the vehicle (if it is safe to do so).

⚠WARNING

Do not attempt to repair or service the vehicle after an accident. Contact your authorized service center.

7.9 Fires

If the vehicle shows signs of a fire, such as flames or smoke:

1. Stop the vehicle, somewhere out of traffic if possible, and apply the parking brake.
2. Turn off the ignition switch.
3. Look, both ways, for traffic and open your door.
4. When it is safe, exit the vehicle.
5. Get away from the vehicle as soon as possible and call the fire department. (Dial 911 in most of the USA.)

7.10 Unusual Driving Conditions

7.10.1 Wet Conditions

Driving in standing water or large puddles presents challenges to any vehicle, as well as to the driver. Care must be used to avoid loss of control, accidents, or vehicle damage. If it is necessary to

drive through standing water, drive slowly.

Slow down when driving on wet, snow, ice and other slippery roads. Avoid hard braking, rapid acceleration, and sharp steering wheel turns to help prevent the tires from losing traction.

7.10.1.1 Driving on a Flooded Road

- Make sure the water depth does not exceed the lower edge of the vehicle body to avoid damaging your car while driving on a flooded road.
- When driving in wet conditions, the brake components will be wet which can decrease braking capability. Apply brakes slowly and give yourself plenty of room to stop between the car in front of you.
- Never drive through water if you are unsure of the depth.

⚠CAUTION

DO NOT DRIVE THROUGH FLOWING WATER. Seek an alternate route.

⚠WARNING

After driving through water, mud, or snow, the brake response may lag and the braking distance should be lengthened. Tap the brake pedal several times to remove the water and ice inside the brake and drive cautiously. Do not brake suddenly after crossing a flooded road. Do not brake heavily when driving on wet roads.

- When driving on dirt, the tires have reduced traction. Drive slow and leave space for braking.
- When driving on a muddy road, remember to drive slowly and keep the car moving to avoid getting stuck. If the car is stuck in sand, mud, snow, or ice, avoid spinning the wheels. The vehicle can be freed by reducing the load, laying gravel, wood, and other materials under the wheels.

⚠WARNING

Try not to turn the wheels at high speed when the car is stuck. If the wheel rotates at high speed in the case of skidding, sharp objects on the ground may scratch the tire, causing serious tire damage.

When driving in rainy weather, the tires lose traction because of the wet ground. It's best to slow down and maintain a safe following distance when driving.

Water may affect brake performance. Try to avoid crossing puddles, if unavoidable, try to go slowly. After driving through a large

puddle or car wash, gently press the brake pedal until it works properly.

⚠WARNING

Wet brakes can cause accidents. Wet brakes do not work well in emergency braking and may cause the vehicle to swerve and lose control.

⚠CAUTION

Reduce speed when driving in crosswinds or on uneven surfaces.

⚠WARNING

Failure to comply with driving standards for special driving conditions may result in serious injury or damage to the vehicle.

7.10.2 High Profile Vehicle Considerations

Utility vehicles have a significantly higher rollover rate than other types of vehicles.

7.10.2.1 Maneuvering and Turning

⚠WARNING

Avoid unsafe operations such as fast starts, sudden acceleration, and sharp turns. Abrupt changes may cause accidents such as a runaway vehicle, rollover, or other damage.

Avoid sharp turns at high speeds. Your vehicle has a higher center of gravity than a typical passenger car. It is important to remember that a higher center of gravity increase the chances of tipping over during sharp turns at high speeds.

In a rollover crash, a person who is not using a seat belt is significantly more likely to die than a person wearing a seat belt.

Use caution when driving on poor surfaces and adjust to changing conditions; for instance areas with bumps and potholes.

7.10.2.2 Windy Conditions

The sides of your vehicle can act like a sail and are subject to cross winds. In windy conditions, keep a safe distance from other cars in adjacent lanes. Strong gusts can push a car into another lane or even flip a high profile vehicle on its side. In gusty winds, slow down and heed high profile advisories.

8 Vehicle Maintenance

8.1 Daily Vehicle Maintenance

8.1.1 Tires

Use a tire gauge to check the pressure of all four tires. Tires should all be set to the pressure that is listed on the tire placard in the driver's door frame. Do not drive a vehicle on over-inflated or under-inflated tires.

Check the overall condition of the tires. Ensure proper tread depth by measuring with a tread depth gauge.

8.1.1.1 Adjusting Tire Pressure During Tire Rotation

When rotating tires, refer to the tire label in the driver's door jamb. The front and rear tire pressures are not always identical.

8.1.2 Lights

Ensure that all vehicle lighting, inside and out, is in proper working order. This includes headlamps, turn signals and brake lights. If necessary, arrange for a helper outside the vehicle to observe light functions, or locate a reflective surface, such as a plate glass window, to position the vehicle in front of.

8.1.3 Fluid Levels

Ensure that the levels of brake fluid, coolant, and windshield washer fluid are appropriate. Brake fluid should be maintained between the minimum and maximum levels.

8.1.3.1 Brake Fluid Reservoir

Maintain the brake fluid level between the minimum and maximum levels. When adding brake fluid, take steps to make sure you do not introduce dirt or debris into the reservoir.

