2007 Cadillac DTS Owner Manual

Seats and Restraint Systems 7
- Front Seats 9
- Rear Seats 16
- Safety Belts 18
- Child Restraints 40
- Airbag System 66
- Restraint System Check 84

Features and Controls 87
- Keys 89
- Doors and Locks 98
- Windows 104
- Theft-Deterrent Systems 108
- Starting and Operating Your Vehicle 113
- Mirrors 128
- OnStar® System 135
- Universal Home Remote System 139
- Storage Areas 150
- Sunroof 152

Instrument Panel 153
- Instrument Panel Overview 156
- Climate Controls 204
- Warning Lights, Gages, and Indicators 215
- Driver Information Center (DIC) 233
- Audio System(s) 261

Driving Your Vehicle 295
- Your Driving, the Road, and Your Vehicle 296
- Towing 334

Service and Appearance Care 345
Service 347
Fuel 349
Checking Things Under the Hood 354
Headlamp Aiming 389
Bulb Replacement 392
Windshield Wiper Blade Replacement 392
Tires 394
Appearance Care 431
Vehicle Identification 441
Electrical System 442
Capacities and Specifications 452

Maintenance Schedule 453
Maintenance Schedule 454

Customer Assistance Information 473
Customer Assistance and Information 474
Reporting Safety Defects 489

Index 493

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This manual includes the latest information at the time it was printed. We reserve the right to make changes after that time without notice. For vehicles first sold in Canada, substitute the name “General Motors of Canada Limited” for Cadillac Motor Car Division whenever it appears in this manual.

This manual describes features that may be available in this model, but your vehicle may not have all of them. For example, more than one entertainment system may be offered or your vehicle may have been ordered without a front passenger or rear seats.

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Keep this manual in the vehicle, so it will be there if it is needed while your are on the road. If the vehicle is sold, leave this manual in the vehicle.

Canadian Owners

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

Helm, Incorporated
P.O. Box 07130
Detroit, MI 48207

How to Use This Manual

Many people read the owner manual from beginning to end when they first receive their new vehicle. If this is done, it can help you learn about the features and controls for the vehicle. Pictures and words work together in the owner manual to explain things.

Index

A good place to quickly locate information about the vehicle is the Index in the back of the manual. It is an alphabetical list of what is in the manual and the page number where it can be found.

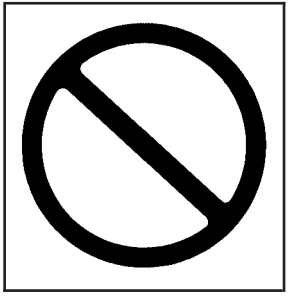
Safety Warnings and Symbols

There are a number of safety cautions in this book. We use a box and the word CAUTION to tell about things that could hurt you if you were to ignore the warning.

⚠ CAUTION:

These mean there is something that could hurt you or other people.

In the caution area, we tell you what the hazard is. Then we tell you what to do to help avoid or reduce the hazard. Please read these cautions. If you do not, you or others could be hurt.



You will also find a circle with a slash through it in this book. This safety symbol means “Do Not,” “Do Not do this” or “Do Not let this happen.”

Vehicle Damage Warnings

Also, in this manual you will find these notices:

Notice: **These mean there is something that could damage your vehicle.**

A notice tells about something that can damage the vehicle. Many times, this damage would not be covered by your vehicle's warranty, and it could be costly. But the notice will tell what to do to help avoid the damage.

When you read other manuals, you might see CAUTION and NOTICE warnings in different colors or in different words.

There are also warning labels on the vehicle. They use the same words, CAUTION or NOTICE.

Vehicle Symbols

The vehicle has components and labels that use symbols instead of text. Symbols are shown along with the text describing the operation or information relating to a specific component, control, message, gage, or indicator.

If you need help figuring out a specific name of a component, gage, or indicator, reference the following topics:

- Seats and Restraint Systems in Section 1
- Features and Controls in Section 2
- Instrument Panel Overview in Section 3
- Climate Controls in Section 3
- Warning Lights, Gages, and Indicators in Section 3
- Audio System(s) in Section 3
- Engine Compartment Overview in Section 5

These are some examples of symbols that may be found on the vehicle:

CAUTION POSSIBLE INJURY	LATCH BOTH LAP AND SHOULDER BELTS TO PROTECT OCCUPANT DO NOT TWIST SAFETY BELT WHEN ATTACHING		MASTER LIGHTING SWITCH	ENGINE COOLANT TEMP	TIRE PRESSURE
PROTECT EYES BY SHIELDING	FASTEN SEAT BELTS	AIRBAG	TURN SIGNALS	BATTERY CHARGING SYSTEM	FUSE BOX ACCESS
CAUSTIC BATTERY ACID COULD CAUSE BURNS	MOVE SEAT FULLY REARWARD SECURE CHILD SEAT	DO NOT INSTALL A REAR-FACING CHILD RESTRAINT IN THIS SEATING POSITION	PARKING LAMPS	BRAKE	ENGINE COOLANT FAN
AVOID SPARKS OR FLAMES	PULL BELT OUT COMPLETELY THEN SECURE CHILD SEAT	DO NOT INSTALL A FORWARD-FACING CHILD RESTRAINT IN THIS SEATING POSITION	HAZARD WARNING FLASHER	COOLANT	FUEL
SPARK OR FLAME COULD EXPLODE BATTERY	POWER WINDOW	DOOR LOCK UNLOCK	DAYTIME RUNNING LAMPS	ENGINE OIL PRESSURE	OWNER MANUAL
			FOG LAMPS	ANTI-LOCK BRAKE SYSTEM	SERVICE MANUAL

Section 1 Seats and Restraint Systems

Front Seats 9
Power Seats 9
Power Lumbar 9
Massaging Lumbar 10
Heated and Cooled Seats 10
Memory Seat, Mirrors and Steering Wheel 11
Power Reclining Seatbacks 13
Head Restraints 15
Center Seat 16

Rear Seats 16
Heated Seats 16
Rear Seat Pass-Through Door 17
Power Lumbar 17

Safety Belts 18
Safety Belts: They Are for Everyone 18
Questions and Answers About Safety Belts 22
How to Wear Safety Belts Properly 23
Driver Position 24
Shoulder Belt Height Adjustment 31
Safety Belt Use During Pregnancy 32
Right Front Passenger Position 32
Center Front Passenger Position 33
Rear Seat Passengers 34
Rear Safety Belt Comfort Guides 37
Safety Belt Pretensioners 39
Safety Belt Extender 39

