2014 VIA 1500 Extended Range Crew Cab 4x4

Supplement to the 2014 Chevrolet Silverado owner manual

Contents

Purpose

The purpose of this vehicle guide is to provide operating instructions for the unique features of the 2014 1500 Extended Range Electric Truck and explanations and instructions for the appropriate usage of the vehicle and Export Power.

Reading and understanding this manual is very important in the safe operation of the eREV. Text marked DANGER informs the driver of hazards that could result in injury or death. Text marked Caution refer to hazards that also cause various levels of danger.

SUPPLEMENT USE

Information about your vehicle can be located using the Table of Contents in the front of this manual. Find your topic of interest from the list and refer to the page number where it can be found.

Danger, Warnings, and Cautions

Warning messages found on vehicle labels and in this manual describe hazards and what to do to avoid or reduce them.

WARNING: This indicates a hazard that could result in serious injury or death.

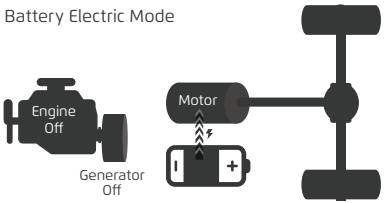
CAUTION: This indicates a hazard that could result in damage to components.

A circle with a slash through it is a safety symbol. It means *do not*, *do not do this*, or *do not let this happen*. Notice: This means there is something that could result in property or vehicle damage. This would not be covered by the vehicle's warranty.

INITIAL DRIVE INFORMATION

Electric Vehicle Operating Modes

The Extended Range Electric Truck has two modes for driving: Battery Electric and Extended Range Electric. In both modes, the vehicle is propelled by the traction motor. The traction motor uses electrical energy from the high- voltage battery or electrical energy generated from engine operation to drive the wheels. The level of performance is the same in either mode.

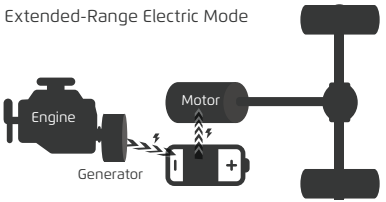


Battery Electric Mode

If the high voltage battery is fully charged the vehicle will operate using the high voltage battery for an initial period (usually about 35 miles). The engine will not start until the battery reaches a low level state of charge (SOC). During this time, vehicle operation is quiet, no fuel is used and no tailpipe emissions are produced.

Under the following conditions, the engine will also run even though the battery charge level is sufficient.

- Cold ambient temperatures.
- Specific high voltage battery fault conditions.
- Running engine maintenance mode or fuel maintenance mode.



Extended Range Electric Mode

When the battery charge falls to a low level, approximately 20% SOC, the vehicle switches to Extended Range Electric Mode and the gasoline-powered internal combustion engine will start automatically. The sound of the engine may be heard during operation. The engine is connected to a generator which produces electricity to propel the vehicle.

Engine RPM does not correspond directly to vehicle speed and acceleration.

REGENERATIVE BRAKING

Regenerative braking enables the electric drive motor to operate as a generator when coasting or braking. This provides energy to recharge the high voltage battery. Regen will not occur if the ABS system is inoperative. Repair the ABS system if required. Both the hydraulic brakes and drive motor provide braking.

Engine Can Start Automatically

The eREV inverter/controller module monitors vehicle information to determine when the engine must run. When the vehicle is turned on, the engine may start under any of the following conditions:

- High voltage battery has a low charge.
- High voltage battery temperature is out of acceptable range.
- Engine must run for maintenance mode or fuel maintenance mode.
- Extreme cold or steep grade

HIGH VOLTAGE SAFETY

WARNING: The Extended Range Electric Truck has a standard 12V battery and a high voltage battery. Only a trained service technician with the proper knowledge and tools should inspect, test, or replace the high voltage battery.

See an authorized VIA dealer if the high voltage battery needs service. The 12 volt battery cables, located in the engine compartment, are clearly labeled. In emergency situations first responders can cut those cables to disable the high voltage battery system. All high voltage wiring is clad in orange conduit.