Figure 61: Brake fluid reservoir minimum and maximum fill levels

8.1.3.2 Windshield Washer Reservoir

The windshield washer reservoir fluid level is not critical. Keep fluid in the reservoir. When filling avoid filling above the maximum level.

Figure 62: Windshield washer reservoir maximum fill level

8.1.3.3 Coolant Reservoir

As coolant heats up, and expands, the excess volume is directed to the coolant reservoir. Do not exceed the maximum level in the coolant reservoir. Extra space is required for overflow while the vehicle is running. After you stop driving, the coolant cools and some will be siphoned back into the coolant lines.

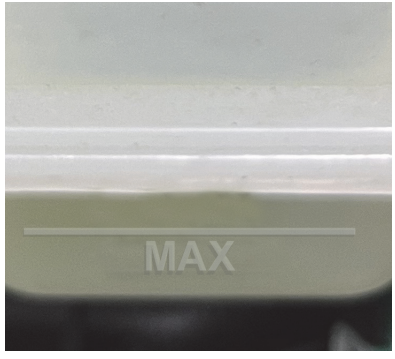


Figure 63: Coolant reservoir maximum fill level

Fill Volumes

Refer to ***Vehicle Fluids*** on page 81 to determine fluid reservoir capacities.

8.1.4 Operational Checks

Before sitting down to drive, check the cleanliness of windows and all mirrors. If they are dirty, clean these items, using standard glass cleaner and paper towels.

From the driver's seat, check the following before driving:

- Check the steering wheel for excessive 'free-play'. With the ignition key turned "Off", gently turn the steering wheel side-to-side.
- Check the brake pedal for proper resistance. Brake pedal pressure should be firm and increase firmness with additional pumps of the pedal.
- Check the functions of the Instrument Panel, including all lights, buttons, and all visual/audio indicators.
- Check the operation of the parking brake. The vehicle should stay in place. If the vehicle exhibits movement while the parking brake is engaged, arrange for service. Do not drive the vehicle if the parking brake is faulty.

8.2 Vehicle Maintenance

Regular inspection and maintenance includes inspecting, repairing and adjusting the vehicle at regular intervals. Routine maintenance helps keep the vehicle in good working condition and ensures the safety and comfort of the occupants.

8.2.1 500 Mile Inspection

An initial vehicle shakedown inspection should be conducted after 500 miles. Initial vehicle inspection should include:

- Fluid level inspection
- Wheel alignment inspection
- Brake line inspection
- Inspection of connection bolts on drivetrain, steering, and suspension

8.2.2 Maintenance Schedule

The following table lists specific requirements for regular maintenance and repair checks.

		Maintenance Interval (Miles)																			
Maintenance Activity	500	5,000	10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	55,000	60,000	65,000	70,000	75,000	80,000	85,000	90,000	95,000	100,000
Check Floor Mat		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Inspect Brake System		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Inspect Fluid Levels	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Rotate Tires [a]		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Lubricate Locks, Latches, and Hinges		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Inspect Wiper Blades			x		x		x		x		x		x		x		x		x		x

		Maintenance Interval (Miles)																			
Maintenance Activity	500	5,000	10,000	15,000	20,000	25,000	30,000	35,000	40,000	45,000	50,000	55,000	60,000	65,000	70,000	75,000	80,000	85,000	90,000	95,000	100,000
Inspect Ball Joints				x			x			x			x			x			x		
Inspect Brake Lines	x			x			x			x			x			x			x		
Inspect Radiator and Condenser				x			x			x			x			x			x		
Inspect Rear Driveline				x			x			x			x			x			x		
Inspect 12V Battery							x						x						x		
Inspect Suspension System							x						x						x		
Flush and Refill Coolant							x						x						x		
Flush Brake Fluid									x								x				
Replace Differential Fluid									x								x				
Inspect Exterior Lighting									x								x				
Inspect Wheel Alignment	x																				
Inspect Connection Bolts on Rear Driveline, Steering, and Suspension.	x																				

a. Adjust pressure for front and rear wheels when rotating tires.

8.3 Repair and Inspection

For questions related to maintenance intervals, please contact Mullen. Please bring the vehicle to a Mullen after-sales service or authorized maintenance service organization for inspection, service, and repairs.

Please choose genuine Mullen parts, fittings and accessories during maintenance to ensure the quality of vehicles.

⚠ DANGER

Do not attempt to repair the vehicle unless you are properly trained, and authorized. High voltage components may cause death or serious injury.

NOTICE

Driving a vehicle that is exhibiting signs of distress, or displaying error codes on the Instrument Panel, may damage the vehicle.

8.4 Cleaning the Vehicle

Regular cleaning of the vehicle will help keep it looking like new.

8.4.1 Washing the Vehicle

Washing the outside of the vehicle can be done by hand or at a drive-through car wash. If using a pressure washer to clean the underside of the vehicle, use a diffuse spray; otherwise you could damage seals that protect high voltage equipment.

8.4.2 Caring for Glazed Windows

Clean windows, inside and out, with standard glass cleaners and paper towels to maintain good visibility through the glass.