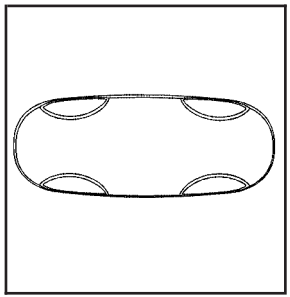
Child Restraints 40
Older Children 40
Infants and Young Children 43
Child Restraint Systems 47
Where to Put the Restraint 51
Lower Anchors and Tethers for Children (LATCH) 53
Securing a Child Restraint in a Rear Seat Position 60
Securing a Child Restraint in the Center Front Seat Position 62
Securing a Child Restraint in the Right Front Seat Position 62

Section 1 Seats and Restraint Systems

Airbag System 66
Where Are the Airbags? 69
When Should an Airbag Inflate? 73
What Makes an Airbag Inflate? 75
How Does an Airbag Restrain? 75
What Will You See After an Airbag Inflates? 76
Passenger Sensing System 77
Servicing Your Airbag-Equipped Vehicle 82
Adding Equipment to Your Airbag-Equipped Vehicle 83
Restraint System Check 84
Checking the Restraint Systems 84
Replacing Restraint System Parts After a Crash 85

Front Seats

Power Seats



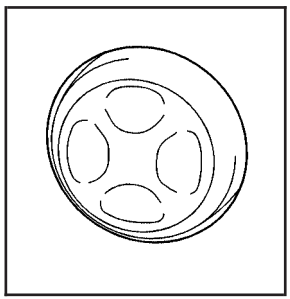
The power seat controls are located on the outboard side of the seats.

- Move the seat forward or rearward by sliding the control forward or rearward.
- Raise or lower the front part of the seat cushion by moving the front of the control up or down.
- Raise or lower the rear part of the seat cushion by moving the rear of the control up or down.

The front seats also have power reclining seatbacks. See *Power Reclining Seatbacks on page 13*.

If your vehicle has the memory feature, you can program and recall memory settings for seat positions. See *Memory Seat, Mirrors and Steering Wheel on page 11*.

Power Lumbar



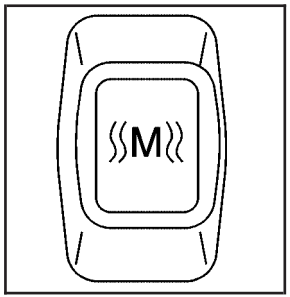
The power lumbar controls are located on the outboard side of the front seats behind the power seat controls.

Press the lumbar control forward to increase support and rearward to decrease support. Press the top or bottom of the control to raise or lower the support mechanism.

The ignition does not need to be on for the power lumbar feature to work.

Keep in mind that as your seating position changes, as it may during long trips, so should the position of your lumbar support. Adjust the seat as needed.

Massaging Lumbar



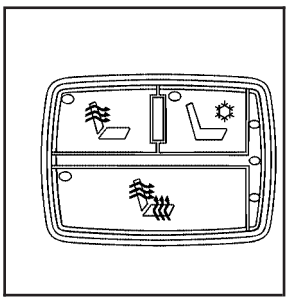
If your vehicle has this feature, the switch is located on the outboard side of the front seats behind the lumbar switch. Press the switch to turn the massaging lumbar feature on. The ignition must be on.

The massage cycle will run for up to 10 minutes. To stop massage, press the massaging lumbar switch again, or press the power lumbar switch.

Heated and Cooled Seats

Your vehicle may have heated and cooled front seats.

To operate the heated or cooled seats, the ignition must be on.



Driver's Side Buttons Shown, Passenger's Side Buttons Similar

The buttons are located on the front doors.

(Heated Seatback): Press this button to turn on the heated seatback.

(Cooled Seat): Press this button to turn on the cooled seat.

(Heated Seat and Seatback): Press this button to turn on the heated seat and seatback.

Press a button to turn on the desired feature. A light on that button will display to show which feature is on.

There are three temperature settings for each feature. A column of three lights next to the buttons will display which setting the feature is in: high, medium or low. Three lights indicate the highest setting, two lights for medium and one light for the lowest setting.

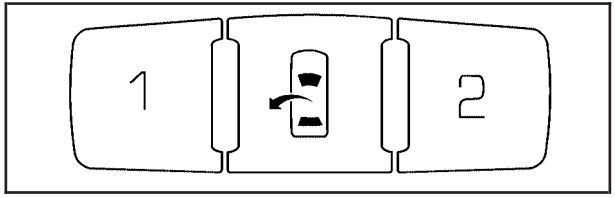
When you press a button, the feature will turn on at the highest setting. Each time you press the button, the feature will go down one temperature setting.

To turn the feature off, keep pressing the button until the display lights turn off.

If your vehicle has remote vehicle start and is started using the remote keyless entry transmitter, the front heated seats will be turned on to the high setting if it is cold outside. See “Remote Vehicle Start” under *Remote Keyless Entry (RKE) System Operation on page 92*. When the key is inserted into the ignition and the ignition is turned on, the heated seat feature will turn off. To turn the heated seat feature back on, press the desired button.

Memory Seat, Mirrors and Steering Wheel

Your vehicle may have the memory package.



The controls for this feature are located on the driver’s door panel, and are used to program and recall memory settings for the driver’s seat, outside mirror, and the steering wheel position if the vehicle has the power tilt wheel and telescopic steering feature.

To save your positions in memory, do the following:

1. Adjust the driver's seat, including the seatback recliner and lumbar, both outside mirrors, and the steering wheel to a comfortable position.
2. Press and hold button 1 until two beeps sound through the driver's side front speaker to let you know that the position has been stored.

A second seating, mirror, and steering wheel position can be programmed by repeating the above steps and pressing button 2 for a second driver.

To recall your memory positions, the vehicle must be in PARK (P). Press and release either button 1 or button 2 corresponding to the desired driving position. The seat, outside mirrors, and steering wheel will move to the position previously stored for the identified driver. You will hear a single beep.

If you use the remote keyless entry transmitter to enter your vehicle and the remote recall memory feature is on, automatic seat and mirror movement will occur. See "MEMORY SEAT RECALL" under *DIC Vehicle Customization on page 252* for more information.

To stop recall movement of the memory feature at any time, press one of the power seat controls, memory buttons, power tilt wheel control, or power mirror buttons.

If something has blocked the driver's seat and/or the steering column while recalling a memory position, the driver's seat and/or the steering column recall may stop. If this happens remove the obstruction, then press the appropriate control for the area that is not recalling for two seconds. Try recalling the memory position again by pressing the appropriate memory button.
If the memory position is still not recalling, see your dealer for service.