Operators of the truck should not touch, cut or disconnect the orange colored high voltage cables under any circumstances The high voltage cables should only be handled by trained technicians.

The first responder's cut point can be found under the hood on driver's side.

High voltage in event of an accident

Airbag deployment, rollover, or high voltage isolation fault may shutoff power to the drivetrain.

GENERAL SAFETY WARNINGS

WARNING: Always place the vehicle in Park and apply the parking brake before exiting the vehicle. Never leave the ignition in the On position without engaging park.

WARNING: If parking on an incline apply the parking brake first before engaging Park.

WARNING: Do not park over materials that can burn. This includes papers, leaves and dry grass.

WARNING: Other safety warnings are included in the Owner Manual provided with the vehicle. This supplement includes only warnings that pertain to this vehicle.

IN THE EVENT OF AN ACCIDENT

If the high voltage battery becomes disabled after a crash, the system must be reactivated by a certified VIA Motors technician. Contact your closest Authorized VIA servicing dealer for repair.

Battery Replacement

There are two batteries in the vehicle. The standard 12-volt battery and a high voltage battery. To replace the 12-volt battery contact your dealer for the proper replacement. Only VIA trained technicians with the proper equipment and training should test, inspect or replace the high voltage battery.

Battery Service

Do not attempt to service high voltage components on your vehicle. Serious injury, death or vehicle damage may result. Service and repair of high voltage components should be performed by VIA trained technicians with the proper equipment and training.

Do Not Leave The Vehicle Unattended While Running

WARNING: Do not leave the vehicle in neutral unattended while it is running

WARNING: Do not leave the vehicle with the propulsion system on.

If the shift lever is not fully in **P** (Park) with the parking brake firmly set, the vehicle could move suddenly causing the vehicle to roll. Serious personal injury and damage to components can result.

If you must leave the vehicle with the propulsion system on for any reason, first make sure the shift lever is in P (Park) and the parking brake is firmly set.

WARNING LIGHTS, GAUGES, AND INDICATORS

All other gauges operate as described in the owner manual.

Generator kW Gauge

The Generator kW gauge shows the output of the engine mounted generator. It also shows high voltage output during Export Power mode. The output will vary based on demand.

Power kW Gauge

The Power gauge has a dual purpose. It records power usage on the blue scale and regenerative power (regen charging) on the green scale. While accelerating or driving the blue scale will show power usage. When coasting or braking the green scale will show regen power recovery. Early braking and light acceleration will result in the best battery and fuel usage.

System Overheating

This symbol indicates that a component in the system (or multiple components) is/are overheating/overheated. The performance may be reduced automatically depending on which component is overheating to protect itself. If the issue persists, it may be necessary to stop. This light comes on when either the engine or one of the electric power train components show an over temp condition.It only comes on in extreme conditions. The light also means the vehicle should be serviced soon.

Battery % Gauge

The red needle on the battery percentage gauge indicates the remaining charge in the high voltage battery. When the EVSE is connected and charging is complete the gauge will indicate 100%. As the vehicle is driven in the full electric mode the percentage will reduce until the engine starts. At that point the vehicle will be powered by the engine mounted generator.

Ready to Drive

The green vehicle lighting indicates the vehicle is ready to drive. It is used while in the Battery Electric mode startup to indicate all necessary systems are functioning and the vehicle is ready to drive. The light will stay on as long as the vehicle is active.

Note: Note: Wait for until the ready to drive light illuminates before shifting from the “Park” prawl.

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HEATING AND AIR CONDITIONING

The heater/air conditioner controls operate in the same manner as outlined in the full owner manual.

When the heater is selected, coolant is warmed by an inline heater to provide cabin heat and defrost during Battery Electric mode. In the Extended Range Electric mode, engine generated heat assists in warming.

The air conditioning compressor is electrically driven and operates in the same manner in both Battery Electric and Extended Range Electric modes. Compressor operation may be heard during full electric operation as the compressor cycles on and off. This is normal.