8.4.3 Vehicle Interior

To clean hard surfaces, use a soft damp cloth to remove dirt or residue. Wipe dry with a soft cloth. Vacuum seats and floors with a soft brush attachment.

8.5 Fuses

The fuse panel is located in the instrument panel interior, above the foot pedals. If one of the electrical systems fail, such as the cargo area light, check for a blown fuse.

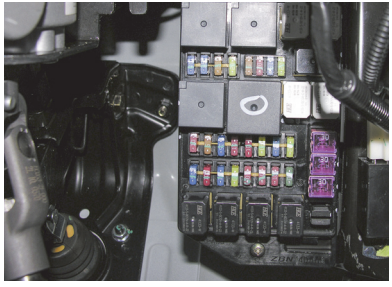


Figure 64: Replaceable fuses are located in the fuse box, found above the foot pedals.

Replace the fuse as necessary, ensuring the proper fuse amperage. Do not use fuses with a higher amperage than what is called for. If the proper amperage fuse continues to blow, it indicates a problem with the vehicle's circuitry; arrange for the vehicle to be inspected and repaired prior to driving it.

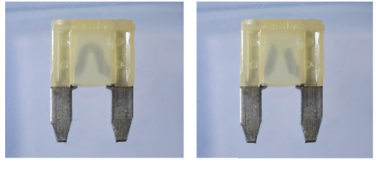


Figure 65: Blown fuses have a visible gap in the metallic element.

Fuses should fit firmly into their respective receptacle. Loose fuses will not perform properly; arrange for inspection and repair accordingly.

To facilitate access to the fuse box, electrical connections to the steering column must be disconnected.

9 Fault Conditions and Troubleshooting

9.1 Vehicle Will Not Start

When a vehicle is driven and charged on a regular basis, the auxiliary battery will stay charged. If a vehicle is unused for an extended period of time, the auxiliary battery may lose its charge, and the vehicle may fail to start. To minimize the drain on the battery when the car is parked and unused, make sure doors are fully closed and locked.

If a vehicle will not start, the READY indicator will likely not display on the instrument panel. Use another 12V battery to jump start the vehicle. Refer to *Jump-Starting the Vehicle* on page 56.

If the READY indicator does not display after attempting to jump start the vehicle, the battery will need to be fully charged before use.

Symptom	Possible Cause	Correction
The instrument panel does not light up when the ignition key is turned to ON.	The auxiliary battery is discharged.	Jump start the vehicle with an alternate 12V battery.
The READY indicator does not display when the ignition key is turned to START.	The high voltage battery is discharged.	Charge the vehicle.
The READY indicator does not display when the ignition key is turned to START.	Vehicle is not in Neutral (N).	Turn the key to LOCK. Shift the gear selector to Neutral (N). Press the brake. Turn the key to ON.

9.2 Fault Conditions

⚠WARNING

Driving a distressed vehicle is dangerous and can cause accidents or further mechanical problems.

⚠WARNING

If the vehicle exhibits distress, it is important to stop driving as soon as safely possible. Signs of distress include unusual sights and sounds, like engine smoke, unfamiliar noises, or-major trouble codes and other error indicators on the instrument panel.

If the vehicle is distressed:

1. Turn on the emergency flashers.
2. Guide the vehicle carefully to a stop and park in a safe area.
3. Use the gear selector to put the vehicle in Neutral (N). Apply the parking brake. Turn the vehicle off and remove the key from the ignition switch.
4. Arrange for the vehicle to be serviced or towed to a repair facility.

9.3 General Troubleshooting

Vehicle operators generally do not have the expertise to properly diagnose or repair problems with the vehicle — attempting to do so can lead to potentially dangerous situations. If the vehicle is exhibiting signs of distress, such as a diagnostic trouble code on the instrument panel, move the vehicle to a safe location as explained in *Moving or Pulling a Disabled Vehicle* on page 65. Do not drive a faulty vehicle. Arrange for the vehicle to be inspected and repaired.

⚠WARNING

If you experience an alarm, such as error codes on the instrument panel, you could cause damage to the vehicle. Do not attempt to repair the vehicle unless you are properly trained and authorized to do so.

9.3.1 Vehicle Failure Codes

Vehicle failure codes, or diagnostic trouble codes, are generated if a system failure occurs. When the vehicle experiences a failure, a code will be displayed on the instrument panel. Seek service if you see a vehicle failure code.

9.4 Fault Codes and Handling Methods - On-Board Charging

DTC	Meanings	Troubleshooting methods
64	**Hardware fault**	The charger is completely powered off, disconnect the 12V battery, and leave it for 3 minutes to power up again.
65	**Charger temperature is too high**	After this fault occurs, the charger will first reduce the power output and stop the output when the charger temperature is ≥ 95°C. First, check whether the water pump works normally. If the water pump works normally, disconnect the charger first, wait for a moment, and then charge after the charger temperature decreases.
66	**Input voltage error**	Check whether the AC voltage is normal using a multimeter.
67	**Abnormal startup status**	This fault is reported when the charger detects that the battery voltage is too low. This fault usually occurs because the relay between the charger output and the battery is not closed, or the battery is connected reversely, as well as the connector harness problem.
68	**Abnormal communication status**	Check the low voltage harness circuit of the charger. When this fault occurs, check whether the CAN line or connector is connected normally, whether it is on the same CAN network, and whether the terminal resistance is normal.
164	**The temperature of AC charging port is too high**	Check whether the charging gun connection is normal and whether the charging port is damaged.
165	**Abnormal electronic lock of AC charging port**	Check whether the electronic lock is stuck by observing the charging gun, and check whether the signal line is normal by looking at the tail of the electronic lock.