Easy Exit Seat

The control for this feature is located on the driver's door panel between buttons 1 and 2.

With the vehicle in PARK (P), the exit position can be recalled by pressing the exit button. You will hear a single beep. The driver's seat will move back, and if the vehicle has the power tilt wheel and telescopic steering feature, the power telescopic steering column will move up and forward.

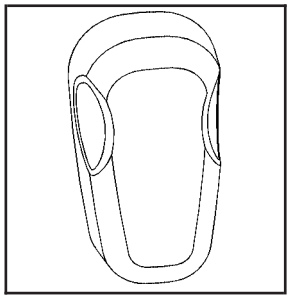
If the easy exit seat feature is on in the DIC, automatic seat and power telescopic steering column movement will occur when the key is removed from the ignition. See "EASY EXIT SEAT" under *DIC Vehicle Customization on page 252* for more information.

Further programming for automatic seat and steering wheel movement can be done using the Driver Information Center (DIC). You can select or not select the following:

- The easy exit seat feature
- The memory seat recall feature

For programming information, see *DIC Vehicle Customization on page 252*.

Power Reclining Seatbacks



Your seats have power reclining seatbacks. Use the vertical power seat control located on the outboard side of the seat to operate them.

- To recline the seatback, press the control toward the rear of the vehicle.
- To raise the seatback, press the control toward the front of the vehicle.

⚠ CAUTION:

Sitting in a reclined position when your vehicle is in motion can be dangerous. Even if you buckle up, your safety belts

CAUTION: (Continued)

CAUTION: (Continued)

cannot do their job when you are reclined like this.

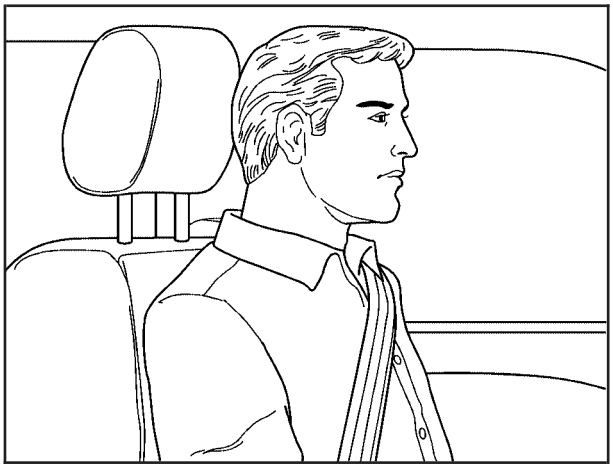
The shoulder belt cannot do its job because it will not be against your body. Instead, it will be in front of you. In a crash, you could go into it, receiving neck or other injuries.

The lap belt cannot do its job either. In a crash, the belt could go up over your abdomen. The belt forces would be there, not at your pelvic bones. This could cause serious internal injuries.

For proper protection when the vehicle is in motion, have the seatback upright. Then sit well back in the seat and wear your safety belt properly.

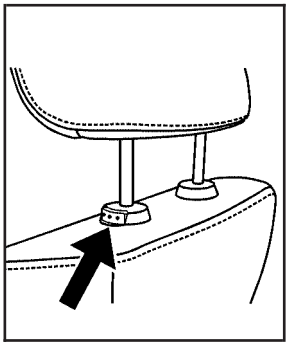
Do not have a seatback reclined if your vehicle is moving.

Head Restraints



Adjust the head restraint so that the top of the restraint is at the same height as the top of the occupant's head. This position reduces the chance of a neck injury in a crash.

The height of all the head restraints can be adjusted.

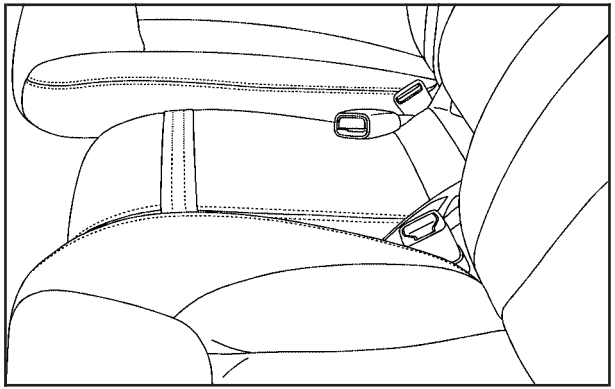


To raise a front seat head restraint, pull up on the restraint. To lower it, press the button, located on the top of the seatback, and push the head restraint down.

To adjust the height of a rear seat head restraint, pull up or push down on the restraint.

The front seat head restraints can also tilt forward and rearward. The rear seat head restraints do not tilt.

Center Seat



Your vehicle may have a front center seat. This seat can be converted to a storage area by lowering the seatback. See *Center Flex Storage Unit on page 151*.

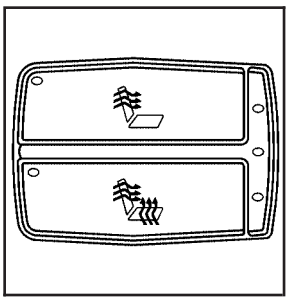
For information on safety belts for this position, see *Center Front Passenger Position on page 33*.

Rear Seats

Heated Seats

Your vehicle may have heated rear seats.

To operate the rear heated seats, the ignition must be on.



The buttons are located on the rear doors.

(Heated Seatback): Press this button to turn on the heated seatback.

(Heated Seat and Seatback): Press this button to turn on the heated seat and seatback.

Press a button to turn on the desired feature. A light on that button will display to show which feature is on.

There are three temperature settings for each feature. A column of three lights next to the buttons will display which setting the feature is in: high, medium or low. Three lights indicate the highest setting, two lights for medium and one light for the lowest setting.

When you press a button, the feature will turn on at the highest setting. Each time you press the button, the feature will go down one temperature setting.

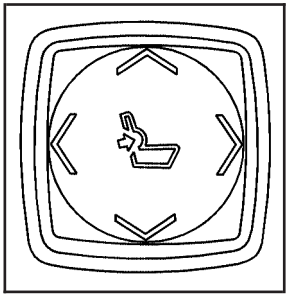
To turn the feature off, keep pressing the button until the display lights turn off.

Rear Seat Pass-Through Door

Your vehicle has a pass-through door that provides access to the trunk from the rear seats. See “Rear Seat Pass-Through Door” under *Trunk on page 102*.

Power Lumbar

Your vehicle may be equipped with four-way lumbar support, without the massage feature, for the outboard rear seat positions.