4 WHEEL DRIVE

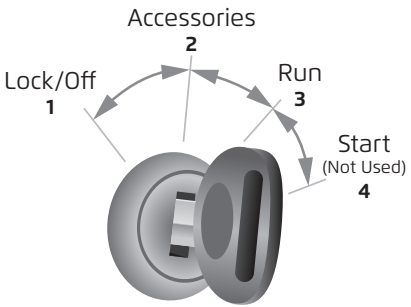
The vehicle is equipped with 4 wheel drive. The system offers 4 positions: 2 wheel drive, 4 wheel drive high, 4 wheel drive low and neutral. The operation and cautions for system use may be found in the 2014 Chevrolet Silverado Owner Manual.

STARTING THE VEHICLE

The ignition switch is turned forward with the gear selector in the Park position to engage the system. In the Battery Electric mode the engine will not start, but auxiliary equipment may be heard. In the Extended Range Electric mode (the high voltage battery is at a low level) the engine will start. In either mode the vehicle performance is the same.

There are 4 positions on the ignition switch. The positions are as follows:

A. Stopping the engine/Lock/Off
B. Accessory
C. On/Run
D. Start (Not Used)



Starting the Vehicle

To start the Extended Range Electric truck insert the key into the ignition switch at position 1 (Off), make sure the gear selector is in the P (Park) position, apply the brake, turn the ignition switch forward to position 3 (Run). Allow the vehicle to initialize (up to 18 seconds) and the ready to drive light appears then shift into the required gear and proceed.

When parking the truck, apply the service and parking brake, place the vehicle in the P (Park) position on the gear selector and turn the key towards you to position 1 (Off). This allows the park prawl to engage. At this point the key may be removed.

In position 2 (Accessory) the radio, wipers and other accessories may be used without the drive engaged.

DIRECTIONAL SELECTOR FUNCTIONS

The Extended Range Electric Truck is powered by direct drive electric motor. A transmission is not required. The gear selector on the column is actually a directional and park selection device. It functions as follows:

Park
The **P** or *park* position uses an electrically operated device that locks up the drivetrain to prevent movement while parked. This takes a small amount of time to engage and disengage. It should always be used in conjunction with the parking brake. Park will not engage if the vehicle is moving. Care should be taken to fully engage park before leaving the vehicle.

On steep inclines the parking brake should be engaged before selecting park to reduce the effort to disengage park.

Reverse
The **R** or *reverse* selection will cause the vehicle to back up. Make sure the vehicle is completely stopped before making the next selection.

Neutral
The **N** or *neutral* selection will remove power flow to the electric drive. The vehicle may roll if left in this position.

D,2,1
The **D** or *drive* selection is the normal operating position. This will allow the vehicle to go forward. You will not feel gear change as speed increases due to the vehicle is direct drive. Positions **2** & **1** operate the same as **D**. **D** is the preferred position.

FACTORS AFFECTING PERFORMANCE

Adding Electronics to the Vehicle

The Extended Range Electric Truck is designed to operate with the factory installed electronics in the vehicle only. Adding or altering electrical parts or accessories may change the way the vehicle operates. Contact a VIA Motors service representative before adding any electrical or mechanical equipment. Failure to do so may cause your vehicle to not perform properly. Any damage resulting from this action would not be covered by the vehicle warranty.

Out of Fuel/Engine Unavailable

If an engine malfunction occurs or there is no fuel in the fuel tank, the vehicle will operate in Electric Mode until the battery is depleted. Once the battery has reached less than 20%, acceleration response will be affected. Traction power could be lost at any time when the battery is around 10%. Use caution and do not drive aggressively.

When the malfunction is corrected or the vehicle is refueled, the engine will be available again for normal operation. You may notice the next time the ignition is turned On, the vehicle will perform a self-test and clear any malfunction messages that may have been displayed.

Cold Temperature Affects Battery Range

Cold temperatures of approximately 20°F (-7°C) will cause the high voltage battery to lose its charge faster. In the event of cold weather below 32°F (0°C) the vehicle must be plugged in overnight to avoid initial reduced performance under cold conditions. A temperature sensor will automatically activate a system warming cycle that will maintain the battery and other components at an acceptable level.