10 Service Information

10.1 Contact Us

Service for your vehicle can be arranged by calling Mullen Automotive at 1-248-988-4498.

10.2 Vehicle Identification

10.2.1 Vehicle Serial Number

The vehicle serial number can be found under the passenger seat by releasing the retention clasps and tilting the seat rearward.

10.3 Vehicle Fluids

The specifications and reservoir capacities of vehicle fluids are shown in the table below, including lubricating oil, grease and brake fluid.

⚠WARNING

Keep all vehicle fluids out of the reach of children and animals.

Item	Specifications (recommended)	Capacity (L)	Notes
Rear Axle Lubricating Oil	GL-5 75W/90	1.2	Gear oil/Rear differential
Brake Master Cylinder Grease	7503(SH/T 0432-92)	-	
Brake Fluid	DOT4	0.5	Different brake fluids cannot be mixed.
Coolant	Engine coolant: YA-992 Prestone Cor-Guard Antifreeze Coolant	6.8	
Windshield Washing Solution		1.6	In winter, if the ambient temperature is lower than 32°F (0°C), anti-freezing cleaning solution must be used.
Refrigerant	R134a	0.5	

10.4 Towing Requirements

If the vehicle needs towing, have the vehicle hauled with all four wheels supported on a solid platform such as a flatbed or tilt-bed (roll back) truck.

Do not use CAMPUS vehicles to tow trailers or other vehicles.

11 Glossary

12VDC: An abbreviation for 12 volts direct current: typically used to describe the voltage of electrical systems in many vehicles.

12 Volt: An abbreviation for 12 volts: typical of the electrical system in many vehicles. The 12-volt circuits supply power to lights, radio, and auxiliary power outlets.

Abnormal: Not normal, unusual, unexpected.

Abrupt: Sudden, unexpected, quick change.

ABS: See Anti-Lock Braking System.

AC: See Alternating Current.

ACC: See Accessory.

Accelerate: To start from stop or increase speed.

Accessory: Generally, means any automotive component that is available through the dealer or other retailer. It can also specifically refer to electronic components powered by the 12-volt battery.

Accident: A collision involving at least one vehicle in motion.

Activate: To cause a device to start working.

After-Sales Service: Any service provided after a customer has purchased a product.

Agent: A person who acts on behalf of another person or group.

Ajar: A door slightly open.

Alarm, Alarms: A device for providing audible warning.

Alternating Current: Alternating current is an electric current which periodically reverses direction in contrast to direct current (DC), which flows only in one direction.

Amp (A): *See Ampere.*

Amperage: The strength of an electric current measured in amperes.

Ampere: A unit used to measure electric current (how fast an electric current flows), usually used in the context of electric vehicle charging (e.g., a 50-amp EV charger).

Antifreeze: *See Coolant.*

Anti-Lock Braking System: A type of braking system that will automatically "pump" individual brakes to prevent skidding and loss of control. Mandatory on all vehicles sold in the United States since 2013.

Assist: To help someone or something, typically by doing a share of the work.

Authorized: Having permission or approval from the manufacturer.

Auxiliary Battery: A 12-volt battery used to power low voltage components on board the vehicle. Also used to power the motor control unit (MCU).

AWG (American Wire Gauge): The standard way to denote wire size in North America. In AWG, the larger the number, the smaller the wire diameter and thickness. Dimensions of the wires are given in ASTM standard B 258.

Axis: A line with respect to which a curve or figure is drawn, measured, rotated, etc. It can also be an imaginary line that a body rotates around (e.g., "the earth's axis").

Axle: A shaft on which the wheels revolve.

Battery: See High Voltage Battery or Auxiliary Battery.

Belt: *See Seat Belt.*

Blow: To exceed the electrical or mechanical capacity of a device or a piece of equipment.

Blown: A device or piece of equipment in which the electrical or mechanical capacity has been exceeded.

Brake: A device for stopping or decreasing speed.

Braking: The act of stopping or decreasing speed.

Breach: To make a gap in and break through a wall or barrier.

Breakdown: A failure of a mechanism or vehicle.

Breaker: *See Circuit Breaker.*

Buckle: A device used for fastening two loose ends, with one end attached to it and the other held by a catch in a secure but adjustable manner. It can also refer to the act of bending and giving way under a weight or force.

Bulb: The glass part of an electric lamp, which gives out light when electricity passes through it.

Bumper: A horizontal bar fixed across the front or back of the vehicle to reduce damage in a collision.