The rear lumbar support controls are located on the rear doors in front of the heated seat buttons.

To turn on the lumbar support feature, press the front of the control to increase support or rearward to decrease support. The lumbar control can also be moved up and down to adjust the location of the support.

The ignition does not need to be on for the power lumbar feature to work.

Safety Belts

Safety Belts: They Are for Everyone

This part of the manual tells you how to use safety belts properly. It also tells you some things you should not do with safety belts.

⚠ CAUTION:

Do not let anyone ride where he or she cannot wear a safety belt properly. If you are in a crash and you are not wearing a safety belt, your injuries can be much worse. You can hit things inside the vehicle or be ejected from it. You can be seriously injured or killed. In the same crash, you might not be, if you are buckled up. Always fasten your safety belt, and check that your passengers' belts are fastened properly too.

⚠ CAUTION:

It is extremely dangerous to ride in a cargo area, inside or outside of a vehicle. In a collision, people riding in these areas are more likely to be seriously injured or killed. Do not allow people to ride in any area of your vehicle that is not equipped with seats and safety belts. Be sure everyone in your vehicle is in a seat and using a safety belt properly.

Your vehicle has indicators to remind you and your passengers to buckle your safety belts. See *Safety Belt Reminder Light on page 218* and *Passenger Safety Belt Reminder Light on page 218*.

In most states and in all Canadian provinces, the law says to wear safety belts. Here is why: *They work*.

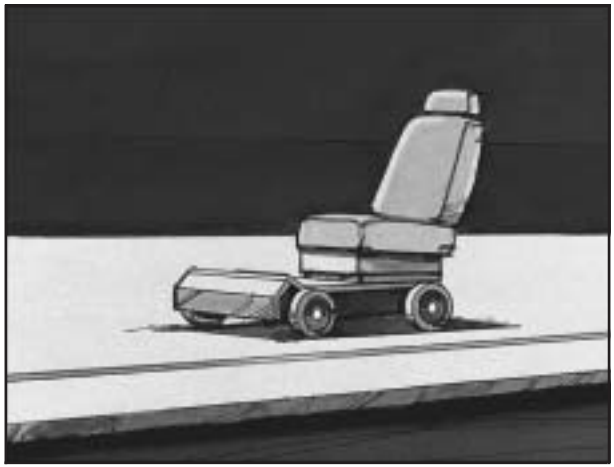
You never know if you will be in a crash. If you do have a crash, you do not know if it will be a bad one.

A few crashes are mild, and some crashes can be so serious that even buckled up, a person would not survive. But most crashes are in between. In many of them, people who buckle up can survive and sometimes walk away. Without belts they could have been badly hurt or killed.

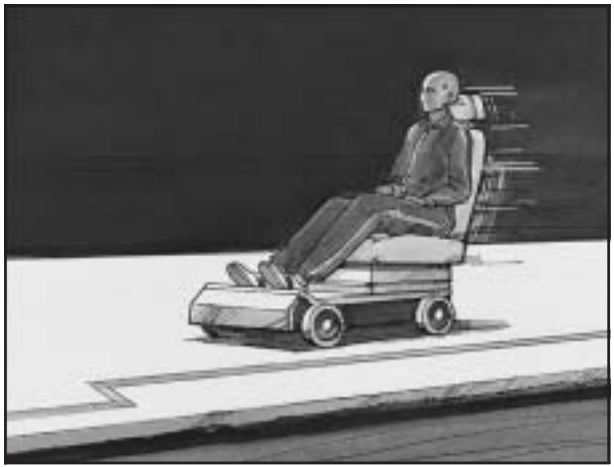
After more than 40 years of safety belts in vehicles, the facts are clear. In most crashes buckling up does matter... a lot!

Why Safety Belts Work

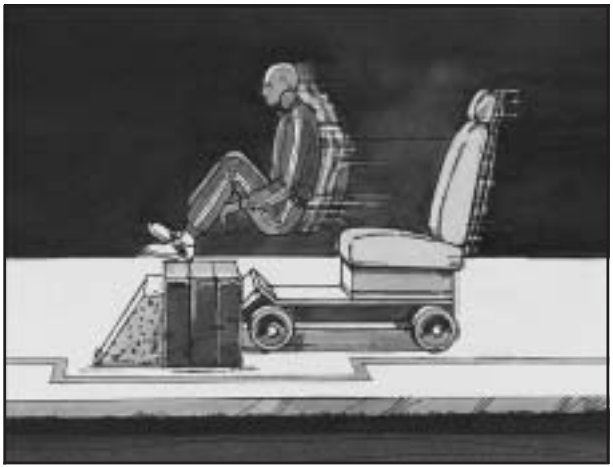
When you ride in or on anything, you go as fast as it goes.



Take the simplest vehicle. Suppose it is just a seat on wheels.

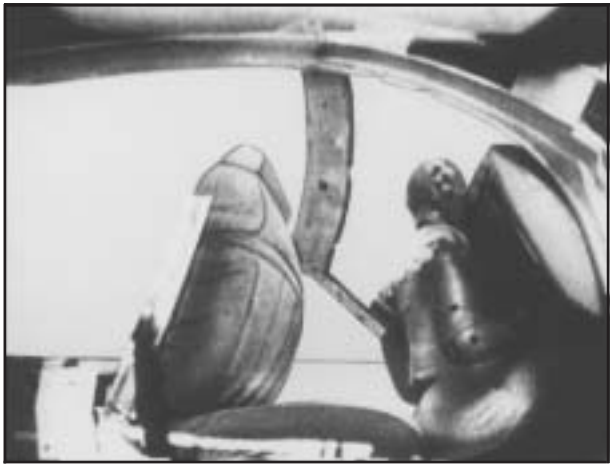


Put someone on it.



Get it up to speed. Then stop the vehicle.
The rider does not stop.

The person keeps going until stopped by something. In a real vehicle, it could be the windshield...



or the instrument panel...

or the safety belts!

With safety belts, you slow down as the vehicle does. You get more time to stop. You stop over more distance, and your strongest bones take the forces. That is why safety belts make such good sense.

Questions and Answers About Safety Belts

Q: Will I be trapped in the vehicle after an accident if I am wearing a safety belt?

A: You *could* be — whether you are wearing a safety belt or not. But you can unbuckle a safety belt, even if you are upside down. And your chance of being conscious during and after an accident, so you *can* unbuckle and get out, is *much* greater if you are belted.

Q: If my vehicle has airbags, why should I have to wear safety belts?