How to Rock the Vehicle if Stuck In Mud or Snow

When a vehicle gets stuck in snow or mud, it is common practice to shift back and forth between **R** (Reverse) and **D** (Drive) to free the vehicle. When rocking the vehicle, wait until the wheels stop spinning before shifting from **R** to **D**. The accelerator pedal should be released whenever the positions are changed. When the traction motor is engaged, press lightly on the accelerator pedal.

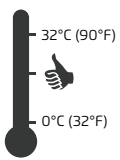
CAUTION: Always depress the brake pedal when moving from **P** to **D** or **N**.

CHARGING

Charge regularly for best performance

Regular charging of the high voltage battery is an important part of maintaining an extended range vehicle. Charging not only ensures you can operate your vehicle the next time you need it, regular charging will maximize the life of the battery. The high voltage battery may be charged using a charging station or either Level 1 or 2 **Electric Vehicle Supply Equipment** (EVSE) units.

The vehicle should not be kept in extreme temperatures (below 0°C [32°F] and above 32°C [90°F]) for long periods without being plugged in or driven. This will also help maximize the life of the high voltage battery.



Cold Weather Will Slow Charging and Reduce Battery Capacity

Cold temperatures will affect the performance and charging of the traction battery in the following ways.

- The battery charge time will take longer to reach a full charge
- The battery will lose its charge faster

Long Periods Between Use May Require Additional Charging

If the vehicle is not driven within several days of a charge, the battery will lose a portion of its charge. To ensure optimal driving range, keep the vehicle connected to the EVSE when not in use.

Maximizing Energy Efficiency

Use the following tips to help achieve better energy efficiency and extend driving range:

- Any unnecessary fast acceleration and deceleration should be avoided.
- To achieve maximum electric range, drive the vehicle at 80 km/h (50 mph) and below. Driving at higher speeds reduces energy efficiency and diminishes the electric range considerably.
- When possible, plan ahead for decelerations and coast whenever possible.

CHARGING PROCEDURE

1. Park on a level surface inside a garage or protected area if possible.
2. Turn the vehicle off.
3. Wait at least 15 seconds.
4. Open the charge port cover located at the left front (driver side) by pressing in and releasing. The vehicle is charged using an onboard charger and an EVSE (Electric Vehicle Supply Equipment) as a power supply.
5. Align the EVSE handle with the charge port, and push in until a is click heard. Make sure the handle is completely inserted and properly seated to ensure a safe connection.
6. The green light on the EVSE should come on to indicate charging. A red light indicates either the EVSE is not wired correctly or it is not communicating with the vehicle.
7. Once the battery has reached a 'full charge' the green charging light on the EVSE will go out. Keep the EVSE plugged in until you are ready to drive the vehicle. Depress the button on the handle and remove it from the charge port. Close the charge port cover.

Note: When the vehicle is started, the "state of charge" indicator will point to 100%.

Note: Even when fully charged, the charge cord should remain plugged in. This will help ensure the battery is within optimal temperature range and maximize the battery life.

Charging times will vary based on EVSE type, temperature and initial state of charge.

Note: Keep water and debris away from the charging connectors, both on the vehicle and the EVSE.

For other EVSE charging equipment refer to the manufacturer's instructions.

CHARGING EQUIPMENT

Electric Vehicle Supply Equipment (EVSE)

A Level 1 (120V) or Level 2 (240V) EVSE is provided with your vehicle so you can charge the battery from a normal 120 V AC outlet. Higher voltage charging stations may be used for a more rapid charge.

CAUTION: Only a qualified electrician should perform the installation of permanently mounted Level 2 EVSE's. The installation must be performed in accordance with all local electrical codes and ordinances.

Do not use an EVSE with a worn or damaged AC outlet. The outlet can start a fire or cause burns. Serious personal injury and damage to components can result.

