2013 Cadillac Escalade Hybrid

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This manual describes features that may or may not be on your specific vehicle either because they are options that you did not purchase or due to changes subsequent to the printing of this owner manual. Please refer to the purchase documentation relating to your specific vehicle to confirm each of the features found on your vehicle. For vehicles first sold in Canada, substitute the name “General Motors of Canada Limited” for Cadillac Motor Division wherever it appears in this manual.

Keep this manual in the vehicle for quick reference.

Your hybrid SUV is designed to be more fuel efficient than the standard SUV, which results in reduced carbon dioxide emissions.

Canadian Vehicle Owners

Propriétaires Canadiens

A French language copy of this manual can be obtained from your dealer or from:

On peut obtenir un exemplaire de ce guide en français auprès du concessionnaire ou à l'adresse suivante:

Helm, Incorporated
Attention: Customer Service
47911 Halyard Drive
Plymouth, MI 48170

Using this Supplement

This supplement contains information specific to the unique components of the vehicle. It does not explain everything you need to know about the vehicle. Read this supplement along with the owner manual to learn about the vehicle's features and controls.

Index

A good place to look for what you need is the Index in back of this supplement. It is an alphabetical list of what is in the supplement, and the page number where you will find it.

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In Brief

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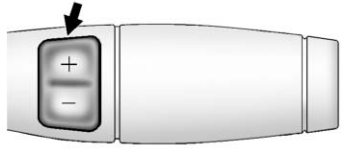
Initial Drive Information

Transmission

Range Selection Mode



The Range Selection Mode switch is on the shift lever.

To enable the Range Selection feature:

1. Move the shift lever to the M (Manual) position. The current range will appear next to the M. This is the highest attainable range with all lower gears accessible. As an example, when 3 (Third) gear is selected, 1 (First) through 3 (Third) gears are available.
2. Press the plus/minus buttons on the steering column shift lever to select the desired range of gears for current driving conditions.

Cruise control can be used while the vehicle is in Range Selection Mode.

See *Manual Mode on page 9-8*.

Four-Wheel Drive

If the vehicle has four-wheel drive, you can send the engine's driving power to all four wheels for extra traction. Read the following before using four-wheel drive.

Automatic Transfer Case

The transfer case knob is located to the left of the instrument panel cluster. You can choose among five driving settings:

2 ↑ (Two-Wheel Drive High): This setting is used for driving in most street and highway situations.

AUTO (Automatic Four-Wheel Drive): This setting is ideal for use when road surface traction conditions are variable.

4 ↑ (Four-Wheel Drive High): Use the four-wheel high position when you need extra traction, such as on snowy or icy roads or in most off-road situations.

4 ↓ (Four-Wheel Drive Low): This setting delivers extra torque. You might choose Four-Wheel Drive Low if you are driving off-road in deep sand, deep mud, deep snow, and while climbing or descending steep hills.

N (Neutral): Shift the vehicle's transfer case to N (Neutral) only when towing the vehicle. See *Recreational Vehicle Towing on page 10-32* and “Towing the Vehicle” in the owner manual.

See *Four-Wheel Drive on page 9-9*.

Hybrid Features

High Voltage Safety Information

This vehicle has a standard 12-volt battery and a high voltage hybrid battery. Only a trained service technician with the proper knowledge and tools should inspect, test, or replace the hybrid battery. See your dealer if the hybrid battery needs service.

The 12-volt battery cables, in the engine compartment, are clearly labeled. In emergency situations, first responders can cut those cables to disable the high voltage hybrid battery system.

Fuel Economy Gauge

Metric

English

This gauge shows when the vehicle is operating at a fuel efficient point.

Driving behavior that improves fuel efficiency makes the fuel indicator move to the high efficiency band on the fuel gauge.

See *Fuel Economy Gauge on page 5-4* for more information.

Automatic Engine Start/ Stop Feature

Start the engine as you would any other engine. See “Starting the Engine” in the owner manual for more information on starting. The hybrid system provides very quiet engine starting. If pulling a trailer with trailer brakes, see *Trailer Towing on page 9-15* for more information.

Auto Stop

The vehicle has an Auto Stop feature. After a successful engine start, the engine may turn off and operate in the Auto Stop mode.

Keep your foot firmly on the brake pedal until you are ready for the vehicle to move.

Engine OFF and AUTO STOP modes are indicated on the tachometer display. When the tachometer needle indicates OFF, the engine is not running and will remain off until the ignition key is placed in the START position or a remote vehicle start is performed. When the tachometer needle indicates AUTO STOP, the hybrid system is on, the engine is not running, but may Auto Start at any time without notice. See *Tachometer on page 5-4* for more information.

A chime will sound if the driver door is opened while in Auto Stop as a reminder that the ignition switch is not in the LOCK/OFF position. Always turn the ignition switch to LOCK/OFF and remove the key from the ignition switch when exiting the vehicle.

Auto Start

The vehicle also has an Auto Start feature. The engine will remain off while in Auto Stop mode until vehicle conditions require the engine to run. The near-instant starting of the engine from Auto Stop mode is called Auto Start.

EV Mode

The vehicle also has an EV mode which uses only the electric motor to move the vehicle. With light acceleration, the vehicle will drive in EV mode. EV mode is unavailable when the vehicle is out of fuel.

For more information on Auto Stop, Auto Start, and EV Mode, see *Starting the Vehicle on page 9-2*.

Regenerative Braking

Regenerative braking enables the electric drive motor to operate as a generator when coasting or braking. Energy from the moving vehicle recharges the hybrid battery.

The hydraulic disc brakes work with the regenerative braking to ensure effective braking.

The braking system is computer controlled and blends the regenerative braking with the conventional hydraulic disc brakes to meet any requirements for deceleration. Because the controller applies the hydraulic brakes through its high pressure accumulator, you may occasionally hear the motor driven pump when it recharges the system. This is normal. In the event of a controller problem, the brake pedal may be harder to push and the stopping distance may be longer.

See *Regenerative Braking on page 9-14*.

Battery

This vehicle has a standard 12-volt battery and a high voltage hybrid battery. When a new standard 12-volt battery is needed, see your dealer for one that has the replacement number shown on the original battery's label. Only a trained service technician with the proper knowledge and tools should inspect, test, or replace the hybrid battery. See your dealer if the hybrid battery needs service. See *Battery on page 10-10*.

Service

Never try to do your own service on hybrid components. You can be injured and the vehicle can be damaged if you try to do your own service work. Service and repair of these hybrid components should only be performed by a trained service technician with the proper knowledge and tools. See *Doing Your Own Service Work on page 10-1*.

Performance and Maintenance

Tire Sealant and Compressor Kit

This vehicle has a tire sealant and compressor kit that can be used to seal small punctures in the tread area of the tire. Significant sidewall damage will require the tire to be replaced.

See *Tire Sealant and Compressor Kit on page 10-20* for complete operating information.

✍ NOTES

Seats and Restraints

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Airbag System

Replacing Airbag System Parts after a Crash

If an airbag inflates or the vehicle has been in a crash, the vehicle's sensing system may command the automatic hybrid battery disconnect to open. When the battery disconnect is open, the hybrid battery will be off and the vehicle will not start. The airbag readiness light and/or SERVICE HYBRID SYSTEM warning message may come on in the Driver Information Center (DIC). See “Airbag Readiness Light” in the owner manual and *Driver Information Center (DIC) on page 5-8* for more information.

To operate the vehicle, the automatic hybrid battery disconnect must be reconnected by a qualified service technician and sensing system parts will need to be replaced. Have the vehicle serviced right away.

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Controls

Power Outlets

Power Outlet Alternating Current

The vehicle may have a power outlet that can be used to plug in electrical equipment that uses a maximum limit of 150 watts.

The power outlet is in the rear cargo area on the driver side.

An indicator light on the outlet comes on when in use. The ignition must be in ON/RUN when equipment requiring less than 150 watts is plugged into the outlet, and no system fault is detected.

The indicator light does not come on when the ignition is in LOCK/OFF or if no equipment is plugged into the outlet.

If equipment is connected using more than 150 watts, or a system fault is detected, a protection circuit shuts off the power supply and the indicator light turns off. To reset the circuit, unplug the item and plug it back in or turn the Retained Accessory Power (RAP) off and then back on. The power restarts when equipment using 150 watts or less is plugged into the outlet and a system fault is not detected.

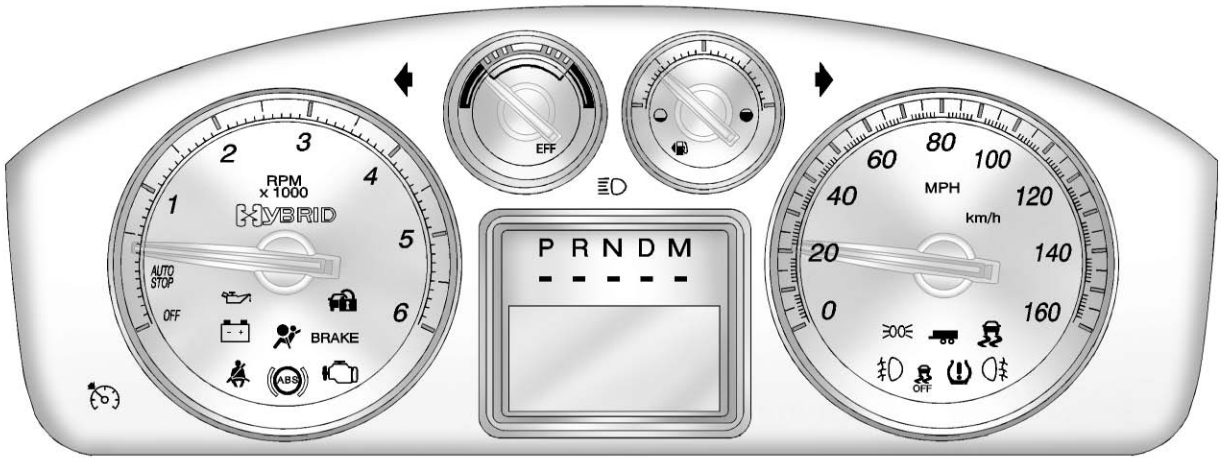
The power outlet is not designed for and may not work properly if the following are plugged in:

- Equipment with high initial peak wattage such as: compressor-driven refrigerators and electric power tools.
- Other equipment requiring an extremely stable power supply such as: microcomputer-controlled electric blankets, touch sensor lamps, etc.

See *High Voltage Devices and Wiring on page 10-12*.

Warning Lights, Gauges, and Indicators

Instrument Cluster



English Version Shown, Metric Similar

Tachometer

English Shown, Metric Similar

When the ignition is in ON/RUN the tachometer indicates the vehicle status:

When pointing to AUTO STOP, the vehicle is on and can move, the engine could AUTO START at any time. When the indicator is OFF, the vehicle is off. When the engine is on, the tachometer will indicate the engine's revolutions per minute (rpm).

The tachometer may vary by several hundred rpm's, during AUTO STOP mode, when the engine is shutting off and restarting. A slight bump may be felt when the transmission is determining the most fuel efficient operating range.

Fuel Economy Gauge

Metric

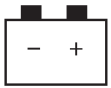
English

This gauge is to assist in driving efficiently and may vary during normal operation.

The vehicle is being driven the most efficient when the gauge is kept in the middle.

The gauge moves to the left when braking and to the right when accelerating. When either are done aggressively, the efficiency is decreased.

Charging System Light



This 12-volt battery light comes on briefly when the ignition is turned to ON/RUN, but the engine is not running, as a check to show it is working.

It should go out once the engine has been started. If it stays on, or comes on while driving, there could be a problem with the 12-volt charging system. Have the vehicle serviced by your dealer. A 12-volt charging system Driver Information Center (DIC) message may also appear. See *Driver Information Center (DIC) on page 5-8* for more information. This light could indicate that there are electrical problems. Have it checked right away. If a short distance must be driven with the light on, be certain to turn off all the accessories.

Brake System Warning Light

With the ignition in ON/RUN, the brake system warning light comes on when the parking brake is set. If the vehicle is driven with the parking brake engaged, a chime sounds when the vehicle speed is greater than 8 km/h (5 mph).

The vehicle brake system consists of two hydraulic circuits. If one circuit is not working, the remaining circuit can still work to stop the vehicle. For normal braking performance, both circuits need to be working.

If the warning light comes on and a chime sounds there could be a brake problem. Have the brake system inspected right away.

This light also comes on due to low brake fluid. See the owner manual for more information.

Metric

English

This light should come on briefly when the ignition key is turned to ON/RUN. If it does not come on then, have it fixed so it will be ready to warn if there is a problem.

⚠ WARNING

The brake system might not be working properly if the brake system warning light is on. Driving with the brake system warning light on can lead to a crash. If the light is still on after the vehicle has been pulled off the road and carefully stopped, have the vehicle towed for service.