A: Airbags are supplemental systems only; so they work *with* safety belts — not instead of them. Every airbag system ever offered for sale has required the use of safety belts. Even if you are in a vehicle that has airbags, you still have to buckle up to get the most protection. That is true not only in frontal collisions, but especially in side and other collisions.

Q: If I am a good driver, and I never drive far from home, why should I wear safety belts?

A: You may be an excellent driver, but if you are in an accident — even one that is not your fault — you and your passengers can be hurt. Being a good driver does not protect you from things beyond your control, such as bad drivers.

Most accidents occur within 25 miles (40 km) of home. And the greatest number of serious injuries and deaths occur at speeds of less than 40 mph (65 km/h).

Safety belts are for everyone.

How to Wear Safety Belts Properly

This part is only for people of adult size.

Be aware that there are special things to know about safety belts and children. And there are different rules for smaller children and babies. If a child will be riding in your vehicle, see *Older Children on page 40* or *Infants and Young Children on page 43*. Follow those rules for everyone's protection.

First, you will want to know which restraint systems your vehicle has.

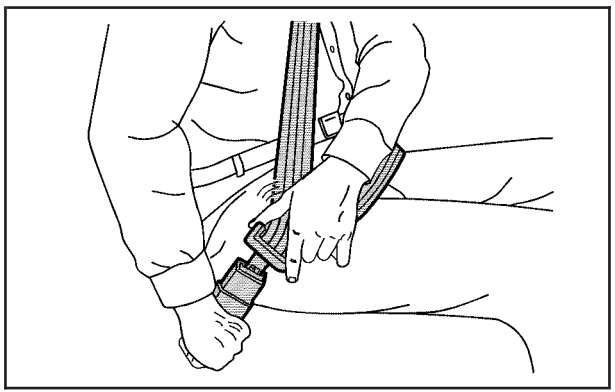
We will start with the driver position.

Driver Position

Lap-Shoulder Belt

The driver has a lap-shoulder belt. Here is how to wear it properly.

1. Close and lock the door.
2. Adjust the seat so you can sit up straight. To see how, see “Seats” in the Index.



3. Pick up the latch plate and pull the belt across you. Do not let it get twisted.

   The lap-shoulder belt may lock if you pull the belt across you very quickly. If this happens, let the belt go back slightly to unlock it. Then pull the belt across you more slowly.

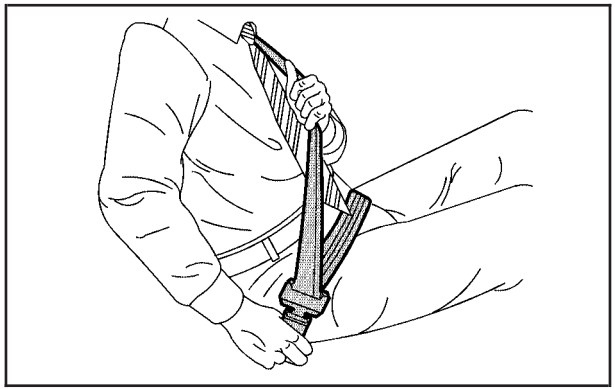
4. Push the latch plate into the buckle until it clicks.

   Be sure to use the correct buckle when buckling your lap-shoulder belt. If you find that the latch plate will not go fully into the buckle, see if you are using the buckle for the center passenger position.

   Pull up on the latch plate to make sure it is secure. If the belt is not long enough, see *Safety Belt Extender on page 39*.

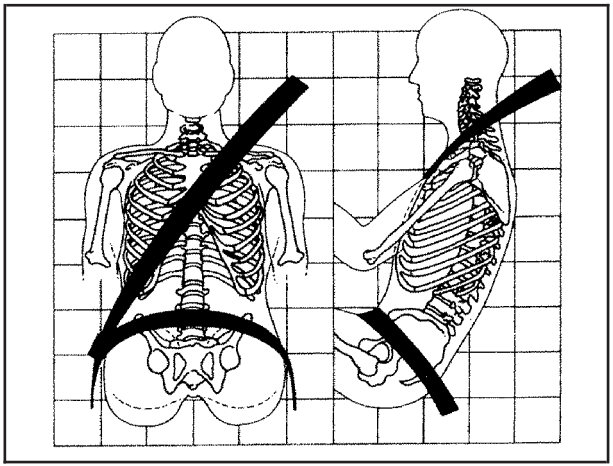
   Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.

5. Move the shoulder belt height adjuster to the height that is right for you. Improper shoulder belt height adjustment could reduce the effectiveness of the safety belt in a crash. See *Shoulder Belt Height Adjustment on page 31*.



6. To make the lap part tight, pull up on the shoulder belt.

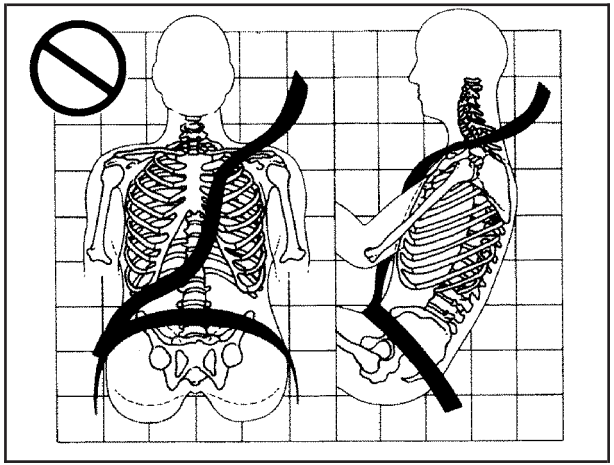
   It may be necessary to pull stitching on the safety belt through the latch plate to fully tighten the lap belt on smaller occupants.



The lap part of the belt should be worn low and snug on the hips, just touching the thighs. In a crash, this applies force to the strong pelvic bones. And you would be less likely to slide under the lap belt. If you slid under it, the belt would apply force at your abdomen. This could cause serious or even fatal injuries. The shoulder belt should go over the shoulder and across the chest. These parts of the body are best able to take belt restraining forces.

The safety belt locks if there is a sudden stop or crash.

Q: What is wrong with this?

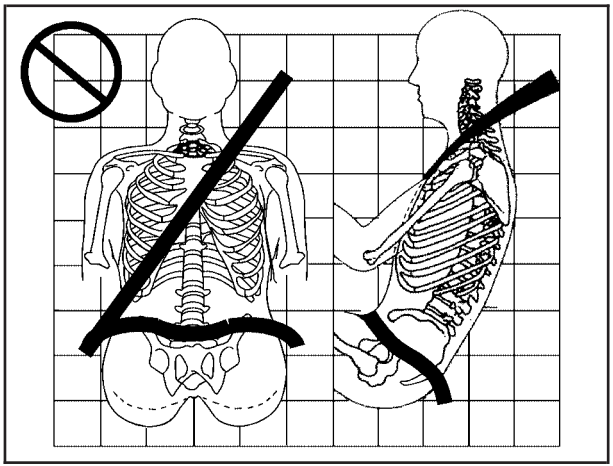


A: The shoulder belt is too loose. It will not give nearly as much protection this way.