Do not use an extension cord with an EVSE. An extension cord can increase the risk of electric shock, resulting in serious personal injury. Use of an extension cord with a charger is not recommended.

If using an extension cord cannot be avoided, make sure the extension cord meets the following criteria:

- GFCI protected.
- 12 or 14 gage, 3 conductor.
- Rated for outdoor.

CAUTION: Inspect the AC plug occasionally while the vehicle is charging to verify it is within acceptable temperature and not hot. If the AC plug feels hot, unplug the charger and have the outlet repaired or replaced.

Do not use non-grounded electrical plug adapters with the EVSE

Electrical Requirements

Select an AC outlet specifically for charging your vehicle. It must be a grounded, dedicated, 20 amp or greater, three-prong wall plug. Make sure no other major appliances are connected to the same circuit. If other large loads are included in the charging circuit, the circuit breaker can trip.

The minimum requirements for circuits used to charge this vehicle are:

- Level 1 - 120 Volt / 16 Amp
- Level 2 - 240 Volt / 20 Amp

Using the Level 2 (240V) EVSE or other charging equipment with a rating of at least 240V/20Amp will provide the fastest charging time.

CAUTION: Do not use a backup generator with the charger. The vehicle's charging system can become damaged and can void your manufacturer's warranty.

EVSE Types

Portable Level 1 (120V) EVSE

Portable Level 2 (240V) EVSE

Stationary 240 V High Power EVSE

Periodically inspect the EVSE handle and the charge port on the vehicle for corrosion or damage. Closing the charge door and properly storing the EVSE handle will limit environmental damage and ensure clean contacts.

Damaged Contacts

Clean Contacts

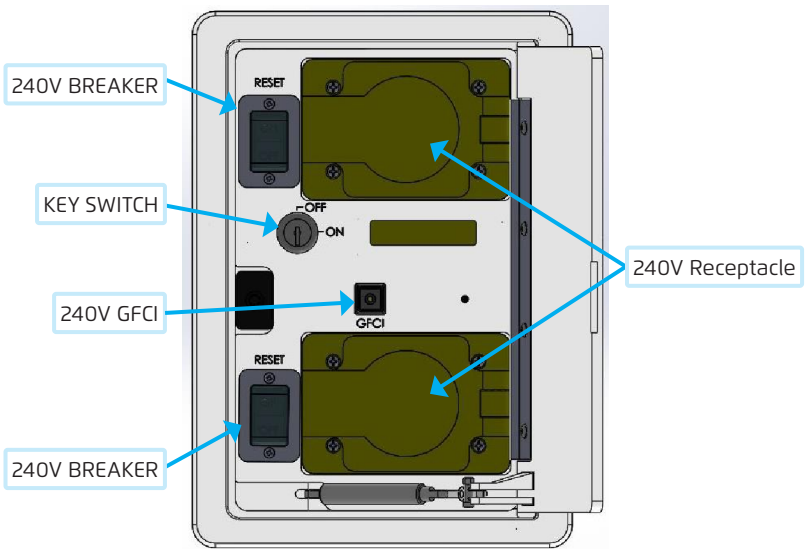
OPTIONAL EXPORT POWER

The onboard 240V outlets are located behind a door at the right side of the vehicle. Locate the door and press to release. This will allow access to the outlets. By unlocking the system using the power export key provided with the vehicle, two 30A 240VAC outlets (one 3 prong, one 4 prong) can be utilized. There is 14.4kW total available power between both connectors.

Export Power may be used until the high voltage battery reaches a low level (around 20%). At that point an alarm will sound and the outlet will shut down. In order to continue, insert the vehicle key into the ignition (not the power export key) and move to run position. Make sure the selector is in park with the park brake set. The engine will engage to drive the generator. Export power will resume until the vehicle runs low on fuel. Again an alarm will sound and the vehicle should be driven to a fuel source. After refueling, Export Power usage may be resumed.

CAUTION: Make sure the vehicle is in a well ventilated area before allowing the engine to start.

CAUTION: Remove tools and power tools and close cover before driving away.