If the light comes on while driving, pull off the road and stop carefully. The pedal might be harder to push or can go closer to the floor. It may take longer to stop. If the light does not go out, have the vehicle towed for service. See “Towing the Vehicle” in the owner manual.

Antilock Brake System (ABS) Warning Light

For vehicles with the Antilock Brake System (ABS), this light comes on briefly when the engine is in ON/RUN.

That is normal. If the light does not come on then, have it fixed so it will be ready to warn if there is a problem.

If the ABS light stays on, turn the ignition off, if the light comes on while driving, stop as soon as it is safely possible and turn the ignition off. Then start the engine again to reset the system. If the ABS light still stays on, or comes on again while driving, the vehicle needs service. If the regular brake system warning light is not on, the vehicle still has brakes, but not antilock brakes. If the regular brake system warning light is also on, the vehicle does not have antilock brakes and there is a problem with the regular brakes. See *Brake System Warning Light on page 5-5*.

For vehicles with a Driver Information Center (DIC), see *Driver Information Center (DIC) on page 5-8* for all brake related DIC messages.

StabiliTrak® OFF Light

This light comes on briefly when the ignition is in ON/RUN.

If it does not, have the vehicle serviced by your dealer. If the system is working normally, the indicator light then goes off.

Press and release the Traction Control System (TCS)/StabiliTrak button to turn off TCS, and a message displays in the DIC.

Press and briefly hold the TCS/StabiliTrak button to turn off the StabiliTrak system; the StabiliTrak OFF light comes on and a message appears in the Driver Information Center (DIC).

If the StabiliTrak/TCS system is off, the system does not assist in controlling the vehicle. Turn on the StabiliTrak/TCS system and the indicator light turns off.

See the owner manual for more information.

Traction Control System (TCS)/StabiliTrak® Light

The Traction Control System (TCS)/StabiliTrak light comes on briefly when the engine is in ON/RUN.

If the light does not come on or stays on, have the vehicle serviced by the dealer. If the system is working normally, the indicator light turns off.

If the light comes on and stays on while driving, and a message displays in the Driver Information Center (DIC), have the vehicle serviced by the dealer. See Ride Control System Messages for more information.

If the light flashes while driving, this means that the StabiliTrak or the TCS is assisting in controlling the vehicle.

See the owner manual for more information.

Engine Oil Pressure Light

Notice: **Lack of proper engine oil maintenance can damage the engine. Driving with the engine oil low can also damage the engine. The repairs would not be covered by the vehicle warranty. Check the oil level as soon as possible. Add oil if required, but if the oil level is within the operating range and the oil pressure is still low, have the vehicle serviced. Always follow the maintenance schedule for changing engine oil.**

This light comes on briefly as a check it works, when the ignition is in ON/RUN. If it does not, have the vehicle serviced.

If the light comes on and stays on, it means that oil is not flowing through the engine properly. The vehicle could be low on oil and might have some other system problem.

During an Auto Stop there is zero oil pressure, but this light will not come on.

Information Displays

Driver Information Center (DIC)

Trip/Fuel Menu Items

Press the trip/fuel button to display the Trip/Fuel Menu items. For more items see “Driver Information Center (DIC)” in the owner manual.

Instantaneous Fuel Economy (IFE)

This display normally shows instantaneous fuel economy. When the vehicle is in Auto Stop mode AUTO STOP or IFE = 0 L/100km or IFE = 99 MPG will be displayed. See *Starting the Vehicle on page 9-2* for more information.

Vehicle Information Menu Items

Press the vehicle information button to display the Vehicle Information Menu items. For more items see “Driver Information Center (DIC)” in the owner manual.

Coolant Temperature

Press the vehicle information button until COOLANT TEMP displays. This display shows the temperature of the engine coolant in either degrees Celsius (°C) or degrees Fahrenheit (°F).

Vehicle Messages

Messages displayed on the DIC indicate the status of the vehicle or some action may be needed to correct a condition. Multiple messages may appear one after another.

The messages that do not require immediate action can be acknowledged and cleared by pressing ✓ (Set/Reset) or the trip odometer reset stem.

The messages that require immediate action cannot be cleared until that action is performed.

All messages should be taken seriously. Clearing the message does not correct the problem.

The following are the possible messages for the Hybrid and some information about them. For information on other DIC messages, see “Vehicle Messages” in the owner manual.

Battery Voltage and Charging Messages

SERVICE BATTERY CHARGING SYSTEM

If the 12-volt battery system faults or fails this message will appear on the DIC. The battery/charging system light will appear in the instrument panel cluster. See “Battery Warning Light” in the owner manual. Driving with this message on could drain the battery. Have the electrical system checked as soon as possible.

Brake System Messages

SERVICE BRAKE SYSTEM

This message may be displayed if there is a problem with the brake system. You will still be able to brake, but it will be noticeably more difficult. Pull off the road to a safe location and have your vehicle towed to the nearest dealer for service. See “Brakes,” “Brake System Warning Light,” and “ABS Brake System Warning Light” in the owner manual.

This message may also come on when you are towing a trailer. See “Trailer Brakes” under *Trailer Towing on page 9-15* for more information.

Door Ajar Messages

HOOD OPEN

If the hood is not fully closed or there is a problem with the hood switch, this message will be displayed. Close the hood to clear the message. If the HOOD OPEN message continues to be displayed after verifying the hood is closed, you should have the hood switch serviced. Failure to service the hood switch properly can result in an Auto Start condition.

Auto Stops will be disabled when this message is displayed. If the vehicle is in Auto Stop mode when this message appears, the engine will instantly start.

Engine Oil Messages

OIL PRESSURE LOW STOP ENGINE

If engine oil pressure is low, this message will be displayed on the DIC. Stop the vehicle as soon as safely possible and do not operate it until the cause of the low oil pressure has been corrected. Check your oil level as soon as possible and have your vehicle serviced. See “Engine Oil” in the owner manual.

Service Vehicle Messages

SERVICE HYBRID SYSTEM

If this message is displayed on the DIC, the vehicle may continue to operate, but you need to have it serviced as soon as possible.

SERVICE POWER STEERING

This message displays if a problem has been detected with the electric power steering. Have your vehicle serviced by your dealer immediately.

Transmission Messages

SERVICE 4 WHEEL DRIVE

This message may display if a problem occurs with the four-wheel-drive system. If this message appears, stop as soon as possible and turn off the vehicle. Make sure the key is in the LOCK/OFF position for at least one minute and then restart the vehicle and check for the message on the DIC display. If the message is still displayed or appears again when you begin driving, the four-wheel-drive system needs service. See your dealer.

Infotainment System

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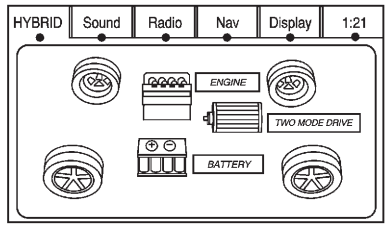
Introduction

Infotainment

The vehicle has a navigation radio system. See the owner manual for more information.



Press the CONFIG button on the radio to display the hybrid screen.

The screen shows:

- Auto Stop
- Battery Charging
- Engine Idle
- Two-Wheel and Four-Wheel Drive Modes for:
  - Engine Power
  - Battery Power
  - Hybrid Power

✍ NOTES

Climate Controls

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Climate Control Systems

For more information on the vehicle's climate control system, see “Climate Control Systems” in the owner manual.

Electric Air Conditioning Compressor

This hybrid vehicle has an electrically powered air conditioning compressor. This allows for continuous air conditioning operation and passenger comfort, even while the hybrid engine cycles on and off.

When operating the climate control system, select the AUTO mode and the desired temperature setting. The climate control system automatically adjusts the fan speed and airflow direction. The climate control system continues to adjust the climate control settings chosen for best use of electrical power.

At mild temperatures, select a warmer air conditioner temperature or turn the air conditioner off to get maximum fuel economy. Continuous air conditioner use can cause the vehicle to Auto Start more frequently. During hot weather, driving with the windows closed and the air conditioner set to Auto mode, will result in better Hybrid system performance.

Some noise may be heard occasionally from the compressor, especially when air conditioning use is high and the engine has turned off.

✍ NOTES

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Driving Information

Steering

Electric Power Steering

The vehicle has electric power steering. It does not have power steering fluid. Regular maintenance is not required.

If power steering assist is lost due to a system malfunction, the vehicle can be steered, but may require increased effort. See your dealer if there is a problem.

If the steering wheel is turned until it reaches the end of its travel and is held against that position for an extended period of time, power steering assist may be reduced.

Normal use of the power steering assist should return when the system cools down.

See the owner manual for more information.

See your dealer if there is a problem.

Curve Tips

- Take curves at a reasonable speed.
- Reduce speed before entering a curve.
- Maintain a reasonable steady speed through the curve.
- Wait until the vehicle is out of the curve before accelerating gently into the straightaway.

Steering in Emergencies

- There are some situations when steering around a problem may be more effective than braking.
- Holding both sides of the steering wheel allows you to turn 180 degrees without removing a hand.
- The Antilock Brake System (ABS) allows steering while braking.

Starting and Operating

Starting the Vehicle

⚠ WARNING

Exiting the vehicle, without first shifting into P (Park), may cause the vehicle to move, and you or others can be seriously injured. Because the vehicle has the Automatic Engine Start/Stop feature, the vehicle's engine might seem to be shut off when you come to a complete stop. However, once the brake pedal is released, the vehicle can move. The vehicle's engine can also restart at any time.

Shift to P (Park) and turn the ignition to LOCK/OFF, before exiting the vehicle.

Start the engine as you would any other engine. See "Starting the Engine" in the owner manual for more information on starting.
If pulling a trailer with trailer brakes, see *Towing Equipment on page 9-16*.

Auto Stop

The vehicle has an Auto Stop feature. After a successful engine start, the engine may turn off and operate in the Auto Stop mode. Some of the vehicle conditions that allow the engine to stop running and enter the Auto Stop mode are:

- Ignition switch is in the ON/RUN position.
- The hood is closed.
- The gear selector is in P (Park), R (Reverse), N (Neutral), or D (Drive).
- The hybrid battery is at an acceptable state of charge.

- The hybrid battery voltage, temperature or power limits are not exceeded. In very hot conditions, Auto Stop may be unavailable until the hybrid battery has cooled.
- The engine is at operating temperature.
- The vehicle may enter Auto Stop after a remote vehicle start.

With your foot off the brake and the vehicle on level ground, the hybrid drive motor may cause the vehicle to roll slowly forward, even when the engine is in Auto Stop.

Keep your foot firmly on the brake pedal until you are ready for the vehicle to move.

Engine OFF and AUTO STOP modes are indicated on the tachometer display. When the tachometer needle indicates OFF, the engine is not running and will remain off until the ignition key is placed in the START position or a remote vehicle start is performed. When the tachometer needle indicates AUTO STOP, the hybrid system is on, the engine is not running, but may Auto Start at any time without notice. See *Tachometer on page 5-4*.

A chime will sound if the driver door is opened while in Auto Stop as a reminder that the ignition switch is not in the LOCK/OFF position. Always turn the ignition switch to LOCK/OFF and remove the key from the ignition switch when exiting the vehicle.

Auto Start

The vehicle also has an Auto Start feature. The engine will remain off while in Auto Stop mode until vehicle conditions require the engine to run. The near-instant starting of the engine from Auto Stop mode is called Auto Start. Some of the vehicle conditions that may cause the engine to Auto Start are:

- The hood is opened.
- The gear selector is in M (Manual Mode).
- The hybrid battery state of charge is too low.
- The hybrid battery voltage, temperature, or power limits are exceeded.
- A remote vehicle start has been requested.
- The engine is not at operating temperature.
- Acceleration demands require the use of the engine.

EV Mode

The vehicle also has an Electric Vehicle (EV) mode which uses only the electric motor to move the vehicle. With light acceleration, the vehicle will drive in EV mode. EV mode is unavailable when the vehicle is out of fuel.

If increased acceleration is required, or the vehicle reaches approximately 40 km/h (30 mph), the engine will start automatically. The

engine shuts off at speeds below 40 km/h (25 mph) unless the transmission is in M (Manual Mode) or Auto Stop is disabled.

During heavy acceleration, both the engine and hybrid electric motors supply power. A sensation similar to a transmission gear change can be felt as the transmission changes modes. Engine rpm may remain above 4,000 rpm for a longer period during hard acceleration.

Engine Coolant Heater

The engine coolant heater can provide easier starting and better fuel economy during engine warm-up in cold weather conditions at or below −18°C (0°F). Vehicles with an engine heater should be plugged in at least four hours before starting. An internal thermostat in the plug-end of the cord may exist which will prevent engine coolant heater operation at temperatures above −18°C (0°F).

Using the Engine Coolant Heater

1. Turn off the engine.
2. Open the hood and unwrap the electrical cord. The cord is secured to a wiring harness between the engine and the Hybrid Auxiliary Underhood Fuse Block with a clip. Carefully remove the wire tie which secures the electrical cord. Do not cut the electrical cord.
3. Plug the cord into a normal, grounded 110-volt AC outlet.