⚠ CAUTION:

You can be seriously hurt if your shoulder belt is too loose. In a crash, you would move forward too much, which could increase injury. The shoulder belt should fit against your body.

Q: What is wrong with this?

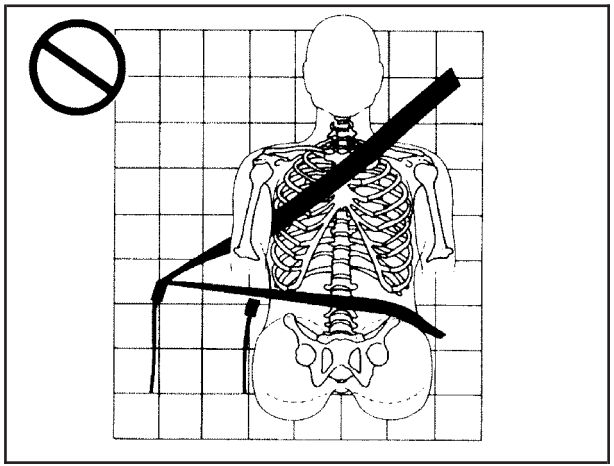


A: The lap belt is too loose. It will not give nearly as much protection this way.

⚠ CAUTION:

You can be seriously hurt if your lap belt is too loose. In a crash, you could slide under the lap belt and apply force at your abdomen. This could cause serious or even fatal injuries. The lap belt should be worn low and snug on the hips, just touching the thighs.

Q: What is wrong with this?

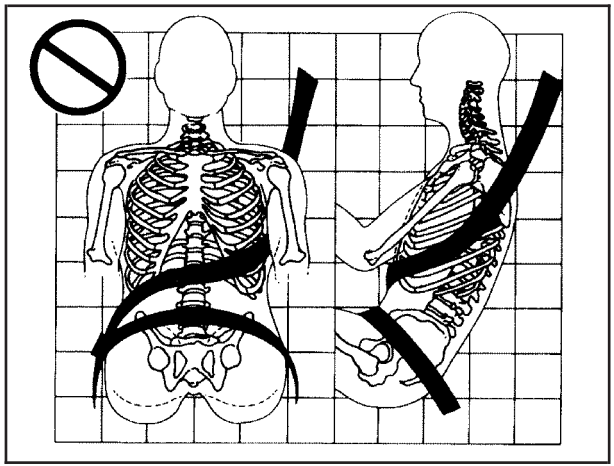


A: The belt is buckled in the wrong place.

⚠ CAUTION:

You can be seriously injured if your belt is buckled in the wrong place like this. In a crash, the belt would go up over your abdomen. The belt forces would be there, not at the pelvic bones. This could cause serious internal injuries. Always buckle your belt into the buckle nearest you.

Q: What is wrong with this?

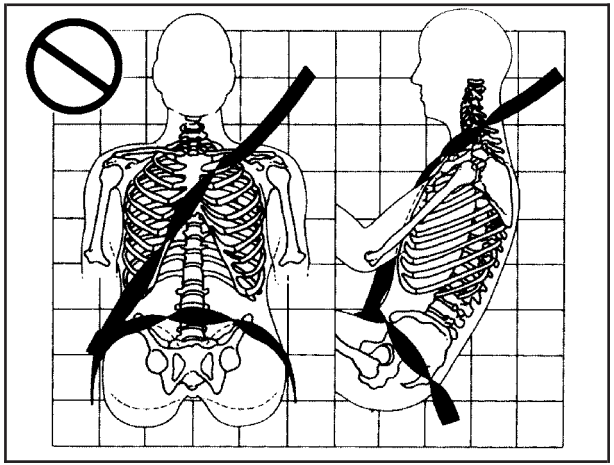


A: The shoulder belt is worn under the arm. It should be worn over the shoulder at all times.

⚠ CAUTION:

You can be seriously injured if you wear the shoulder belt under your arm. In a crash, your body would move too far forward, which would increase the chance of head and neck injury. Also, the belt would apply too much force to the ribs, which are not as strong as shoulder bones. You could also severely injure internal organs like your liver or spleen.

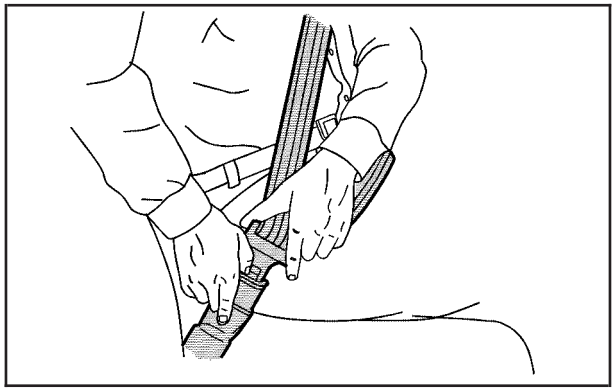
Q: What is wrong with this?



A: The belt is twisted across the body.

⚠ CAUTION:

You can be seriously injured by a twisted belt. In a crash, you would not have the full width of the belt to spread impact forces. If a belt is twisted, make it straight so it can work properly, or ask your dealer to fix it.



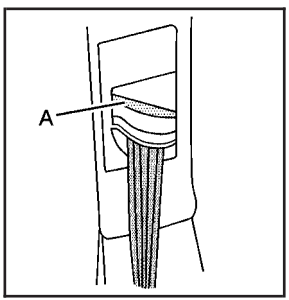
To unlatch the belt, push the button on the buckle. The belt should go back out of the way.

Before you close the door, be sure the belt is out of the way. If you slam the door on it, you can damage both the belt and your vehicle.

Shoulder Belt Height Adjustment

Before you begin to drive, move the shoulder belt height adjuster to the height that is right for you.

Adjust the height so that the shoulder portion of the belt is centered on your shoulder. The belt should be away from your face and neck, but not falling off your shoulder. Improper shoulder belt height adjustment could reduce the effectiveness of the safety belt in a crash.