IN CASE OF A BREAKDOWN OR EMERGENCY

Towing

If the Extended Range Electric Truck cannot be driven after an accident, tow the vehicle using a flatbed truck so all four wheels are off the ground or use a tow truck equipped with a wheel lift and tow the vehicle from the rear.

CAUTION: The vehicle must not be towed with the rear wheels on the ground other than removal from off road conditions. Doing so will cause the traction motor to generate high voltage power, resulting in risk of injury to persons or damage to the vehicle.

Flatbed Tow Only

In case of battery damage

If the high voltage battery becomes disabled after a crash, the system must be reactivated by a certified VIA Motors technician.

In case of accident while charging

If an accident or damage occurs when the Extended Range Electric Truck is plugged in for charging, unplug the charger from the vehicle. If access to the plug is not available, turn off the power to the EVSE.

SERVICE CHECKS

WARNING: Do not perform service on the high voltage battery components. Serious personal injury and damage to components can result. Service must only be performed by a certified VIA Motors VTRUX technician trained in the repair of high voltage systems.

WARNING: Avoid contact with high voltage components (identified by labels and orange wrapped cable or wiring). Do not attempt to remove, disassemble, test or alter any high voltage system components. Do not open wiring to test or repair. Exposure to high voltage can cause shock, burns, and even death.

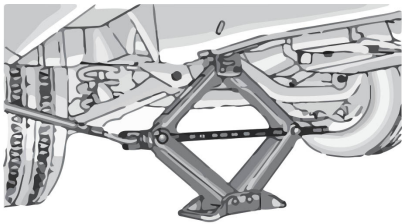
CAUTION: MAINTENANCE SHOULD BE PERFORMED BY A CERTIFIED VIA MOTORS TECHNICIAN

TIRES & AIR PRESSURE

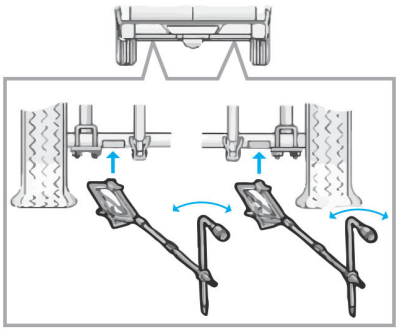
Wheel Nut Torque	140 Ft/Lbs.
Tire inflation	A label is permanently attached to the inside driver door showing capacity, weight and the original equipment tire size. The recommended tire inflation pressure is on the label.
Air Compressor	In the event of a tire with low pressure, an air compressor is located under the passenger seat to fill the low tire until repair can be accomplished.

TIRE JACK LIFT POINTS

Place jack on the front frame rail as indicated. Select a clean area of the frame.



Front Position



Rear Position

GASOLINE REQUIREMENTS

Actions to take based on changes in summer blend vs. winter blend fuels:

EPA Gasoline Requirements

Due to EPA requirements that gasoline has a different RVP (Reid Vapor Pressure) for summer and winter use, fuel in vehicles that run primarily in the electric battery mode should run in the extended electric mode until the fuel level drops to ¼ tank. This should be done sometime after June 1 to use up the winter blend fuel, then again after September 15 to use up the summer blend fuel. At this point refill the vehicle with the proper blend of fuel for the season. This will allow proper internal combustion engine efficiency and maintain the proper emission performance.

BELT ROUTING RECOMMENDED FLUIDS, LUBRICANTS, AND PARTS

Fluids identified below are specific to the VIA VTRUX vehicle and can be obtained from your dealer. See the OEM owner manual for the other fluids and lubricants recommended for the vehicle.