By-Products: Secondary products derived from a production process, manufacturing process or chemical reaction; it is not the primary product or service being produced.

Cable: A connection between two or more components that is used to move or activate one or more of the connected components. It can also refer to a cord for conducting electricity.

Charge: To restore energy in the vehicle's high voltage battery. The energy stored in the vehicle's high voltage battery is used to drive the vehicle when in operation.

Charger: A stationary device used to charge the vehicle's high voltage battery.

Charging gun: The handle used to connect the charger to the vehicle charge inlet port. It is connected to a cable to supply energy to the vehicle through the stationary charger.

Chassis: A flat platform that is part of the body structure of the vehicle to which the motors and wheels are attached and that supports most of the vehicle components including high voltage battery.

Chocks: A device (normally a wedge or a block) that prevent the wheels of a vehicle from rolling.

Circuit: Electric components such as resisters, transistors, capacitors, etc. connected by wires through which energy flows.

Circuit Breaker: An automatic device for stopping the flow of electrical current in an electric circuit as a safety measure.

Circulate: To move or cause to move about a system.

Click: The sound produced when two hard objects are snapped together.

Clockwise: The direction that the hands of a clock move.

Compartment: A section of a structure or container where items are contained or kept separate from other items.

Component: A part of a larger system, especially a part of the vehicle, usually having a specific function.

Compressor: A critical component of the vehicle's air conditioning system used to increase the pressure of the refrigerant.

Conductor: A material (such as copper, steel or silver) that allows for the flow of an electrical current.

Connector: A device used to join electrical components and create an electric circuit, typically consisting of a plug and socket.

Controller: A device that directs the flow of data between two or more devices and allows devices to talk to each other,

Convert: Cause to change form or characteristics, e.g., regenerative breaking changes kinetic energy in the form of mass and velocity into electric energy.

Coolant: A liquid used to dissipate heat from a motor or an engine. Because the liquid has an extremely low freezing temperature, it is often referred to as "antifreeze" and mixed with water.

Corrosion: The deterioration or loss of a material due to chemical or other reactions.

Counterclockwise: The opposite direction than the hands of a clock move.

Cradle: A device for holding and protecting a component on a vehicle. It can be used to hold components, distribute weight, and reduce vibration.

Crank Rod: A metal rod used to raise or lower a scissor-style vehicle jack. The crank rod is inserted into one end of a horizontal rod at the center for the jack to rotate the bar clockwise or counterclockwise to raise or lower the jack height respectively.

Crash: *See Accident.*

Crosswind: Wind that blows perpendicular to the direction that a vehicle is traveling.

Cruising Distance: Estimated distance before the high voltage battery reaches zero state of change based on currently battery state of charge, vehicle speed, and other driving parameters.

Curb weight: The weight of the vehicle without the driver or cargo but with fuel and fluids.

Current: The flow of an electricity through a conductor.

Cycle: The process of charging and discharging a battery.

Danger: A situation that has the potential to cause injury or death.

Dangerous: See Danger.

DC-DC: See DC-DC Converter.

DC-DC Converter: A device that converts DC current from one voltage to another.

Defrost/Defog: Climate control setting that directs or applies heat to the windshield or other glass surfaces to remove frost or fog.

Deplete: Use up the supply of something.

Diagram: A simplified illustration that represents the structure of an object or a system.

Discharge: Allow liquid or another substance (e.g. energy) to flow out.

Disconnect: Remove or break the connection between two devices, especially two electronic devices.

Disengage: Remove or break the connection between two devices, especially two mechanical devices.

Distress: Requiring repair or replacement.

DOT4: A specific formation for brake fluid specified by the US Department of Transportation and characterized by its dry and wet boiling point (230°C and 155°C respectively) and composition (Glycol Ether/Borate Ester).

Drain: *See Discharge.*

Drained (battery): A battery with no usable charge remaining.

Drive: Propel by force in a specific direction.

Drum: A device defined by its cylindrical shape resembling the musical percussive instrument.

DTC (Diagnostic trouble code): Code used to diagnose vehicle and vehicle component malfunctions.

ECO: *See Economic Mode.*

Economic Mode: A drive mode designed to decrease the amount of energy needed to drive the vehicle and increase its effective range by controlling the vehicle's acceleration and increasing regenerative braking.

EDR (Event Data Recorder): A device that records the vehicle's state such as speed, direction, acceleration, etc. prior, during and after a crash.

Electric: Powered by electricity.

Electric Motor: An engine that uses electricity instead of a combustible fuel such as gasoline or diesel to drive a vehicle forward or backward.

Electric Shock: A potentially fatal bodily injury caused by direct contact with a high voltage electrical energy source.

Emergency: A serious and usually sudden situation requiring an immediate response.

Emergency Flashers: Also known has hazard lights or four-way flashers. The four blinker lights flash, together, at a regular interval to warn other drivers that a vehicle is stopped, and should be avoided.

Encased: Enclosed in a case, sealed.

Engage: To start or turn on.

EPS (Electric Power Steering): A device that uses electrical energy to provide steering assistance, particularly useful at low vehicle speeds.

Error: A mistake or unintended result.

Essential: Necessary.