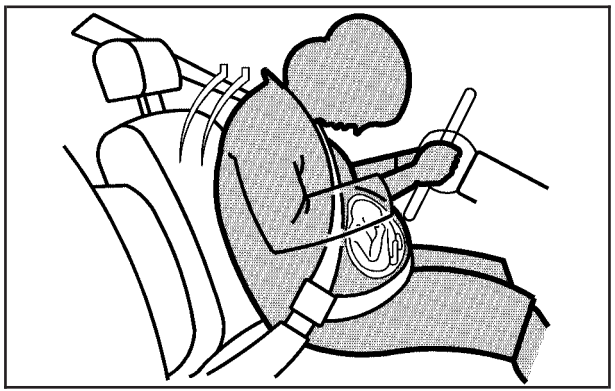


To move it down, press the release button (A) and move the height adjuster to the desired position. You can move the height adjuster up just by pushing up on the shoulder belt guide.

After you move the height adjuster to where you want it, try to move it down without pressing the release button to make sure it has locked into position.

Safety Belt Use During Pregnancy

Safety belts work for everyone, including pregnant women. Like all occupants, they are more likely to be seriously injured if they do not wear safety belts.



A pregnant woman should wear a lap-shoulder belt, and the lap portion should be worn as low as possible, below the rounding, throughout the pregnancy.

The best way to protect the fetus is to protect the mother. When a safety belt is worn properly, it is more likely that the fetus will not be hurt in a crash. For pregnant women, as for anyone, the key to making safety belts effective is wearing them properly.

Right Front Passenger Position

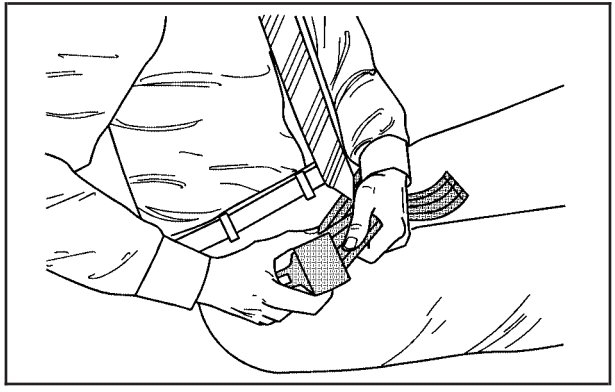
To learn how to wear the right front passenger's safety belt properly, see *Driver Position on page 24*.

The right front passenger's safety belt works the same way as the driver's safety belt — except for one thing. If you ever pull the shoulder portion of the belt out all the way, you will engage the child restraint locking feature. If this happens, let the belt go back all the way and start again.

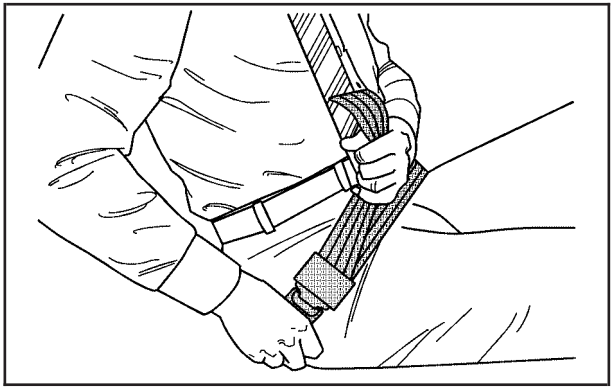
Center Front Passenger Position

Lap Belt

If your vehicle has a front bench seat, someone can sit in the center position.



When you sit in the center front seating position, you have a lap safety belt, which has no retractor. To make the belt longer, tilt the latch plate and pull it along the belt.



To make the belt shorter, pull its free end as shown until the belt is snug.

Buckle, position and release it the same way as the lap part of a lap-shoulder belt. If the belt is not long enough, see *Safety Belt Extender on page 39*.

Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.

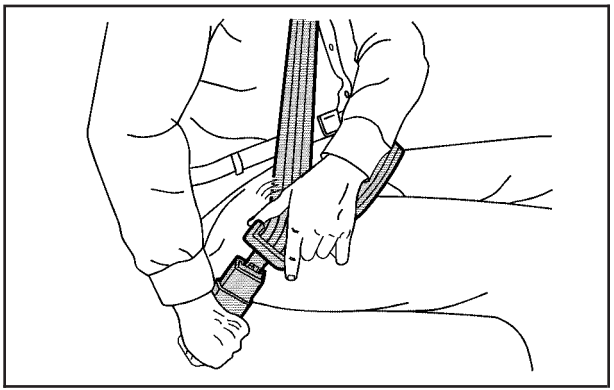
Rear Seat Passengers

It is very important for rear seat passengers to buckle up! Accident statistics show that unbelted people in the rear seat are hurt more often in crashes than those who are wearing safety belts.

Rear passengers who are not safety belted can be thrown out of the vehicle in a crash. And they can strike others in the vehicle who are wearing safety belts.

Lap-Shoulder Belt

All rear seating positions have lap-shoulder belts. Here is how to wear one properly.



1. Pick up the latch plate and pull the belt across you. Do not let it get twisted.

   The shoulder belt may lock if you pull the belt across you very quickly. If this happens, let the belt go back slightly to unlock it. Then pull the belt across you more slowly.

2. Push the latch plate into the buckle until it clicks.

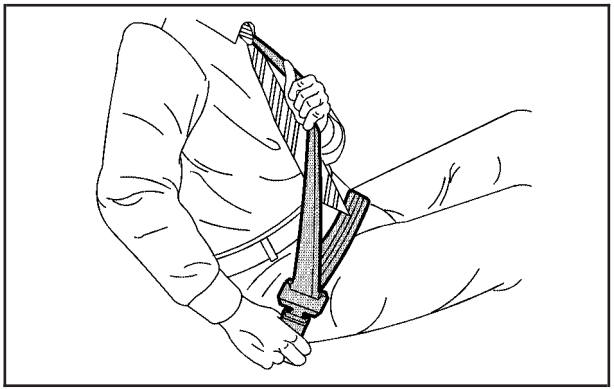
The latch plates for the safety belts in each rear seating position vary in size. If the center rear or the left rear latch plate is inserted into the incorrect buckle, the plate will not latch properly. Be sure you are using the correct buckle and that the latch plate clicks when inserted into the buckle.

When the shoulder belt is pulled out all the way, it will lock. If it does, let it go back and start again.