Engine Oil Change

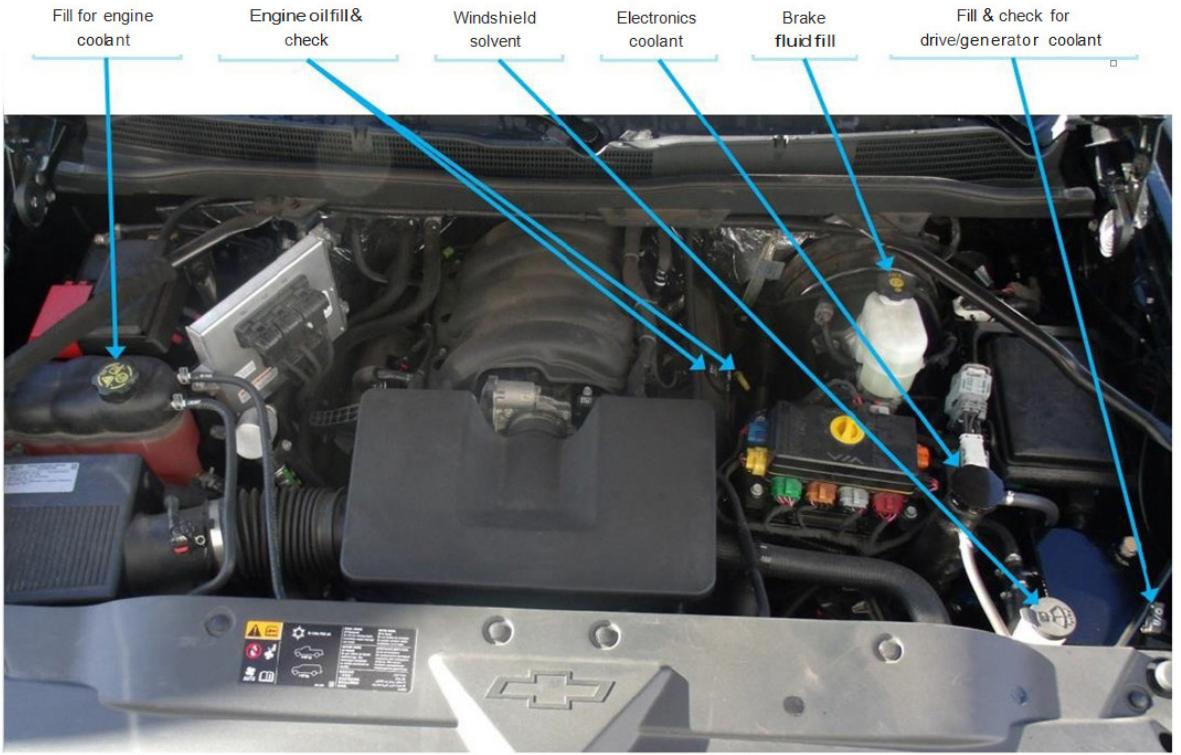
When the CHANGE ENGINE OIL SOON message displays, have the oil and filter changed. The engine oil and filter must be changed at least once a year.

Coolant Maintenance Schedule

- Change the electronics coolant for the inverter & battery every 150,000 mi (240,000 km).
- Change the traction motor/ generator oil coolant every 50,000 (80,000 km) miles.
- Change the engine coolant every 150,000 mi (240,000 km) or every 5 years, whichever occurs first.

Usage	Fluid/Lubricant
Engine Coolant	50/50 mixture of clean water and use only DEX-COOL Coolant.
Electronics Coolant	50/50 mixture of clean water and use only DEX-COOL Coolant.
Hydraulic Brake System	DOT 3 Hydraulic Brake Fluid
Traction Motor/ Generator Cooling Oil	DEXRON®-VI Automatic Transmission Fluid every 50,000 miles
Power steering system	TEXACO® Havoline PSF9109 Automatic Transmission Fluid

NOTE: *All other recommendations are located in the owners manual*


Fill for engine coolant
Engine oil fill & check
Windshield solvent
Electronics coolant
Brake fluid fill
Fill & check for drive/generator coolant

CAPACITIES AND SPECIFICATIONS

Application	Metric	English
Air Conditioning Refrigerant R134a	For the air conditioning system refrigerant charge amount, see the refrigerant label under the hood. See your service dealer for more information.	
Engine Oil with Filter	4.8 L	6 qt
Fuel Tank	64 L	17 gal
Wheel Nut Torque	190 N•m	140 ft-lb