EV (Electric Vehicle): A vehicle that uses electrical energy to provide power to an electric motor or motors. Typically, the electrical power is stored on board the vehicle in a high voltage battery.

Exceed: Go beyond the expected or designed limit.

Excessive: More than is needed.

Exhibit: To show.

Fault/Failure: When something is not functioning as designed or an indicator that something is not functioning as designed.

Feedback: Information that is intended to communicate a reaction to a specific situation.

Firewall: The panel that separates the passenger compartment from the motor compartment.

Flashers: See Emergency Flashers.

Flash-to-Pass: A device that allows the driver to briefly turn on the high-beam headlamps for the purpose of indicating an intention of passing to other drivers.

Flatbed: A truck with a flat platform for loading cargo from the back or sides.

Fob: A hand-held device that allows the driver to lock or unlock the doors electronically.

Force: Strength or energy used to move something.

Fore/Aft: Refers to a mechanism that allows the front seats of a vehicle to be moved forward and backward toward and away from the front dashboard.

Free-play: Loose and not engaged.

Friction: Resistance created when two objects rub together.

Function: Intended purpose.

Fuse: A safety device containing a small metal wire which melts and breaks when a circuit exceeds its designed capacity.

Gauge: A device for measuring speed or force, usually with a visual interface.

Gear: A circular device with teeth that is designed to fit into another device to rotate it producing mechanical energy.

Generate: Create.

Generator: A device with a motor that converts mechanical energy to electrical energy.

Glare: A bright shining light.

Grade: A classification indicating quality, value or rank.

Ground: A wire used to discharge excess electricity.

GVWR (Gross Vehicle Weight Rating): The maximum safe operating weight of the vehicle as specified by the manufacturer. It includes the vehicle's curb weight and carrying capacity.

Hand-Tighten: Tighten without the use of power tools.

Hazard: An object that creates a potentially dangerous situation.

Headlamps/Headlights: Lamps mounted to the front of the vehicle for the purpose of illuminating the vehicle's path and immediate surroundings.

Heating/Ventilation/Air Conditioning (HVAC): The climate control system that regulates the temperature of the interior of the vehicle.

High Voltage Battery: Electrical energy storage device that provides energy to the vehicle's motor or motors to drive the vehicle forward or backward.

Hood: Cover for the motor compartment that can be opened to allow access.

Hubcap: Decorative disk that covers the wheels improving the appearance of the vehicle and protecting the wheel lug nuts.

Hydraulic: Liquid pressure used to direct force on an object.

Idling: When a vehicle is on, but not in motion.

Ignition: Historically a starter device that creates a spark that ignites a mixture of air and fuel in a combustion engine for the purpose of starting the vehicle. It now refers to any device used to start the vehicle and make it ready for operation.

illuminate: Direct light towards.

Indication: A sign or piece of information that communicates intent.

Indicative: Showing signs of a particular thing.

Indicator: A sign that communicates the characteristics of a thing.

Inflate: To increase something, such as air pressure in tires.

Instrument: A tool for scientific or technical work.

Interfere: To prevent or attempt to prevent a specific outcome.

Intervals: A break between actions or a period of time in which an action repeats.

Invalidate: Cancel or void something.

Jack: A device for raising the vehicle's wheels off of the ground.

Jump Starting: See Jump-Start.

Jumper: A device used to jump-start a vehicle.

Jump-Start: Start the vehicle by connecting the auxiliary 12-volt battery to a external energy source such as another 12-volt auxiliary battery or a device specifically designed to jump-start vehicles.

Key-Fob: See Fob.

Kinetic: Relating to motion.

Kinetic Energy: The energy in an object as a result of its being in motion.

km/h: Abbreviation for kilometers per hour, a measure of speed. One km/h equals 0.6 mph.

kPa (Kilopascal): A unit measurement for measuring pressure similar to PSI (pounds-force per square inch). Kilopascals can be converted to PSI at a rate of 1 kPa per 0.145 PSI.

kW: Abbreviation for kilowatt. One kilowatt equals 1,000 Watts

Lamp: A device for providing illumination.

Latch: A device for securing an enclosure.

Lbs. (Pounds): A measurement of weight.

Level: A horizontal line that is equal distance and parallel to a horizontal reference line, such as the bottom of a picture frame running parallel to the floor.

Leveling: To level a surface with respect to another horizontal reference line.

Light: A source of illumination.

Limp-Home Mode: A drive mode in an electric vehicle that allows the operator to drive a short distance at low speed when specific faults are detected requiring service.

Load: Weight of cargo and passengers carried in the vehicle.

Lock: A device that restricts access to an area, enclosure or system.

Low Voltage Battery: See Auxiliary Battery.

Lubricant: A substance, usually a liquid, used to reduce the amount of friction between objects.

Lug Nuts: Nuts used to affix the wheels to the chassis.

Maintenance: Checking, inspecting, replacing and repairing equipment as specified by the manufacturer.

Malfunction: A state in which something does not operate properly.

Manual: A book with instructions and recommendations for operating and maintaining equipment and devices.