⚠ WARNING

Plugging the cord into an ungrounded outlet could cause an electrical shock. Also, the wrong kind of extension cord could overheat and cause a fire. You could be seriously injured. Plug the cord into a properly grounded three-prong 110-volt AC outlet.

(Continued)

WARNING (Continued)

If the cord will not reach, use a heavy-duty three-prong extension cord rated for at least 15 amps.

4. Before starting the engine, be sure to unplug and store the cord as it was before to keep it away from moving engine parts. If you do not, it could be damaged.

The length of time the heater should remain plugged in depends on several factors. Ask a dealer in the area where you will be parking the vehicle for the best advice on this.

Shifting Into Park

⚠ WARNING

It can be dangerous to get out of the vehicle if the shift lever is not fully in P (Park) with the parking

(Continued)

WARNING (Continued)

brake firmly set. The vehicle can roll. If you have left the engine running, the vehicle can move suddenly. You or others could be injured. To be sure the vehicle will not move, even when you are on fairly level ground, use the steps that follow. If the vehicle has a four-wheel drive transfer case with a N (Neutral) position, and the transfer case is in N (Neutral), the vehicle will be free to roll, even if the shift lever is in P (Park). Be sure the transfer case is in a drive gear. If towing a trailer, see “Driving Characteristics and Towing Tips” in the owner manual.

1. Hold the brake pedal down, then set the parking brake.

   See “Parking Brake” in the owner manual.

2. Move the shift lever into the P (Park) position by pulling the shift lever toward you and moving it up as far as it will go.
3. Be sure the transfer case (if equipped) is in a drive gear — not in N (Neutral).
4. Turn the ignition key to LOCK/OFF.
5. Remove the key and take it with you. If you can leave the vehicle with the ignition key in your hand, the vehicle is in P (Park).

Leaving the Vehicle with the Engine Running

⚠ WARNING

It can be dangerous to leave the vehicle with the engine running. The vehicle could move suddenly if the shift lever is not fully in P (Park) with the parking brake firmly set.

(Continued)

WARNING (Continued)

If you have four-wheel drive and the transfer case is in N (Neutral), the vehicle will be free to roll, even if the shift lever is in P (Park). So be sure the transfer case is in a drive gear — not in N (Neutral).

And, if you leave the vehicle with the engine running, it could overheat and even catch fire. You or others could be injured. Do not leave the vehicle with the engine running unless you have to.

If you have to leave the vehicle with the engine running, be sure your vehicle is in P (Park) and the parking brake is firmly set before you leave it. After you move the shift lever into P (Park), hold the regular brake pedal down. Then, see if you can move the shift lever away from P (Park) without first pulling it toward

you. If you can, it means that the shift lever was not fully locked into P (Park).

Torque Lock

If parking on a hill and the transmission not shifted into P (Park) properly, the weight of the vehicle may put too much force on the parking pawl in the transmission. You may find it difficult to pull the shift lever out of P (Park). This is called torque lock. To prevent torque lock, set the parking brake and then shift into P (Park) properly before you leave the driver seat. To find out how, see *Shifting Into Park on page 9-4*.

When you are ready to drive, move the shift lever out of P (Park) before you release the parking brake.

If torque lock does occur, you may need to have another vehicle push yours a little uphill to take some of the pressure from the parking pawl in the transmission, then you will be able to pull the shift lever out of P (Park).

Engine Exhaust

Running the Vehicle While Parked

It is better not to park with the engine running.

If the vehicle is left with the engine running, follow the proper steps to be sure the vehicle will not move. See *Shifting Into Park on page 9-4* and “Engine Exhaust” in the owner manual.

If parking on a hill and pulling a trailer, see “Driving Characteristics and Towing Tips” in the owner manual.

Automatic Transmission

The vehicle has an electronic shift position indicator within the instrument cluster.

There are several different positions for the shift lever.

See “Range Selection Mode” in this section.

P (Park): This position locks the rear wheels. It is the best position to use when you start the engine because the vehicle cannot move easily.

When parked on a hill, especially when the vehicle has a heavy load, you may notice an increase in the effort to shift out of P (Park). See *Shifting Into Park on page 9-4*.

⚠ WARNING

It is dangerous to get out of the vehicle if the shift lever is not fully in P (Park) with the parking brake firmly set. The vehicle can roll.

Do not leave the vehicle when the engine is running. If you have left the engine running, the vehicle can move suddenly. You or others could be injured. To be sure the vehicle will not move, even when you are on fairly level ground, always set the parking brake and move the shift lever to P (Park). See *Shifting Into Park on page 9-4*.

⚠ WARNING

If you have Four-Wheel Drive, the vehicle will be free to roll — even if the shift lever is in P (Park) — if the transfer case is in Neutral. So, be sure the transfer case is in a drive gear, Two-Wheel Drive High or Four-Wheel Drive High or Four-Wheel Drive Low — not in Neutral. See *Shifting Into Park on page 9-4*.

R (Reverse): Use this gear to back up.

Notice: **Shifting to R (Reverse) while the vehicle is moving forward could damage the transmission. The repairs would not be covered by the vehicle warranty. Shift to R (Reverse) only after the vehicle is stopped.**

To rock the vehicle back and forth to get out of snow, ice, or sand without damaging the transmission, see “If the Vehicle is Stuck” in the owner manual.

N (Neutral): In this position, the engine and transmission are not connected with the wheels. To restart the engine when the vehicle is already moving, use N (Neutral) only.

⚠ WARNING

Shifting into a drive gear while the engine is running at high speed is dangerous. Unless your foot is firmly on the brake pedal, the vehicle could move very rapidly. You could lose control and hit people or objects. Do not shift into a drive gear while the engine is running at high speed.

Notice: **Shifting out of P (Park) or N (Neutral) with the engine running at high speed may**

damage the transmission. The repairs would not be covered by the vehicle warranty. Be sure the engine is not running at high speed when shifting the vehicle.

D (Drive): This position is for normal driving. It provides the best fuel economy. If you need more power for passing, and you are:

- Going less than about 55 km/h (35 mph), push the accelerator pedal about halfway down.
- Going about 55 km/h (35 mph) or more, push the accelerator all the way down.

D (Drive) or M (Manual Mode) can be used when towing a trailer, carrying a heavy load, driving on steep hills, or for off-road driving. You may want to shift the transmission to a lower gear selection if the transmission shifts too often.

Downshifting the transmission in slippery road conditions could result in skidding. See “Loss of Control” in the owner manual.

When temperatures are very cold, the transmission's gear shifting may be delayed, providing more stable shifts until the engine warms up. Shifts may be more noticeable with a cold transmission. This difference in shifting is normal.

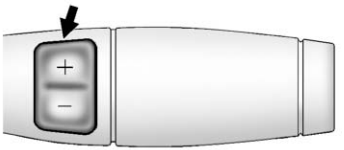
M (Manual Mode): This position lets drivers select the range of gears appropriate for current driving conditions. If the vehicle has this feature, see *Manual Mode on page 9-8*.

Notice: **Spinning the tires or holding the vehicle in one place on a hill using only the accelerator pedal may damage the transmission. The repair will not be covered by the vehicle warranty. If you are stuck, do not spin the tires. When stopping on a hill, use the brakes to hold the vehicle in place.**

The vehicle has a shift stabilization feature that adjusts the transmission shifting to the current driving conditions to reduce rapid upshifts and downshifts. If the shift stabilization feature determines that a current vehicle speed cannot be maintained, the transmission does not upshift. In some cases, this may appear to be a delayed shift, however the transmission is operating normally.

Manual Mode

Range Selection Mode



The Range Selection Mode controls the vehicle's transmission.

To use this feature:

1. Move the shift lever to the M (Manual Mode).
2. Press the plus/minus button to upshift or downshift selecting the desired range of gears.

A number displays next to the M, indicating the current gear that has been selected. The number displayed in the gear indicator is the highest gear that can be used. The vehicle can automatically shift to lower gears as it adjusts to driving conditions. When 3 (Third) is selected, 1 (First) through 3 (Third) gears are automatically shifted by the vehicle, but 4 (Fourth) cannot be used until it is selected.

The Range Selection Mode controls the vehicle and engine speed while driving down a hill or towing a trailer, by allowing you to select a desired range of gears.

When you move the shift lever into M, the transmission will default to M4. In this gear range, effective engine braking occurs at speeds above 72 km/h (45 mph).

Pushing the minus (−) button on the shift lever reduces the gear range.

In the M3 gear range, effective engine braking occurs at speeds above 56 km/h (35 mph).

In the M2 gear range, effective engine braking occurs at speeds above 40 km/h (25 mph).

In the M1 gear range, effective engine braking occurs at speeds above 16 km/h (10 mph).

When operating in M (Manual Mode), Auto Stop is disabled. For better vehicle efficiency, operate the vehicle in D (Drive) not M (Manual Mode).

Cruise control can be used while using the Range Selection Mode.

Drive Systems

Four-Wheel Drive

If the vehicle has four-wheel drive, you can send the engine's driving power to all four wheels for extra traction. Read the following before using four-wheel drive.

Notice: **Driving on clean, dry pavement in Four-Wheel Drive High or Four-Wheel Drive Low for an extended period of time may cause premature wear on the vehicle's powertrain. Do not drive on clean, dry pavement in Four-Wheel Drive High or Four-Wheel Drive Low for extended periods of time.**

While driving on clean dry pavement and during tight turns, you may experience a vibration in the steering system.

The vehicle has StabiliTrak. Shifting into Four-Wheel Drive Low will turn Traction Control and StabiliTrak off. See “StabiliTrak System” in the owner manual.

Front Axle

The front axle engages and disengages automatically when you shift the transfer case. Some delay for the axle to engage or disengage is normal.

Automatic Transfer Case

The transfer case knob is located to the left of the instrument panel cluster.

Use this knob to shift into and out of four-wheel drive.

You can choose among five driving settings:

Indicator lights in the switches show you which setting you are in. The indicator lights will come on briefly when you turn on the ignition and the last chosen setting will stay on. If the lights do not come on, you should take the vehicle to your dealer for service. An indicator light will flash while shifting. It will stay on when the shift is completed. If for some reason the transfer case cannot make a requested shift, it will return to the last chosen setting.

2 ↑ (Two-Wheel Drive High): This setting is used for driving in most street and highway situations. The front axle is not engaged in two-wheel drive. This setting also provides the best fuel economy.

AUTO (Automatic Four-Wheel Drive): This setting is ideal for use when road surface traction conditions are variable. When driving the vehicle in AUTO, the front axle is engaged, and the vehicle's power is sent to the front and rear wheels automatically, based on driving conditions. Driving in this mode results in slightly lower fuel economy than Two-Wheel Drive High.

4 ↑ (Four-Wheel Drive High): Use the four-wheel high position when you need extra traction, such as on snowy or icy roads or in most off-road situations. This setting also engages the front axle to help drive the vehicle. This is the best setting to use when plowing snow.

4 ↓ (Four-Wheel Drive Low): This setting also engages the front axle and delivers extra torque. You may never need this setting. It sends maximum power to all four wheels. You might choose Four-Wheel Drive Low if you are driving off-road in

deep sand, deep mud, deep snow, and while climbing or descending steep hills.

The vehicle has StabiliTrak. Shifting into Four-Wheel-Drive Low will turn Traction Control and StabiliTrak off. See “StabiliTrak System” in the owner manual.

⚠ WARNING

Shifting the transfer case to N (Neutral) can cause the vehicle to roll even if the transmission is in P (Park). You or someone else could be seriously injured. Be sure to set the parking brake before placing the transfer case in N (Neutral). See “Parking Brake” in the owner manual for more information.

N (Neutral): Shift the vehicle's transfer case to N (Neutral) only when towing the vehicle. See “Recreational Vehicle Towing” or “Towing Your Vehicle” in the owner manual.

If the SERVICE 4 WHEEL DRIVE message stays on, you should take the vehicle to your dealer for service. See *Transmission Messages on page 5-10*.

Shifting Into Four-Wheel Drive High or AUTO (Automatic Four-Wheel Drive)

Turn the knob to the Four-Wheel High or AUTO position. This can be done at any speed, except when shifting from Four-Wheel Drive Low. The indicator light will flash while shifting. It will remain on when the shift is completed.

Shifting Into Two-Wheel Drive High

Turn the knob to the Two-Wheel High position. This can be done at any speed, except when shifting from Four-Wheel Drive Low. See “Shifting Out of Four-Wheel Drive Low” in this section for more information.

Shifting Into Four-Wheel Drive Low

When Four-Wheel Low is engaged, vehicle speed should be kept below 64 km/h (40 mph). Extended high-speed operation in 4L may damage or shorten the life of the drivetrain.