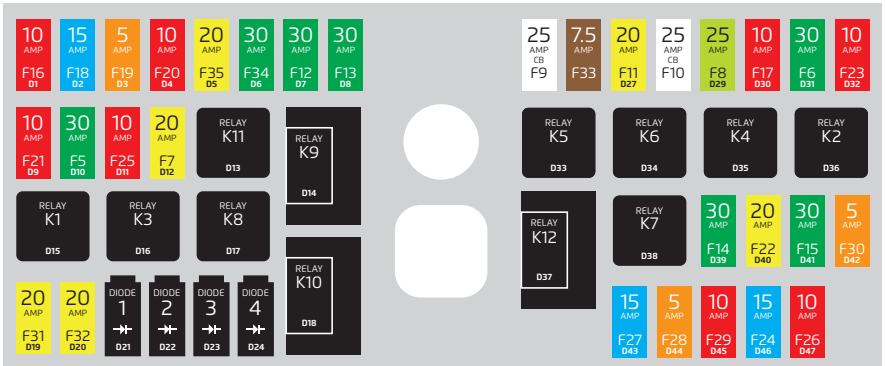
All capacities are approximate. When adding, be sure to fill to the approximate level, as recommended in this manual.

FUSE BOX

REPLACING FUSES

Fuses and circuit breakers protect the vehicle wiring circuits from damage. If the metal bar within the fuse is broken or melted replace the fuse with a fuse of identical size and rating.

The supplemental fuse panel is located under the hood on the driver side of the Extended Range Electric Truck. The fuse locations are inscribed on the lid. Turn knob to open.



FUSES

F5 CORE WAKE (30A)
F6 IGN WAKE (30A)
F7 CHG WAKE (20A)
F8 ENG IGN (25A)
F11 CABIN HEATER (20A)
F12 FAN 1 (30A)
F13 FAN 2 (30A)
F14 EPT W.PUMP (30A)
F15 PARK PAWL (30A)
F16 CHARGER (10A)
F17 TRAK INV (10A)
F18 ESS (15A)
F19 EVSE WAKE (5A)
F20 HMI (10A)
F21 A/C (10A)
F22 SPARE (20A)
F23 HCU (10A)
F24 ESS2 (15A)
F25 OBD (I0A)
F26 GENE INV (10A)
F27 SPARE (15A)
F28 HEATER (5A)
F29 PTC PUMP (10A)
F30 VACUUM PUMP
F31 DRVP1 (20A)
F32 DRVP2 (20A)
F33 CHG/EXP ENABLE (7.5A)
F34 SPARE (30A)
F35 SPARE (20A)

RELAYS

K1 CORE WAKE
K2 IGN WAKE
K3 CHG WAKE
K4 ENG IGN
K5 GENE OIL
K6 TRAC 011.
K7 CABIN HEATER
K8 SPARE
K9 FAN 2
KI0 FAN I
K11 SPARE
K12 ESS COOLER

DIODES

D1 EXP (6A)
D2 IGN (6A)
D3 EVSE (6A)
D4 DIAG (6A)

CIRCUIT BREAKERS

F9 GENE OIL (25A)
F10 TRAC OIL (25A)

SCHEDULED MAINTENANCE

It is important to have all recommended maintenance checks and inspections performed at the scheduled intervals to ensure the vehicle remains in top operating condition. Use of the recommended fluids and lubricants is also important to ensure performance of components. If damage occurs due to lack of scheduled maintenance, repairs may not be covered by the vehicle warranty.

The vehicle owner is responsible for ensuring maintenance is performed. VIA Motors recommends you have procedures performed by a VIA Motors VTRUX certified technician.

MAINTENANCE RECORDS

After the scheduled services are performed, record the date, odometer reading, who performed the service, and the type of services performed in the boxes provided. Retain all maintenance receipts.

Maintenance Record

Date	Odometer	Serviced By	Services Performed

Maintenance Record

Date	Odometer	Serviced By	Services Performed

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