Mass: A measurement of matter within an object. It is different from weight because weight is relative to gravitational pull (e.g. a person will weight less on the moon with much less gravitational pull than on earth, but their mass will remain constant.)

Metallic: Like metal in appearance or characteristics.

Metal-to-Metal: Two metal surfaces coming into contact with each other.

Mitigate: Lessen the risk or consequence.

Mode: A state of operation.

Moderate: Average, not extreme.

Modification: Change.

Module: A part of a whole that can be combined to create a larger or more complex structure.

Motor: See Electric Motor.

mph: Abbreviation for miles per hour. One mph equals approximately 1.6 km/h.

Multimeter: A device used for measuring electrical characteristics such as volts, current or resistance.

Negative: One of two ends of an electrical circuit, the opposite being the positive pole or terminal. Electrical current flows from the negative pole to the positive pole.

Neutral: The position of the transmission where the vehicle cannot be driven forward or backward, but the wheels are not locked and able to roll.

Nm: An abbreviation for Newton-meters. A measurement of torque equal to 0.738 pound-feet.

Non-Trivial: Important, serious.

No-Start: A state in which the vehicle will not turn on or cannot be driven forward or backward because the electric motor or motors cannot supply power to the wheels or driveshafts.

Occupants: The driver and passengers (if there are any) in a vehicle.

Odometer: A device for measuring distance traveled.

Ohm: A unit of electrical measure used to quantify the resistance of an electrical conductor.

On-board Charging:

Outlet: An electrical socket designed to supply electricity through a plug.

Over-Inflated: Exceeded the designed or specified air pressure.

Overload: Exceed the capacity of a device, piece of equipment or electrical circuit.

Panic: Loss of control in a dangerous or hazardous situation.

Parameters: Characteristics that can be used to classify an object or system.

Park: A setting on the transmission where the vehicle remains stationary and the wheels are not allowed to move.

Parked/Home: The position at which the windshield wipers stop when they are not in use. This position is at the lower edge of the windshield, below the driver's line of sight.

Passenger: Travelers in a vehicle other than the driver.

Passenger-Vehicle: A vehicle designed to move occupants.

Pedal: A foot-operated brake, accelerator or throttle control in a vehicle.

Pelvis: The lower part of the torso located between the abdomen and the legs.

Pile: Charging station location where the charger is connected to the electric grid and converts grid energy to a standard used for electric vehicle charging.

Pivot: To change direction but not location.

Placard: A printed sign for conveying important information.

Plug: A device that is fitted into a socket to complete an electrical circuit.

PM (Preventative Maintenance): Inspection, service, or repair preformed according to the manufacturer's recommended schedule to ensure proper operation of vehicles or equipment.

Port: The location of the charing input device on an electric vehicle. Location where the charger can be plugged in to recharge the vehicle's on-board high voltage battery.

Positive: One of two ends of an electrical circuit, the opposite being the negative pole or terminal. Electrical current flows from the negative pole to the positive pole.

Potholes: Cavities on a driving surface where pieces of the road have been removed through wear or erosion creating a driving hazard.

Power: Supply with mechanical or electrical energy. Can also refer to the energy used to move an object.

psi (Pound-Force per Square Inch): A unit of pressure resulting from one pound of force being applied to one square inch.

PTC (Positive Temperature Coefficient): Materials that increase in electrical resistance when the temperature is raised.

Pump: A hydro-mechanical or hydro-electrical device for moving liquids, increasing hydraulic pressure or compressing gases.

Pumping (Brakes): Rapidly pressing and releasing the brake pedal.

Purpose-Built: Created for a specific function or to specification.

Push-Start: Refers to starting an internal combustion vehicle with a manual transmission and manual fuel pump by pushing the vehicle forward until it is rolling then quickly releasing the clutch pedal while the vehicle is in gear.

R134a: A non-toxic, non-corrosive refrigerant used in automotive air conditioning systems.

Radiator: A device for transferring heat for the purpose of heating or cooling. In a vehicle, the radiator transfer heat away from the engine to prevent it from overheating.

Rainproof: Designed to prevent rain from penetrating the surface,

Ratio: The relationship between two values indicating the number of times one value is contained in the other.

READY: A light on the instrument panel that indicates that the vehicle is on and ready to be driven.

Receptacle: An electric outlet in which a plug can be inserted.

Recharge: Restore the electrical charge of the high voltage battery.

Recirculate: Circulate again.

Re-engage: Engage again.

Refrigerant: A liquid used in air conditioning systems where rapid expansion and condensing from its liquid to gas state creates a cooling effect.

Regen: See Regenerative Braking.

Regenerative Braking: A form of electric vehicle braking that takes the vehicle's kinetic energy and converts it to electrical energy by operating the electric motor as a generator sending the electrical energy back to the high voltage battery.

Relay: An electronically operated switch used to control a circuit by making or breaking the contacts within the circuit.

Replenish: Fill or restore to its original level.

Reservoir: A place to put liquids.

Reset: Restore to its original condition.

Resistance: A property of electrical conductors used to describe the force that opposes the free flow of electrons. Resistance is measured in ohms and is determined by using an electrical multimeter or an ohm meter.