To shift to the Four-Wheel Drive Low position, the ignition must be in ON/RUN and the vehicle must be stopped or moving less than 5 km/h (3 mph) with the transmission in N (Neutral). The preferred method for shifting into Four-Wheel Drive Low is to have the vehicle moving 1.6 to 3.2 km/h (1 to 2 mph). Turn the knob to the Four-Wheel Drive Low position. You must wait for the Four-Wheel Drive Low indicator light to stop flashing and remain on before shifting the transmission into gear. With the vehicle moving less

than 5 km/h (3 mph), and the transmission in N (Neutral), attempt the shift again.

Notice: **Shifting the transmission into gear before the requested mode indicator light has stopped flashing could damage the transfer case. To help avoid damaging the vehicle, always wait for the mode indicator lights to stop flashing before shifting the transmission into gear.**

The vehicle may have significant engagement noise and bump when shifting between Four-Wheel Drive Low and Four-Wheel Drive High ranges or from N (Neutral) while the engine is running.

If the knob is turned to the Four-Wheel Drive Low position when the vehicle is in gear and/or moving more than 5 km/h (3 mph), the Four-Wheel Drive Low indicator light will flash for 30 seconds and not complete the shift.

After 30 seconds the transfer case will shift to Four-Wheel Drive High mode.

Shifting Out of Four-Wheel Drive Low

To shift from Four-Wheel Drive Low to Four-Wheel Drive High, AUTO, or Two-Wheel Drive High, the vehicle must be stopped or moving less than 5 km/h (3 mph) with the transmission in N (Neutral) and the ignition in ON/RUN. The preferred method for shifting out of Four-Wheel Drive Low is to have your vehicle moving 1.6 to 3.2 km/h (1 to 2 mph). Turn the knob to the Four-Wheel Drive High, AUTO, or Two-Wheel Drive High position. You must wait for the Four-Wheel Drive High, AUTO, or Two-Wheel Drive High indicator light to stop flashing and remain on before shifting the transmission into gear. With the vehicle moving less than 5 km/h (3 mph), and the transmission in N (Neutral), attempt the shift again.

Notice: **Shifting the transmission into gear before the requested mode indicator light has stopped flashing could damage the transfer case. To help avoid damaging the vehicle, always wait for the mode indicator lights to stop flashing before shifting the transmission into gear.**

The vehicle may have significant engagement noise and bump when shifting between Four-Wheel Drive Low and Four-Wheel Drive High ranges or from N (Neutral) while the engine is running.

If the knob is turned to the Four-Wheel Drive High, AUTO, or Two-Wheel Drive High switch position when the vehicle is in gear and/or moving more than 5 km/h (3 mph), the Four-Wheel Drive High, AUTO or Two-Wheel Drive High indicator light will flash for 30 seconds but will not complete the shift.

Shifting into Neutral

To shift the transfer case into N (Neutral):

1. Make sure the vehicle is parked so that it will not roll.
2. Set the parking brake and apply the regular brake pedal. See “Parking Brake” in the owner manual.
3. Start the vehicle or turn the ignition to ON/RUN.
4. Put the transmission in N (Neutral).
5. Shift the transfer case to Two-Wheel Drive High.
6. Turn the transfer case knob clockwise to N (Neutral) until it stops and hold it there until the N (Neutral) light starts blinking.

   This will take at least 10 seconds. Then slowly release the knob to the Four-Wheel Drive Low position. The N (Neutral) light will come on when the transfer case shift to N (Neutral) is complete.
7. If the engine is running, verify that the transfer case is in N (Neutral) by shifting the transmission to R (Reverse) for one second, then shift the transmission to D (Drive) for one second.
8. Turn the ignition to ACC/ACCESSORY, which will turn the engine off.
9. Place the transmission shift lever in P (Park).
10. Release the parking brake prior to moving the vehicle.
11. Turn the ignition to LOCK/OFF.

Shifting Out of Neutral

To shift the transfer case out of N (Neutral):

1. Set the parking brake and apply the regular brake pedal.
2. Turn the ignition to ON/RUN with the engine off, and shift the transmission to N (Neutral).
3. Turn the transfer case knob to the desired transfer case shift position (Two-Wheel Drive High, Four-Wheel Drive High, AUTO).

   After the transfer case has shifted out of N (Neutral), the N (Neutral) light will go out.
4. Release the parking brake prior to moving the vehicle.

Notice: **Shifting the transmission into gear before the requested mode indicator light has stopped flashing could damage the transfer case. To help avoid damaging the vehicle, always wait for the mode indicator lights to stop flashing before shifting the transmission into gear.**

5. Start the engine and shift the transmission to the desired position.

Excessively shifting the transfer case into or out of the different modes may cause the transfer case to enter the shift protection mode. This will protect the transfer case from possible damage and will only allow the transfer case to respond to one shift per 10 seconds. The transfer case may stay in this mode for up to three minutes.

Brakes

Regenerative Braking

Regenerative braking is a hybrid technology that enables the electric drive motor to operate as a generator when coasting or braking. Energy from the moving vehicle recharges the hybrid battery.

The hydraulic disc brakes work with the regenerative braking to ensure effective braking, such as when a high braking demand is requested.

The braking system is computer controlled and blends the regenerative braking with the conventional hydraulic disc brakes to meet any requirements for deceleration. The controller interprets the braking request and uses regenerative braking, conventional hydraulic braking or a combination of both as necessary. Because the controller applies the hydraulic brakes through its high pressure accumulator, you may occasionally hear the motor driven pump when it recharges the system. This is normal.

In the event of a controller problem, the brake pedal may be harder to push and the stopping distance may be longer.

Ride Control Systems

StabiliTrak® System

When the transfer case is in 4LO, the stability system is automatically disabled, the StabiliTrak light comes on, and the appropriate message will appear on the DIC. Both traction control and StabiliTrak are automatically disabled in this condition. See “StabiliTrak® System” in the owner manual.

Towing

Trailer Towing

For more information, see “Towing a Trailer” in the owner manual.

Weight of the Trailer

How heavy can a trailer safely be?

It depends on how the rig is used. For example, speed, altitude, road grades, outside temperature and how much the vehicle is used to pull a trailer are all important. It can depend on any special equipment on the vehicle, and the amount of tongue weight the vehicle can carry.

Maximum trailer weight is calculated assuming only the driver is in the tow vehicle and it has all the required trailering equipment.
The weight of additional optional equipment, passengers and cargo in the tow vehicle must be subtracted from the maximum trailer weight.

Use the following charts to determine how much the vehicle can weigh, based upon the vehicle model and options.

Vehicle	Axle Ratio	Maximum Trailer Weight	GCWR*
2WD 6.0L V8	3.08	2 631 kg (5,800 lbs)	5 443 kg (12,000 lbs)
4WD 6.0L V8	3.08	2 540 kg (5,600 lbs)	5 443 kg (12,000 lbs)
*The Gross Combination Weight Rating (GCWR) is the total allowable weight of the completely loaded vehicle and trailer including any passengers, cargo, equipment and conversions. The GCWR for the vehicle should not be exceeded.			

Towing Equipment

Trailer Brakes

If a trailer is being towed that has trailer brakes and the trailer brakes are manually applied while driving slower than 40 km/h (25 mph), the vehicle may go into Auto Stop mode even if the brakes are not being pressed. Using the trailer brake system manually can make the hybrid vehicle perform as if the brake pedal in the vehicle is being pressed. The trailer brake operation check will still work.

If the trailer brakes are manually applied for an extended period of time, the SERVICE BRAKE SYSTEM message comes on in the Driver Information Center. The message goes off after the trailer brakes have been released.
No other action is necessary. For more information, see “Towing Equipment” in the owner manual.

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Vehicle Checks

Doing Your Own Service Work

⚠ WARNING

Never try to do your own service on hybrid components. You can be injured and the vehicle can be damaged if you try to do your own service work. Service and repair of these hybrid components should only be performed by a trained service technician with the proper knowledge and tools.

⚠ WARNING

It can be dangerous to work on your vehicle if you do not have the proper knowledge, service manual, tools, or parts. Always follow owner manual procedures and consult the service manual for your vehicle before doing any service work.

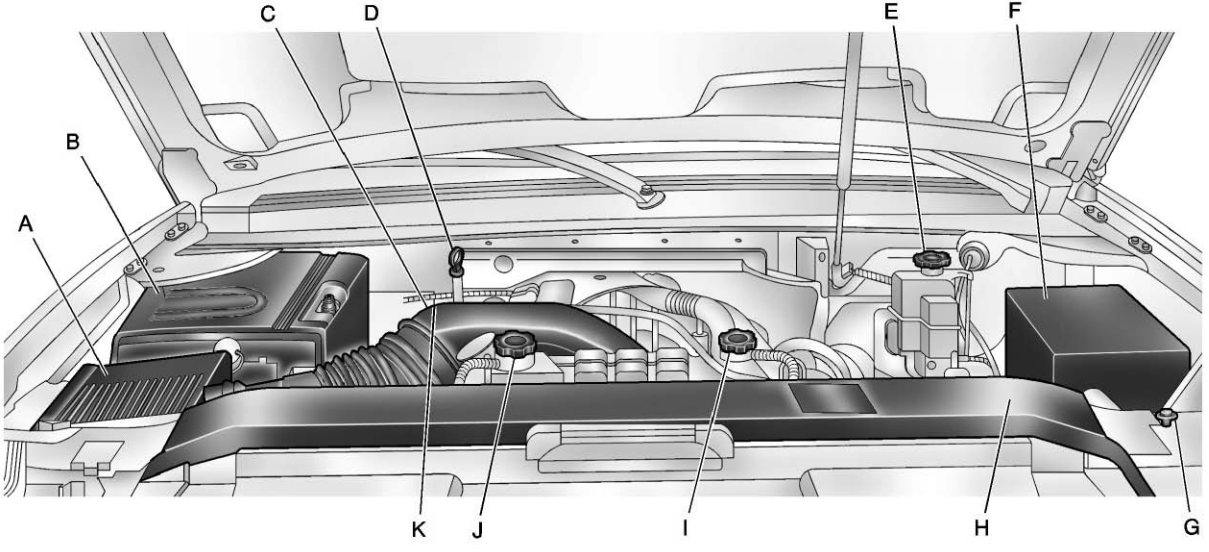
If doing some of your own service work, use the proper service manual. It tells you much more about how to service the vehicle than this manual can. To order the proper service manual, see “Service Publications Ordering Information” in the owner manual.

This vehicle has an airbag system. Before attempting to do your own service work, see “Airbag System Check” in the owner manual.

Keep a record with all parts receipts and list the mileage and the date of any service work performed. See “Maintenance Records” in the owner manual.

Notice: **Even small amounts of contamination can cause damage to vehicle systems. Do not allow contaminants to contact the fluids, reservoir caps, or dipsticks.**

Engine Compartment Overview



6.0L V8 Engine

A. See “Engine Air Cleaner/Filter” in the owner manual.

B. Drive Motor/Generator Control Module (DMCM). See *Drive Motor/Generator Control Module (DMCM) Cooling System on page 10-7*.

C. Engine Oil Dipstick (Out of View). See “Engine Oil” in the owner manual.

D. Automatic Transmission Fluid Dipstick. See *Automatic Transmission Fluid on page 10-4*.

E. Brake Fluid Reservoir. See “Brakes” in the owner manual.

F. See “Engine Compartment Fuse Block” under Electrical System in the owner manual.

G. Windshield Washer Fluid Reservoir. See “Washer Fluid” in the owner manual.

H. Hybrid Auxiliary Fuse Block (Out of View). See *Engine Compartment Fuse Block on page 10-13*.

I. DMCM Coolant Surge Tank Pressure Cap. See *Drive Motor/Generator Control Module (DMCM) Coolant Surge Tank Pressure Cap on page 10-7*.

J. Engine Coolant Surge Tank Pressure Cap. See “Engine Coolant” in the owner manual.

K. Engine Oil Fill Cap (Out of View). See “Engine Oil” in the owner manual.

Automatic Transmission Fluid

When to Check and Change Automatic Transmission Fluid

It is usually not necessary to check the transmission fluid level. The only reason for fluid loss is a transmission leak or overheating the transmission. If a small leak is suspected, then use the following checking procedures to check the fluid level. However, if there is a large leak, then it may be necessary to have the vehicle towed to a dealer and have it repaired before driving the vehicle further.

Notice: **Use of the incorrect automatic transmission fluid may damage the vehicle, and the damages may not be covered by the vehicle warranty. Always use the automatic transmission fluid listed in *Recommended Fluids and Lubricants on page 11-2*.**

Change the fluid and filter at the scheduled maintenance intervals. See “Scheduled Maintenance” in the owner manual. Be sure to use the transmission fluid listed in *Recommended Fluids and Lubricants on page 11-2*.

How to Check Automatic Transmission Fluid

Notice: **Too much or too little fluid can damage the transmission. Too much can mean that some of the fluid could come out and fall on hot engine parts or exhaust system parts, starting a fire. Too little fluid**

could cause the transmission to overheat. Be sure to get an accurate reading if checking the transmission fluid.

Before checking the fluid level, prepare the vehicle as follows:

1. Start the engine and park the vehicle on a level surface. Keep the engine running.
2. Apply the parking brake and place the shift lever in P (Park).
3. With your foot on the brake pedal, move the shift lever through each gear range, pausing for about three seconds in each range. Then, move the shift lever back to P (Park).
4. Allow the engine to idle (500–800 RPM) for at least one minute. Slowly release the brake pedal.
5. Keep the engine running and press the Trip/Fuel button or trip odometer reset stem until TRANS TEMP (Transmission Temperature) displays on the Driver Information Center (DIC).
6. Using the TRANS TEMP reading, determine and perform the appropriate check procedure. If the TRANS TEMP reading is not within the required temperature ranges, allow the vehicle to cool, or operate the vehicle until the appropriate transmission fluid temperature is reached.

Cold Check Procedure

Use this procedure only as a reference to determine if the transmission has enough fluid to be operated safely until a hot check procedure can be made. The hot check procedure is the most accurate method to check the fluid level. Perform the hot check procedure at the first opportunity. Use this cold check procedure to check fluid level when the transmission temperature is between 24°C and 34°C (75°F and 93°F).

1. Locate the transmission dipstick at the rear of the engine compartment, on the passenger side of the vehicle.

   See *Engine Compartment Overview on page 10-3* for more information.
2. Pull out the dipstick and wipe it with a clean rag or paper towel.
3. Install the dipstick by pushing it back in all the way, wait three seconds, and then pull it back out again.

4. Check both sides of the dipstick and read the lower level. Repeat the check procedure to verify the reading.

5. If the fluid level is below the COLD check band, add only enough fluid as necessary to bring the level into the COLD band. It does not take much fluid, generally less than 0.5 Liter (1 Pint). Do not overfill.
6. Perform a hot check at the first opportunity after the transmission reaches a normal operating temperature between 60°C and 75°C (140°F and 167°F).
7. If the fluid level is in the acceptable range, push the dipstick back in all the way.

Hot Check Procedure

Use this procedure to check the transmission fluid level when the transmission fluid temperature is between 60°C and 75°C (140°F and 167°F).

The hot check is the most accurate method to check the fluid level. The hot check should be performed at the first opportunity in order to verify the cold check. The fluid level rises as fluid temperature increases, so it is important to ensure the transmission temperature is within range.

1. Locate the transmission dipstick at the rear of the engine compartment, on the passenger side of the vehicle. See *Engine Compartment Overview on page 10-3* for more information.
2. Pull out the dipstick and wipe it with a clean rag or paper towel.
3. Install the dipstick by pushing it back in all the way, wait three seconds, and then pull it back out again.
4. Check both sides of the dipstick and read the lower level. Repeat the check procedure to verify the reading.

5. Safe operating level is within the HOT cross hatch band on the dipstick. If the fluid level is not within the HOT band, and the transmission temperature is between 60°C and 75°C (140°F and 167°F), add or drain fluid as

necessary to bring the level into the HOT band. If the fluid level is low, add only enough fluid to bring the level into the HOT band. It does not take much fluid, generally less than 0.5 Liter (1 Pint). Do not overfill.

6. If the fluid level is in the acceptable range, push the dipstick back in all the way.

Consistency of Readings

Always check the fluid level at least twice using the procedure described previously. Consistency (repeatable readings) is important to maintaining proper fluid level. If readings are still inconsistent, contact your dealer.

Drive Motor/Generator Control Module (DMCM) Coolant Surge Tank Pressure Cap

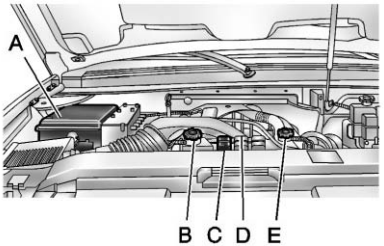
See *Engine Compartment Overview on page 10-3* for more information on location.

The Drive Motor/Generator Control Module (DMCM) coolant surge tank pressure cap must be fully installed on the hybrid coolant surge tank.

Notice: **If the pressure cap is not tightly installed, coolant loss and possible damage to the Drive Motor/Generator Control Module (DMCM) may occur. Be sure the cap is properly and tightly secured.**

Drive Motor/Generator Control Module (DMCM) Cooling System

In addition to the regular cooling system, the vehicle also has a cooling system for the DMCM system. This system is serviced differently than the vehicle's main cooling system. The DMCM cooling system includes the DMCM coolant surge tank, DMCM surge tank pressure cap, DMCM cooling pumps, hybrid cooling radiator and the Drive Motor/Generator Control Module (DMCM). The DMCM cooling system uses a 50/50 pre-mixed DEX-COOL® coolant and deionized water available at your dealer. See “Engine Coolant” and “Cooling System” in the owner manual for more information.



When it is safe to lift the hood:

A. Drive Motor/Generator Control Module (DMCM)

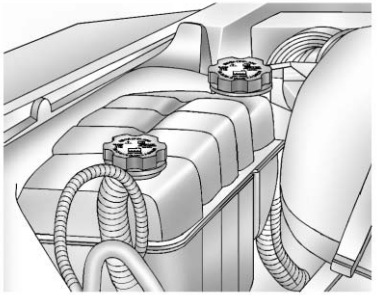
B. Engine Coolant Surge Tank Pressure Cap

C. DMCM Coolant Surge Tank/ Engine Coolant Surge Tank

D. DMCM Cooling Hoses (Out of View)

E. DMCM Coolant Surge Tank Pressure Cap

If the coolant inside the DMCM coolant surge tank is boiling, do not do anything else until it cools down.



The coolant level should be at or above the FULL COLD mark with the vehicle parked on a level surface. If it is not, there might be a leak at the DMCM cooler core, DMCM pressure cap, DMCM cooler hoses, DMCM cooling pump or somewhere else in the DMCM cooling system.

Notice: **Running the engine when there is a leak in the hybrid cooling system can cause the hybrid cooling system to lose all coolant and can damage the system. Get any leak fixed before you drive the vehicle or run the engine.**

How to Add Coolant to the DMCM Coolant Surge Tank

If no problem has been found yet, check to see if coolant is visible in the DMCM coolant surge tank.
If coolant is visible, add pre-mixed DEX-COOL coolant, available at your dealer, at the DMCM coolant surge tank, but be sure the DMCM cooling system, including the DMCM coolant surge tank pressure cap, is cool before you do it. Use the procedure following.

⚠ WARNING

Steam and scalding liquids from a hot cooling system can blow out and burn you badly. They are under pressure, and if you turn

(Continued)

WARNING (Continued)

the coolant surge tank pressure cap — even a little — they can come out at high speed. Never turn the cap when the cooling system, including the coolant surge tank pressure cap, is hot. Wait for the cooling system and coolant surge tank pressure cap to cool if you ever have to turn the pressure cap.

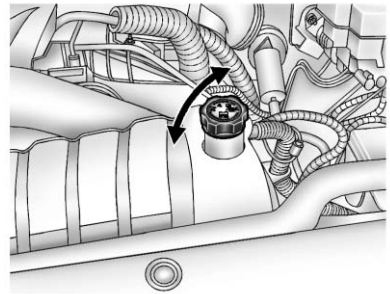
Notice: **Using coolant other than a pre-mixed DEX-COOL, available at your dealer, may damage your vehicle. Any repairs would not be covered by your warranty. Always use a pre-mixed DEX-COOL (silicate-free) coolant in your vehicle.**

⚠ WARNING

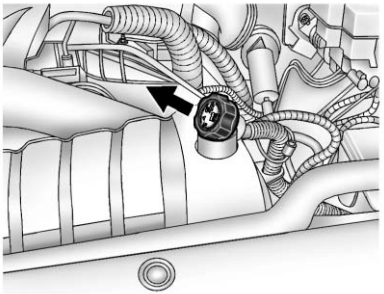
You can be burned if you spill coolant on hot engine parts. Coolant contains ethylene glycol and it will burn if the engine parts are hot enough. Do not spill coolant on a hot engine.

If the DMCM coolant is empty, the vehicle must be serviced by your dealer and a special fill procedure must be followed.

Notice: **Attempting to fill the DMCM cooling surge tank yourself when the fluid level is empty can damage your vehicle. Your vehicle must be serviced.**



1. Park the vehicle on a level surface and turn the vehicle off. Remove the DMCM coolant surge tank pressure cap when the DMCM cooling system, including the DMCM coolant surge tank pressure cap and DMCM cooling hoses, are no longer hot. Turn the DMCM coolant surge tank pressure cap slowly counterclockwise (left) about one full turn. Wait 30 seconds.



2. Then keep turning the DMCM coolant surge tank pressure cap slowly, and remove it.
3. Add the pre-mixed DEX-COOL, available at your dealer, to the DMCM coolant surge tank until the level reaches the FULL COLD mark.
4. Turn the ignition to ON/RUN without starting the engine. The hybrid cooling pumps will run and any trapped air will purge to the surge tank.
5. Add the pre-mixed DEX-COOL, available at your dealer, until the coolant level is maintained at the FULL COLD mark. This should take no longer than two minutes of hybrid cooling pump operation.

   If the level cannot be kept at the FULL COLD level, the vehicle may need service. See your dealer.

6. Then replace the DMCM coolant surge tank pressure cap. Be sure the pressure cap is hand-tight and fully seated.

Notice: **Using tap water, cooling system sealers or conditioners in an attempt to stop coolant leaks can damage the DMCM and engine cooling systems.**

Never use tap water, cooling system sealers or conditioners in your cooling system.

Battery

This vehicle has a standard 12-volt battery and a high voltage hybrid battery.

Refer to the replacement number on the original battery label when a new standard 12-volt battery is needed.

Only a trained service technician with the proper knowledge and tools should inspect, test, or replace the hybrid battery. See your dealer if the hybrid battery needs service. The dealer has information on how to recycle the hybrid battery. There is also information available at http://www.recyclemybattery.com.

If an airbag inflates or the vehicle has been in a crash, the vehicle's sensing system might command the automatic hybrid battery disconnect

to open. See *Replacing Airbag System Parts after a Crash on page 3-1* for more information.

⚠ WARNING

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

Vehicle Storage

⚠ WARNING

Batteries have acid that can burn you and gas that can explode. You can be badly hurt if you are not careful. See *Jump Starting on page 10-28* for tips on working around a battery without getting hurt.

Infrequent Usage: Remove the 12-volt battery black, negative (−) cable from the battery to keep the battery from running down.

Extended Storage: Remove the 12-volt battery black, negative (−) cable from the battery or use a battery trickle charger.

Remember to reconnect the battery when ready to drive the vehicle.

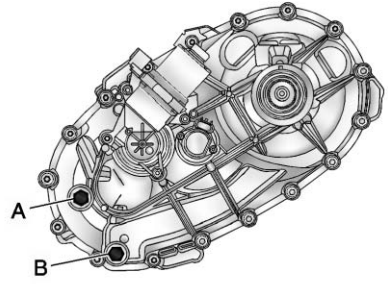
Four-Wheel Drive

Transfer Case

When to Check Lubricant

See “Scheduled Maintenance” in the owner manual to determine how often to check the lubricant.

How to Check Lubricant



Active Transfer Case

A. Fill Plug

B. Drain Plug

To get an accurate reading, the vehicle should be on a level surface.

If the level is below the bottom of the fill plug hole, some lubricant will need to be added. Add enough lubricant to raise the level to the bottom of the fill plug hole. Use care not to overtighten the plug.

When to Change Lubricant

See “Scheduled Maintenance” in the owner manual to determine how often to change the lubricant.

What to Use

Refer to the *Recommended Fluids and Lubricants on page 11-2* to determine what kind of lubricant to use.

Electrical System

High Voltage Devices and Wiring

⚠ WARNING

Exposure to high voltage can cause shock, burns, and even death. The high voltage components in the vehicle can only be serviced by technicians with special training.

High voltage components are identified by labels. Do not remove, open, take apart, or modify these components. High voltage cable or wiring has orange covering. Do not probe, tamper with, cut, or modify high voltage cable or wiring.

Fuses and Circuit Breakers

The wiring circuits in the vehicle are protected from short circuits by a combination of fuses, circuit breakers and fusible thermal links. This greatly reduces the chance of fires caused by electrical problems.

Be sure you replace a bad fuse with a new one of the identical size and rating.