Restart: Repeat the steps for starting a vehicle or machine.

Retainer: A device for holding something in place.

Retract: Take back.

Rim: The circular ridged structure of a wheel that the tire surrounds and is attached to the vehicle chassis with wheel lug nuts.

Roll-back: Reverse the advancement or motion of something.

Rollover: A type of accident where the vehicle rotates onto its side or top.

RPM (Revolutions per Minute): A measurement of the operating speed of an engine or a motor.

Run: See Running.

Runaway: Drive forward out of control.

Running: Operating correctly or turning on.

Schematic: A diagram that shows how a system operates.

Scissor-Style Jack: A type of vehicle jack used to raise and lower the vehicle frame at one corner for the purpose of lifting one wheel off the ground to replace a wheel.

Seat Belt, Seatbelt, Safety Belt: A safety restraint device designed to protect occupants in the event of a crash.

Secondary: Coming after or less important than something else.

Self-Test: An automated function the vehicle performs on its own to test the functioning of specific systems or components.

Semi-Charged: Not fully charged.

Sensor: A device for monitoring the position or state of something else.

Service: Maintenance or repair of equipment.

Severe: Bad, serious.

Shift: Change gear or transmission settings.

Shock Absorber: An automotive component that lessens the impact of the road surface as the impact travels from the tires to the vehicle chassis.

Shock, electric: See Electric Shock.

Short-Pressing: Tapping a button quickly once.

Side-to-Side: Horizontal movement that is perpendicular to the direction of travel.

Slope: A moderately steep grade.

Socket: A device for supplying electrical power.

Socket/Port: See separately Socket and Port.

Speed-Limiting: A devices used to limit or restrict the top speed of a vehicle or piece of equipment.

Speedometer: A device that displays the velocity or speed of a vehicle.

Start: To activate the vehicle's operating system.

Startup: See Start.

Studs (wheel studs): Threaded fasteners to which the wheel lug nuts are used to fasten the wheels to the vehicle's chassis.

Suspect: Not to be trusted, potentially dangerous or broken.

Tachometer: A device for measuring RPM.

Tail-Gate: A door at the rear of a truck typically hinged on a the bottom and opening and closing parallel to the ground.

Tampering: Interfering or making unauthorized modifications.

Three-in-One MCU: A microprocessor control unit which controls three functions from one device.

Tilt-Bed: A flat-bed truck in which the bed tilts down and can be lowered to allow for the loading of vehicle on the bed.

Tire: The part of the wheel that attaches to the rim and makes contact with the road and provides traction for driving or stopping the vehicle.

Tire/Rim: The tire and rim.

Tire/Wheel: A tire is part of a wheel on an automobile. *See separately Tire and Wheel*.

Torque: A measure of how much force is required to make an object rotate.

Tow: Move a vehicle by pulling it behind another vehicle or on top of a flat-bed truck.

Traction: Relating to propulsion on a vehicle.

Traction Battery: See High Voltage Battery.

Tread: Channels on the surface of a tire that allows water to escape from between the tire and road surface resulting in greater traction between the tire and road in wet conditions.

Trickle Charge: Charging an electric vehicle high voltage battery using a low voltage charger, normally at 120-volts.

Troubleshooting: Attempting to fix a problem by following a recommended or improvised process.

Unattended: Not attended, with no one in close proximity.

Unauthorized: Not authorized, not permitted.

Under-Inflated: A state of inflation in which the air pressure is below that specified by the manufacturer.

Under-Seat: Located beneath the seats of a vehicle.

Unplug: Stop the flow of electric power by removing the plug from the socket.

Vacuum: Remove air or a space without any air pressure.

VCU (Vehicle Control Unit): An electric control module that controls the powertrain, high voltage battery, on-board charging modules, and on-board diagnostics.

Vehicle: Equipment for transporting people or cargo.

Vent: An opening that allows for air flow into the passenger compartment.

Voiding: Canceling, invalidating, breaking.

Volt: A measurement of electrical energy.

Voltage: The force that pushes electrons in the same direction around a circuit to create an electrical current.

Voltmeter: A device for testing the current of an electrical circuit.

Walk-Around Inspection: Visually inspect the exterior of the vehicle by walking around the parameter.

Warning: A visual or audible alert indicating potential danger.

Warranty: A written guarantee made by the manufacturer to the purchaser to fix or replace equipment if necessary prior to a specified time frame or amount of use.

Waterproof: Designed to prevent water from penetrating the surface.

Wear: Damage or erosion caused by use.

Weight: The force by which a body is pulled by gravity.

Wheel: A component consisting of a tire and rim that is attached to a vehicle chassis that allows the vehicle to roll or be driven forward or in reverse.

Windshield: Safety glass that covers passenger compartment and allows the driver and passengers to see out while providing protection from wind, rain and debris.

Wiper: A mechanical device for clearing the windshield.

Wiper/Washer: A device that sprays a cleaning solution onto the windshield to help increase visibility for the driver and passengers.

Wrench: A tool used to provide torque to tighten, loosen, fasten or unfasten a nut or a bolt.

Strikingly Different™

mullenusa.com/mullen-vehicle-center