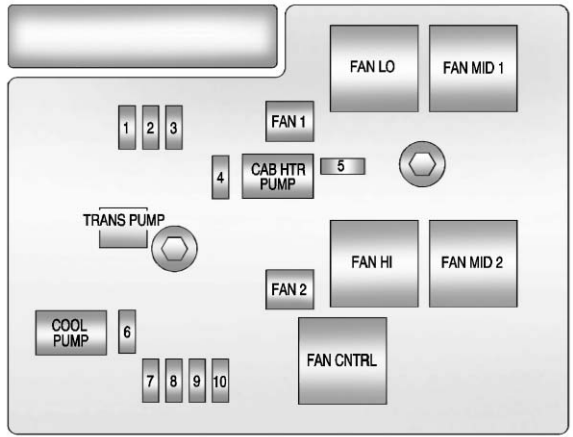
If you ever have a problem on the road and do not have a spare fuse, you can borrow one that has the same amperage. Just pick some feature of the vehicle that you can get along without, like the radio or accessory power outlet, and use its fuse, if it is the correct amperage. Replace it as soon as you can.

The vehicle also has a special fuse in the battery box for the 300-volt batteries. If this fuse has failed and needs to be replaced, the vehicle will be disabled and you will need to have the vehicle repaired by your dealer. Do not attempt to self-service this fuse.

Engine Compartment Fuse Block

Hybrid Auxiliary Engine Compartment Fuse Block

The hybrid auxiliary engine compartment fuse block is located in the engine compartment near the front of the vehicle. Lift the cover for access to the fuse/relay block. See *Engine Compartment Overview on page 10-3* for more information on its location. For more information on the main underhood fuse block, see “Engine Compartment Fuse Block” in the owner manual.



Fuses	Usage
1	ACPO (SUV Only)
2	BECM FAN
3	ACCM
4	CAB HTR PMP
5	EMPTY
6	COOL PUMP
7	EPS
8	Drive Motor/Generator Control Module 1
9	Drive Motor/Generator Control Module 2
10	BECM

J-Case	Usage
FAN 1	Cooling Fan 1
TRANS PUMP	Auxiliary Transmission Fluid Pump
FAN 2	Cooling Fan 2

Relays	Usage
CAB HTR PUMP	Cabin Heater Pump
COOL PUMP	Coolant Pump
FAN LO	Cooling Fan Low Speed Relay
FAN MID 1	Cooling Fan Mid 1
FAN HI	Cooling Fan High Speed Relay
FAN MID 2	Cooling Fan Mid 2
FAN CNTRL	Cooling Fan Control

Wheels and Tires

Tire Pressure

Tires need the correct amount of air pressure to operate effectively.

Notice: **Neither tire underinflation nor overinflation is good. Underinflated tires, or tires that do not have enough air, can result in:**

- **Tire overloading and overheating which could lead to a blowout.**
- **Premature or irregular wear.**
- **Poor handling.**
- **Reduced fuel economy.**

Overinflated tires, or tires that have too much air, can result in:

- **Unusual wear.**
- **Poor handling.**
- **Rough ride.**
- **Needless damage from road hazards.**

The Tire and Loading Information label on the vehicle indicates the original equipment tires and the correct cold tire inflation pressures. The recommended pressure is the minimum air pressure needed to support the vehicle's maximum load carrying capacity.

For additional information regarding how much weight the vehicle can carry, and an example of the Tire and Loading Information label, see “Vehicle Load Limits” in the owner manual. How the vehicle is loaded affects vehicle handling and ride comfort. Never load the vehicle with more weight than it was designed to carry.

When to Check

Check your tires once a month or more.

How to Check

Use a good quality pocket-type gauge to check tire pressure. Proper tire inflation cannot be determined by looking at the tire. Check the tire inflation pressure when the tires are cold, meaning the vehicle has not been driven for at least three hours or no more than 1.6 km (1 mi).

Remove the valve cap from the tire valve stem. Press the tire gauge firmly onto the valve to get a pressure measurement. If the cold tire inflation pressure matches the recommended pressure on the Tire and Loading Information label, no further adjustment is necessary. If the inflation pressure is low, add air until the recommended pressure is reached. If the inflation pressure is high, press on the metal stem in the center of the tire valve to release air.

Re-check the tire pressure with the tire gauge.

Return the valve caps on the valve stems to prevent leaks and keep out dirt and moisture.

Tire Pressure Monitor Operation

This vehicle may have a Tire Pressure Monitor System (TPMS). The TPMS is designed to warn the driver when a low tire pressure condition exists. TPMS sensors are mounted onto each tire and wheel assembly. The TPMS sensors monitor the air pressure in the tires and transmit the tire pressure readings to a receiver located in the vehicle.

When a low tire pressure condition is detected, the TPMS will illuminate the low tire pressure warning symbol located on the instrument cluster. If the warning light comes on, stop as soon as possible and inflate the tires to the recommended pressure shown on the tire loading information label. See “Vehicle Load Limits” in the owner manual for more information.

A message to check the pressure in a specific tire displays in the Driver Information Center (DIC). The low tire pressure warning light and the DIC warning message come on at each ignition cycle until the tires are inflated to the correct inflation pressure. Using the DIC, tire pressure levels can be viewed. For additional information and details about the DIC operation and displays see *Driver Information Center (DIC) on page 5-8*.

The low tire pressure warning light may come on in cool weather when the vehicle is first started, and then turn off as the vehicle is driven. This could be an early indicator that the air pressure is getting low and needs to be inflated to the proper pressure.

A Tire and Loading Information label shows the size of the original equipment tires and the correct inflation pressure for the tires when they are cold. See “Vehicle Load Limits” for an example of the Tire and Loading Information label and its location. Also see *Tire Pressure on page 10-14*.

The TPMS can warn about a low tire pressure condition but it does not replace normal tire maintenance. See “Tire Inspection,” “Tire Rotation,” and “Tires” in the owner manual for more information.

Notice: **Tire sealant materials are not all the same. A non-approved tire sealant could damage the TPMS sensors. TPMS sensor damage caused by using an incorrect tire sealant is not covered by the vehicle warranty. Always use only the GM-approved tire sealant available through your dealer or included in the vehicle.**

Factory-installed Tire Inflator Kits use a GM approved liquid tire sealant. Using non-approved tire sealants could damage the TPMS sensors. See *Tire Sealant and Compressor Kit on page 10-20* for information regarding the inflator kit materials and instructions.

TPMS Malfunction Light and Message

The TPMS will not function properly if one or more of the TPMS sensors are missing or inoperable. When the system detects a malfunction, the low tire warning light flashes for about one minute and then stays on for the remainder of the ignition cycle. A DIC warning message also displays. The malfunction light and DIC warning message come on at each ignition cycle until the problem is corrected. Some of the conditions that can cause these to come on are:

- The TPMS sensor matching process was not done or not completed successfully after rotating the tires. The malfunction light and the DIC message should go off after successfully completing the sensor matching process. See "TPMS Sensor Matching Process" later in this section.
- One or more TPMS sensors are missing or damaged. The malfunction light and the DIC message should go off when the TPMS sensors are installed and the sensor matching process is performed successfully. See your dealer for service.
- Replacement tires or wheels do not match the original equipment tires or wheels. Tires and wheels other than those recommended could prevent the TPMS from functioning properly. See “Buying New Tires” in the owner manual.
- Operating electronic devices or being near facilities using radio wave frequencies similar to the TPMS could cause the TPMS sensors to malfunction.

If the TPMS is not functioning properly, it cannot detect or signal a low tire condition. See your dealer for service if the TPMS malfunction light and DIC message comes on and stays on.

TPMS Sensor Matching Process

Each TPMS sensor has a unique identification code. The identification code needs to be matched to a new tire/wheel position after rotating the vehicle’s tires or replacing one or more of the TPMS sensors. Also, the TPMS sensor matching process should be performed after replacing a spare tire with a road tire containing the TPMS sensor. The malfunction light and the DIC message should go off at the next ignition cycle. The sensors are matched to the tire/wheel positions, using a TPMS relearn tool, in the following order: driver side front tire, passenger side front tire, passenger side rear tire, and driver side rear. See your dealer for service or to purchase a relearn tool.

There are two minutes to match the first tire/wheel position, and five minutes overall to match all four tire/wheel positions. If it takes longer, the matching process stops and must be restarted.

The TPMS sensor matching process is:

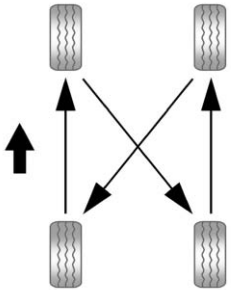
1. Set the parking brake.
2. Turn the ignition to ON/RUN with the engine off.
3. Press 🔒 and 🔓 on the Remote Keyless Entry (RKE) transmitter at the same time for approximately five seconds. The horn sounds twice to signal the receiver is in relearn mode and TIRE LEARNING ACTIVE message displays on the DIC screen.
4. Start with the driver side front tire.
5. Place the relearn tool against the tire sidewall, near the valve stem. Then press the button to activate the TPMS sensor. A horn chirp confirms that the sensor identification code has been matched to this tire and wheel position.
6. Proceed to the passenger side front tire, and repeat the procedure in Step 5.
7. Proceed to the passenger side rear tire, and repeat the procedure in Step 5.
8. Proceed to the driver side rear tire, and repeat the procedure in Step 5. The horn sounds two times to indicate the sensor identification code has been matched to the driver side rear tire, and the TPMS sensor matching process is no longer active. The TIRE LEARNING ACTIVE message on the DIC display screen goes off.
9. Turn the ignition to LOCK/OFF.
10. Set all four tires to the recommended air pressure level as indicated on the Tire and Loading Information label.

Tire Rotation

Tires should be rotated every 12 000 km (7,500 mi).

Any time unusual wear is noticed, rotate the tires as soon as possible and check the wheel alignment. Also check for damaged tires or wheels. See “When It Is Time for New Tires” and “Wheel Replacement” in the owner manual for more information.

The purpose of regular rotation is to achieve more uniform wear for all tires on the vehicle. The first rotation is the most important. See “Maintenance Schedule” in the owner manual.



Use this rotation pattern when rotating the tires.

Adjust the front and rear tires to the recommended inflation pressure on the Tire and Loading Information label after the tires have been rotated. See “Vehicle Load Limits” in the owner manual for an example of the label and its location on your vehicle.

Reset the Tire Pressure Monitor System (TPMS). See *Tire Pressure Monitor Operation on page 10-15*.

Check that all wheel nuts are properly tightened. See “Wheel Nut Torque” under “Capacities and Specifications” in the owner manual.

Lightly coat the center of the wheel hub with wheel bearing grease after a wheel change or tire rotation to prevent corrosion or rust build-up. Do not get grease on the flat wheel mounting surface or on the wheel nuts or bolts.

If a Tire Goes Flat

This vehicle has a tire inflator kit. There is no spare tire, no tire changing equipment, and no place to store a tire.

It is unusual for a tire to blowout while driving, especially if the tires are maintained properly. If air goes out of a tire, it is much more likely to leak out slowly. But if there ever is a blowout, here are a few tips about what to expect and what to do:

If a front tire fails, the flat tire creates a drag that pulls the vehicle toward that side. Take your foot off the accelerator pedal and grip the steering wheel firmly. Steer to maintain lane position, and then gently brake to a stop, well off the road, if possible.

A rear blowout, particularly on a curve, acts much like a skid and may require the same correction as used in a skid. Stop pressing the accelerator pedal and steer to straighten the vehicle. It may be very bumpy and noisy. Gently brake to a stop, well off the road, if possible.

⚠ WARNING

Driving on a flat tire will cause permanent damage to the tire. Re-inflating a tire after it has been driven on while severely underinflated or flat may cause a blowout and a serious crash. Never attempt to re-inflate a tire that has been driven on while severely underinflated or flat. Have your dealer or an authorized tire service center repair or replace the flat tire as soon as possible.

If a tire goes flat, avoid further tire and wheel damage by driving slowly to a level place and stopping, well off the road, if possible. Then do this:

1. Turn on the hazard warning flashers.
2. Park the vehicle. Set the parking brake firmly and put the shift lever in P (Park).
3. Turn off the engine.
4. Inspect the flat tire.

If the tire has been separated from the wheel or has damaged sidewalls or large tears that allow rapid air loss, call a tire repair facility. See “Roadside Assistance Program” or “Roadside Service” in the owner manual.

If the flat tire is due to a slow leak caused by a nail or other similar road hazard, the tire inflator kit may be used to repair the damaged tire temporarily. The kit uses a liquid tire sealant to seal small punctures in the tread area of the tire.

After repairing a tire with the tire inflator kit, take the vehicle to an authorized dealer to have the tire inspected and repaired as soon as possible. The tire sealant is a temporary repair only. See *Tire Sealant and Compressor Kit on page 10-20*.

Tire Sealant and Compressor Kit

⚠ WARNING

Idling a vehicle in an enclosed area with poor ventilation is dangerous. Engine exhaust may enter the vehicle. Engine exhaust contains Carbon Monoxide (CO) which cannot be seen or smelled. It can cause unconsciousness and even death. Never run the engine in an enclosed area that has no fresh air ventilation. For more information, see ”Engine Exhaust” in the owner manual.

⚠ WARNING

Overinflating a tire could cause the tire to rupture and you or others could be injured. Be sure to read and follow the tire sealant

(Continued)

WARNING (Continued)

and compressor kit instructions and inflate the tire to its recommended pressure. Do not exceed the recommended pressure.

⚠ WARNING

Storing the tire sealant and compressor kit or other equipment in the passenger compartment of the vehicle could cause injury. In a sudden stop or collision, loose equipment could strike someone. Store the tire sealant and compressor kit in its original location.

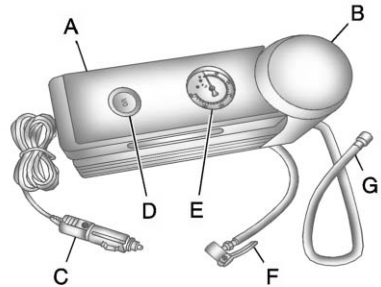
If this vehicle has a tire sealant and compressor kit, there may not be a spare tire, tire changing equipment, and on some vehicles there may not be a place to store a tire.

The tire sealant and compressor can be used to temporarily seal punctures up to 6 mm (¼ inch) in the tread area of the tire. It can also be used to inflate an under inflated tire.

If the tire has been separated from the wheel, has damaged sidewalls, or has a large puncture, the tire is too severely damaged for the tire sealant and compressor kit to be effective. See “Roadside Assistance Program” or “Roadside Service” in the owner manual.

Read and follow all of the tire sealant and compressor kit instructions.

The kit includes:



A. Air Compressor
B. Tire Sealant Canister
C. Power Plug
D. On/Off Button
E. Pressure Gauge
F. Air Only Hose (Black)
G. Sealant/Air Hose (Clear)

Tire Sealant

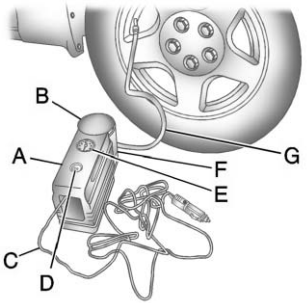
Read and follow the safe handling instructions on the label adhered to the sealant canister.

Check the tire sealant expiration date on the sealant canister. The sealant canister should be replaced before its expiration date. Replacement sealant canisters are available at your local dealer. See “Removal and Installation of the Sealant Canister” following.

There is only enough sealant to seal one tire. After usage, the sealant canister and sealant/air hose assembly must be replaced. See “Removal and Installation of the Sealant Canister” following.

Using the Tire Sealant and Compressor Kit to Temporarily Seal and Inflate a Punctured Tire

Follow the directions closely for correct sealant usage.



When using the tire sealant and compressor kit during cold temperatures, warm the kit in a heated environment for five minutes. This will help to inflate the tire faster.

If a tire goes flat, avoid further tire and wheel damage by driving slowly to a level place. Turn on the hazard warning flashers.

See *If a Tire Goes Flat on page 10-19* for other important safety warnings.

Do not remove any objects that have penetrated the tire.

1. Remove the tire sealant and compressor kit from its storage location. See *Storing the Tire Sealant and Compressor Kit on page 10-27*.

   Make sure the on/off button (D) is in the off (O) position.

2. Unwrap the sealant/air hose (G) and the power plug (C).

3. Place the kit on the ground.

   Make sure the tire valve stem is positioned close to the ground so the hose will reach it.

4. Remove the valve stem cap from the flat tire by turning it counterclockwise.

5. Attach the sealant/air hose (G) onto the tire valve stem. Turn it clockwise until it is tight.

6. Plug the power plug (C) into the accessory power outlet in the vehicle. Unplug all items from other accessory power outlets. See “Power Outlets” in the owner manual.

If the vehicle has an accessory power outlet, do not use the cigarette lighter.

If the vehicle only has a cigarette lighter, use the cigarette lighter.

Do not pinch the power plug cord in the door or window.

7. Start the vehicle. The vehicle must be running while using the air compressor.
8. Press the on/off (D) button to turn the tire sealant and compressor kit on.

   The compressor will inject sealant and air into the tire.

   The pressure gauge (E) will initially show a high pressure while the compressor pushes the sealant into the tire. Once the sealant is completely dispersed into the tire, the pressure will quickly drop and start to rise again as the tire inflates with air only.
9. Inflate the tire to the recommended inflation pressure using the pressure gauge (E). The recommended inflation pressure can be found on the Tire and Loading Information label. See *Tire Pressure on page 10-14*.

   The pressure gauge (E) may read higher than the actual tire pressure while the compressor is on. Turn the compressor off to get an accurate pressure reading. The compressor may be turned on/off until the correct pressure is reached.

Notice: **If the recommended pressure cannot be reached after approximately 25 minutes, the vehicle should not be driven farther. The tire is too severely damaged and the tire sealant and compressor kit cannot inflate the tire. Remove the power plug from the accessory power outlet and unscrew the inflating hose from the tire valve. See "Roadside Assistance Program" or "Roadside Service" in the owner manual.**

10. Press the on/off button (D) to turn the tire sealant and compressor kit off.

    The tire is not sealed and will continue to leak air until the vehicle is driven and the sealant is distributed in the tire, therefore, Steps 11 through 17 must be done immediately after Step 10.

    Be careful while handling the tire sealant and compressor kit as it could be warm after usage.
11. Unplug the power plug (C) from the accessory power outlet in the vehicle.
12. Turn the sealant/air hose (G) counterclockwise to remove it from the tire valve stem.
13. Replace the tire valve stem cap.

14. Replace the sealant/air hose (G), and the power plug (C) back in their original location.

15. If the flat tire was able to inflate to the recommended inflation pressure, remove the maximum speed label from the tire sealant canister (B) and place it in a highly visible location.

    Do not exceed the speed on this label until the damaged tire is repaired or replaced.

16. Return the equipment to its original storage location in the vehicle.

17. Immediately drive the vehicle 8 km (5 mi) to distribute the sealant in the tire.

18. Stop at a safe location and check the tire pressure. Refer to Steps 1 through 11 under “Using the Tire Sealant and Compressor Kit without Sealant to Inflate a Tire (Not Punctured).”

    If the tire pressure has fallen more than 68 kPa (10 psi) below the recommended inflation pressure, stop driving the vehicle. The tire is too severely damaged and the tire sealant cannot seal the tire. See “Roadside Assistance Program” in the owner manual.

    If the tire pressure has not dropped more than 68 kPa (10 psi) from the recommended inflation pressure, inflate the tire to the recommended inflation pressure.

19. Wipe off any sealant from the wheel, tire or vehicle.

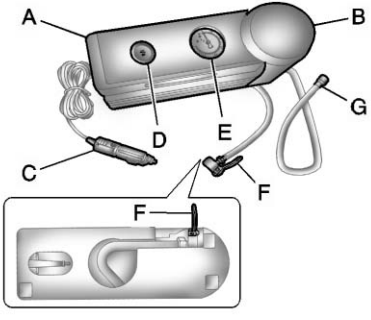
20. Dispose of the used tire sealant canister (B) and sealant/air hose (G) assembly at a local dealer or in accordance with local state codes and practices.

21. Replace it with a new canister available from your dealer.

22. After temporarily sealing a tire using the tire sealant and compressor kit, take the vehicle to an authorized dealer within a 161 km (100 mi) of driving to have the tire repaired or replaced.

Using the Tire Sealant and Compressor Kit without Sealant to Inflate a Tire (Not Punctured)

To use the air compressor to inflate a tire with air only and not sealant:



If a tire goes flat, avoid further tire and wheel damage by driving slowly to a level place. Turn on the hazard warning flashers.

See *If a Tire Goes Flat on page 10-19* for other important safety warnings.

1. Remove the tire sealant and compressor kit from its storage location. See *Storing the Tire Sealant and Compressor Kit on page 10-27*.
2. Unlock the air only hose (F) from the tire sealant canister (B) by pulling up on the lever.
3. Pull the air only hose (F) from the tire sealant canister (B).
4. Remove the power plug (C) from the air compressor (A).
5. Place the kit on the ground.

   Make sure the tire valve stem is positioned close to the ground so the hose will reach it.
6. Remove the tire valve stem cap by turning it counterclockwise.
7. Attach the air only hose (F) onto the tire valve stem and press the lever down to secure it.
8. Plug the power plug (C) into the accessory power outlet in the vehicle. Unplug all items from other accessory power outlets. See “Power Outlets” in the owner manual.

   If the vehicle has an accessory power outlet, do not use the cigarette lighter.

   If the vehicle only has a cigarette lighter, use the cigarette lighter.

   Do not pinch the power plug cord in the door or window.
9. Start the vehicle. The vehicle must be running while using the air compressor.
10. Press the on/off (D) button to turn the compressor on.

    The compressor will inflate the tire with air only.
11. Inflate the tire to the recommended inflation pressure using the pressure gauge (E). The recommended inflation pressure can be found on the Tire and Loading Information label. See *Tire Pressure on page 10-14*.

The pressure gauge (E) may read higher than the actual tire pressure while the compressor is on. Turn the compressor off to get an accurate reading. The compressor may be turned on/off until the correct pressure is reached.

12. Press the on/off button (D) to turn the tire sealant and compressor kit off.

    Be careful while handling the tire sealant and compressor kit as it could be warm after usage.

13. Unplug the power plug (C) from the accessory power outlet in the vehicle.

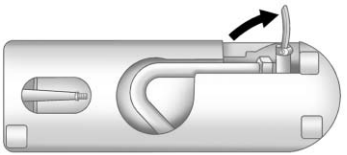
14. Disconnect the air only hose (F) from the tire valve stem, by turning it counterclockwise, and replace the tire valve stem cap.

15. Replace the air only hose (F) and the power plug (C) back in its original location.

16. Place the equipment in the original storage location in the vehicle.

Removal and Installation of the Sealant Canister

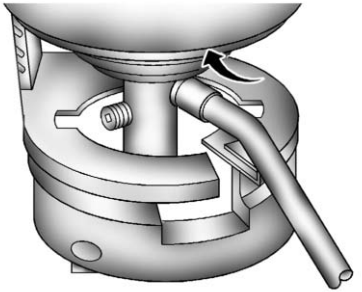
To remove the sealant canister:



1. Unlock the air only hose (F) from the tire sealant canister (B) by pulling up on the lever.

2. Pull the air only hose (F) from the tire sealant canister (B).

3. Unwrap the sealant/air hose (G) from the air compressor (A).



4. Turn the tire sealant canister (B) so the inflator filling hose is aligned with the slot in the compressor.

5. Lift the tire sealant canister (B) from the compressor and replace with a new sealant canister. See your dealer for more information.

To install a new sealant canister:

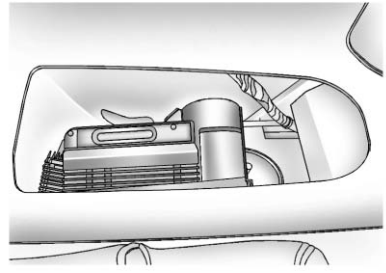
1. Align the sealant/air hose (G) with the slot in the air compressor.
2. Push the tire sealant canister (B) down and turn it clockwise.
3. Wrap the sealant/air hose (G) around the air compressor channel to stow it in its original location.
4. Push the air only hose (F) onto the sealant canister inlet and push the lever down.

Storing the Tire Sealant and Compressor Kit

The tire sealant and compressor kit is located under the storage tray on the driver side trim panel (over the rear wheelhouse).

To access the tire sealant and compressor kit:

1. Remove the tray by pulling up on the finger depression to access the tire sealant and compressor kit.



2. Locate the tire sealant and compressor kit.
3. Remove the sealant and compressor kit by pulling the velcro strip up and back.
4. Remove the sealant and compressor kit from its plastic tray assembly.

To store the tire sealant and compressor kit, reverse the steps.

Jump Starting

⚠ WARNING

Personal injury, death, or damage to the vehicle can result if you try jump starting or using a battery charger on the high voltage hybrid battery. Use only the 12-volt battery for jump starting and charging.

For more information about the vehicle battery, see *Battery on page 10-10*.

If the vehicle's 12-volt battery has run down, you may want to use another vehicle and some jumper cables to start your vehicle. Use the following steps to do it safely.

⚠ WARNING

Batteries can hurt you. They can be dangerous because:

- They contain acid that can burn you.
- They contain gas that can explode or ignite.
- They contain enough electricity to burn you.

If you do not follow these steps exactly, some or all of these things can hurt you.

Notice: **Ignoring these steps could result in costly damage to the vehicle that would not be covered by the warranty.**

Trying to start the vehicle by pushing or pulling it will not work, and it could damage the vehicle.

1. Check the other vehicle. It must have a 12-volt battery with a negative ground system.

   Notice: **Only use a vehicle that has a 12-volt system with a negative ground for jump starting. If the other vehicle does not have a 12-volt system with a negative ground, both vehicles can be damaged.**

2. Get the vehicles close enough so the jumper cables can reach, but be sure the vehicles are not touching each other. It could cause a ground connection you do not want. You would not be able to start your vehicle, and the bad grounding could damage the electrical systems.

   To avoid the possibility of the vehicles rolling, set the parking brake firmly on both vehicles involved in the jump start procedure. Put the automatic transmission in P (Park) or a manual transmission in N (Neutral) before setting the parking brake. If you have a four-wheel-drive vehicle, be sure the transfer case is in a drive gear, not in N (Neutral).

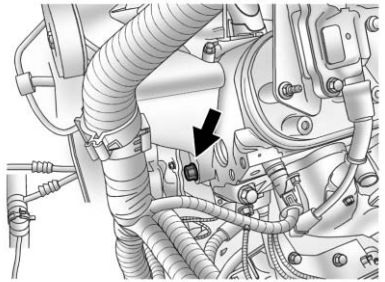
Notice: **If any accessories are left on or plugged in during the jump starting procedure, they could be damaged. The repairs would not be covered by the vehicle warranty. Whenever possible, turn off or unplug all accessories on either vehicle when jump starting the vehicle.**

3. Turn off the ignition on both vehicles. Unplug unnecessary accessories plugged into the accessory power outlets. Turn off the radio and all the lamps that are not needed.

   This avoids sparks and helps save both batteries. It could save the radio!

4. Open the hood on the other vehicle and locate the positive (+) and negative (−) terminal locations on that vehicle.

   Your vehicle has a remote positive (+) and a remote negative (−) jump starting terminal. You should always use these remote terminals instead of the terminals on the battery.



   If the vehicle has a remote positive (+), it is located under a red plastic cover at the positive battery post. To uncover the remote positive (+) terminal, open the red plastic cover.

5. The remote negative (−) is a solid engine ground.

⚠ WARNING

An electric fan can start up even when the engine is not running and can injure you. Keep hands, clothing and tools away from any underhood electric fan.

⚠ WARNING

Using an open flame near a battery can cause battery gas to explode. People have been hurt doing this, and some have been blinded. Use a flashlight if you need more light.

Be sure the battery has enough water. You do not need to add water to the battery installed in your new vehicle. But if a battery has filler caps, be sure the right amount of fluid is there. If it is low,

(Continued)

WARNING (Continued)

add water to take care of that first. If you do not, explosive gas could be present.

Battery fluid contains acid that can burn you. Do not get it on you. If you accidentally get it in your eyes or on your skin, flush the place with water and get medical help immediately.

⚠ WARNING

Fans or other moving engine parts can injure you badly. Keep your hands away from moving parts once the engine is running.

6. Check that the jumper cables do not have loose or missing insulation. If they do, you could get a shock. The vehicles could be damaged too.

   Before you connect the cables, here are some basic things you should know. Positive (+) goes to positive (+) or to a remote positive (+) terminal if the vehicle has one. Negative (−) will go to a heavy, unpainted metal engine part or a solid engine ground.

   Do not connect positive (+) to negative (−) or you will get a short that would damage the battery and maybe other parts too. Do not connect the negative (−) cable to the negative (−) terminal on the dead battery because this can cause sparks.

7. Connect the red positive (+) cable to the positive (+) terminal of the vehicle with the dead battery. Use a remote positive (+) if the vehicle has one.

8. Do not let the other end touch metal. Connect it to the positive (+) terminal of the good battery. Use a remote positive (+) if the vehicle has one.

9. Now connect the black negative (−) cable to the negative (−) terminal of the good battery. Use a remote negative (−) if the vehicle has one.

   Do not let the other end touch anything until the next step. The other end of the negative (−) cable does not go to the dead battery. It goes to a heavy, unpainted metal engine part or to the remote negative (−) terminal on the vehicle with the dead battery.

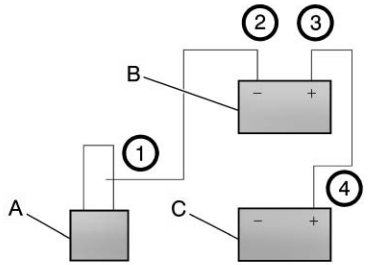
10. Connect the other end of the negative (−) cable to the remote negative (−) terminal, on the vehicle with the dead battery.

11. Now start the vehicle with the good battery and run the engine for a while.

12. Try to start the vehicle that had the dead battery. If it will not start after a few tries, it probably needs service.

Notice: **If the jumper cables are connected or removed in the wrong order, electrical shorting may occur and damage the vehicle. The repairs would not be covered by the vehicle warranty. Always connect and remove the jumper cables in the correct order, making sure that the cables do not touch each other or other metal.**

Jumper Cable Removal



A. Heavy, Unpainted Metal Engine Part or Remote Negative (−) Terminal

B. Good Battery or Remote Positive (+) and Remote Negative (−) Terminals

C. Dead Battery or Remote Positive (+) Terminal

To disconnect the jumper cables from both vehicles:

1. Disconnect the black negative (−) cable from the vehicle that had the bad battery.
2. Disconnect the black negative (−) cable from the vehicle with the good battery.
3. Disconnect the red positive (+) cable from the vehicle with the good battery.
4. Disconnect the red positive (+) cable from the other vehicle.
5. Return the remote positive (+) terminal cover to its original position.

Towing

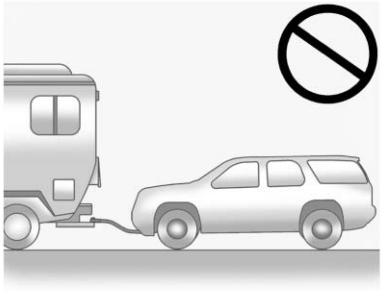
Recreational Vehicle Towing

Recreational vehicle towing means towing the vehicle behind another vehicle – such as behind a motorhome. The two most common types of recreational vehicle towing are known as dinghy towing and dolly towing. Dinghy towing is towing the vehicle with all four wheels on the ground. Dolly towing is towing the vehicle with two wheels on the ground and two wheels up on a device known as a dolly.

Here are some important things to consider before recreational vehicle towing:

- What is the towing capacity of the towing vehicle? Be sure to read the tow vehicle manufacturer's recommendations.
- What is the distance that will be travelled? Some vehicles have restrictions on how far and how long they can tow.
- Is the proper towing equipment going to be used? See your dealer or trailering professional for additional advice and equipment recommendations.
- Is the vehicle ready to be towed? Just as preparing the vehicle for a long trip, make sure the vehicle is prepared to be towed.

Dinghy Towing

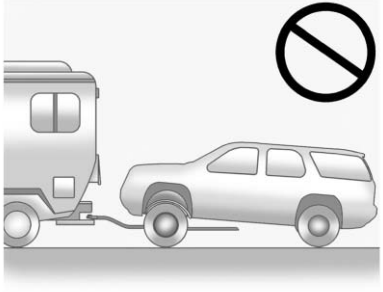


Notice: **If the vehicle is towed with all four wheels on the ground, the drivetrain components could be damaged. The repairs would not be covered by the vehicle warranty. Do not tow the vehicle with all four wheels on the ground.**

The vehicle should not be towed with all four wheels on the ground.

Dolly Towing – Front Towing (Front Wheels Off the Ground)

Two-Wheel Drive Vehicles

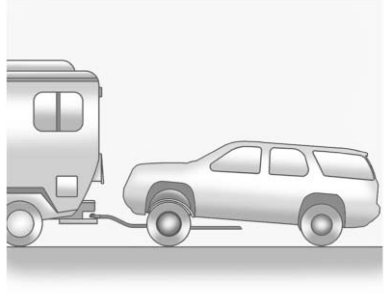


Notice: **If a two-wheel drive vehicle is towed with the rear wheels on the ground, the transmission could be damaged. The repairs would not be covered by the vehicle warranty. Never tow the vehicle with the rear wheels on the ground.**

Two-wheel drive vehicles should not be towed with the rear wheels on the ground. Two-wheel drive transmissions have no provisions for internal lubrication while being towed.

To dolly tow a two-wheel-drive vehicle, the vehicle must be towed with the rear wheels on the dolly. See “Rear Towing (Rear Wheels Off the Ground)” later in this section for more information.

Four-Wheel Drive Vehicles



Use the following procedure to dolly tow a four-wheel drive vehicle from the front:

1. Attach the dolly to the tow vehicle following the dolly manufacturer's instructions.
2. Drive the front wheels onto the dolly.
3. Shift the transmission to P (Park).
4. Firmly set the parking brake. See “Parking Brake” in the owner manual.

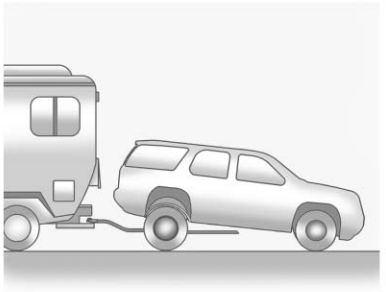
⚠ WARNING

Shifting a four-wheel-drive vehicle's transfer case into N (Neutral) can cause the vehicle to roll even if the transmission is in P (Park). The driver or others could be injured. Make sure the parking brake is firmly set before the transfer case is shifted to N (Neutral).

5. Shift the transfer case to N (Neutral). See “Shifting into N (Neutral)” under *Four-Wheel Drive on page 9-9*.
6. Secure the vehicle to the dolly following the manufacturer's instructions.
7. Release the parking brake only after the vehicle being towed is firmly attached to the towing vehicle.
8. Turn the ignition to LOCK/OFF.

After towing, see “Shifting Out of N (Neutral)” under *Four-Wheel Drive on page 9-9*.

Dolly Towing – Rear Towing (Rear Wheels Off the Ground)



Two-Wheel Drive Vehicles

Use the following procedure to dolly tow a two-wheel drive vehicle from the rear:

1. Attach the dolly to the tow vehicle following the dolly manufacturer's instructions.
2. Drive the rear wheels onto the dolly.
3. Firmly set the parking brake. See “Parking Brake” in the owner manual.
4. Put the transmission in P (Park).
5. Secure the vehicle to the dolly following the manufacturer's instructions.
6. Use an adequate clamping device designed for towing to ensure that the front wheels are locked into the straight position.
7. Turn the ignition to LOCK/OFF.

Four-Wheel-Drive Vehicles

Use the following procedure to dolly tow a four-wheel-drive vehicle from the rear:

1. Attach the dolly to the tow vehicle following the dolly manufacturer's instructions.
2. Drive the rear wheels onto the dolly.
3. Firmly set the parking brake. See “Parking Brake” in the owner manual.

4. Put the transmission in P (Park).
5. Secure the vehicle to the dolly following the manufacturer's instructions.
6. Use an adequate clamping device designed for towing to ensure that the front wheels are locked into the straight position.

⚠ WARNING

Shifting a four-wheel-drive vehicle's transfer case into N (Neutral) can cause the vehicle to roll even if the transmission is in P (Park). The driver or others could be injured. Make sure the parking brake is firmly set before the transfer case is shifted to N (Neutral).

7. Shift the transfer case to N (Neutral). See “Shifting into N (Neutral)” under *Four-Wheel Drive on page 9-9*.
8. Turn the ignition to LOCK/OFF.

After towing, see “Shifting Out of N (Neutral)” under *Four-Wheel Drive on page 9-9*.

Appearance Care

Exterior Care

When scraping the windshield glass to remove ice and snow, stay clear of the hybrid decal.

To have the hybrid decals removed from the vehicle, please see your dealer.

✍ NOTES

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Recommended Fluids, Lubricants, and Parts

Recommended Fluids and Lubricants

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

Usage	Fluid/Lubricant
Drive Motor/Generator Control Module (DMCM) Cooling System	Always use the pre-mixed 50/50 mixture of de-ionized water and DEX-COOL® (silicate-free) coolant available at your dealer. See *Drive Motor/Generator Control Module (DMCM) Cooling System on page 10-7*.
Transfer Case	DEXRON®-VI Automatic Transmission Fluid.

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Vehicle Data

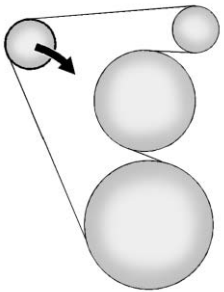
Capacities and Specifications

Application	Capacities	
	Metric	English
Automatic Transmission* (Pan Removal and Filter Replacement)	10.9 L	11.5 qt
Cooling System		
Drive Motor Generator Control Module Cooling System	2.7 L	2.9 qt
6.0L V8 Engine Cooling System	17.3 L	18.3 qt
Fuel Tank	92.7 L	24.5 gal
Transfer Case Fluid	1.5 L	1.6 qt
*Transmission fluid capacity is approximate. See *Automatic Transmission Fluid on page 10-4* for information on checking fluid level.		
All capacities are approximate. Recheck fluid level after filling.		

Engine Specifications

Engine	VIN Code	Transmission	Spark Plug Gap
6.0L V8	J	Automatic	1.02 mm (0.040 in)

Engine Drive Belt Routing



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