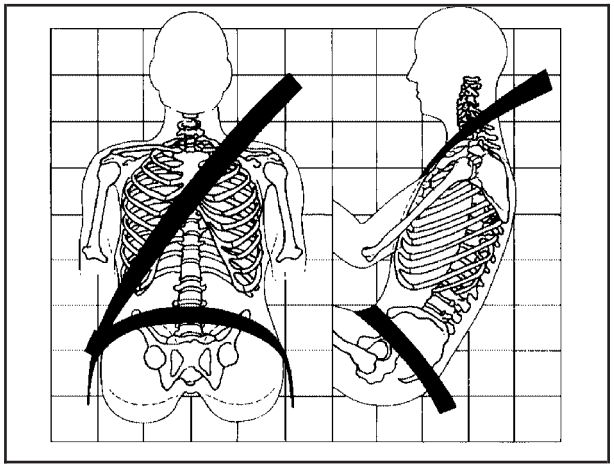
Pull up on the latch plate to make sure it is secure.

If the belt is not long enough, see *Safety Belt Extender on page 39*.

Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.



3. To make the lap part tight, pull up on the shoulder part.

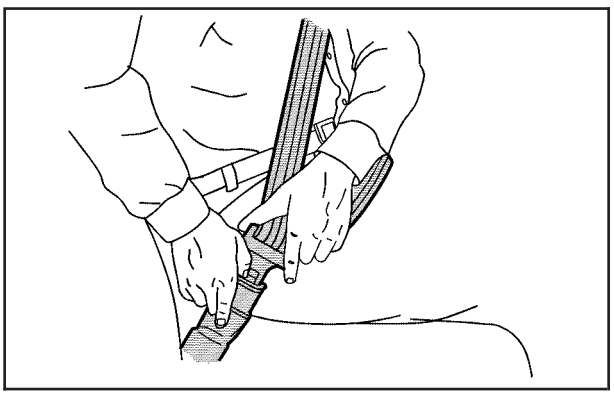


The lap part of the belt should be worn low and snug on the hips, just touching the thighs. In a crash, this applies force to the pelvic bones. And you would be less likely to slide under the lap belt. If you slid under it, the belt would apply force at your abdomen. This could cause serious or even fatal injuries. The shoulder belt should go over the shoulder and across the chest. These parts of the body are best able to take belt restraining forces.

The safety belt locks if there is a sudden stop or a crash.

⚠ CAUTION:

You can be seriously hurt if your shoulder belt is too loose. In a crash, you would move forward too much, which could increase injury. The shoulder belt should fit against your body.



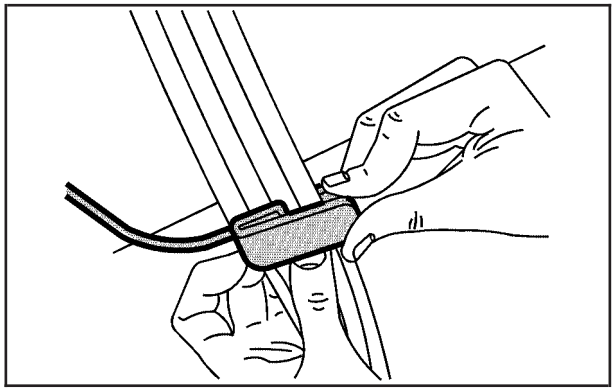
To unlatch the belt, just push the button on the buckle.

Rear Safety Belt Comfort Guides

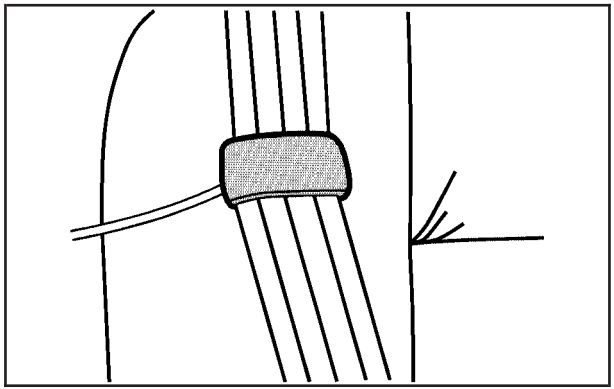
Rear shoulder belt comfort guides may provide added safety belt comfort for older children who have outgrown booster seats and for small adults. When installed on a shoulder belt, the comfort guide better positions the belt away from the neck and head.

There is one guide for each outside passenger position in the rear seat. Here is how to install a comfort guide to the safety belt:

1. Remove the guide from its storage pocket on the side of the seatback.



2. Slide the guide under and past the belt. The elastic cord must be under the belt. Then, place the guide over the belt, and insert the two edges of the belt into the slots of the guide.



3. Be sure that the belt is not twisted and it lies flat. The elastic cord must be under the belt and the guide on top.

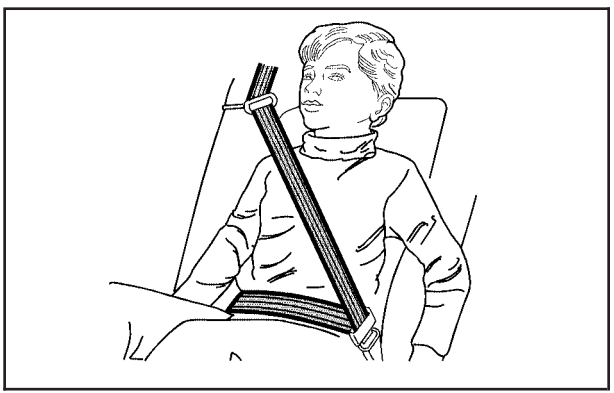
⚠ CAUTION:

A safety belt that is not properly worn may not provide the protection needed in a crash. The person wearing the belt could

CAUTION: (Continued)

CAUTION: (Continued)

be seriously injured. The shoulder belt should go over the shoulder and across the chest. These parts of the body are best able to take belt restraining forces.



4. Buckle, position, and release the safety belt as described in *Rear Seat Passengers on page 34*. Make sure that the shoulder belt crosses the shoulder.

To remove and store the comfort guide, squeeze the belt edges together so that you can take them out of the guide. Slide the guide into its storage pocket on the top of the seatback.

Safety Belt Pretensioners

Your vehicle has safety belt pretensioners for the driver and right front passenger. Although you cannot see them, they are part of the safety belt assembly. They help tighten the safety belts during the early stages of a moderate to severe frontal and near frontal crash if the threshold conditions for pretensioner activation are met. And, if your vehicle has side impact airbags, safety belt pretensioners can help tighten the safety belts in a side crash.

Pretensioners work only once. If they activate in a crash, you will need to get new ones, and probably other new parts for your safety belt system. See *Replacing Restraint System Parts After a Crash on page 85*.

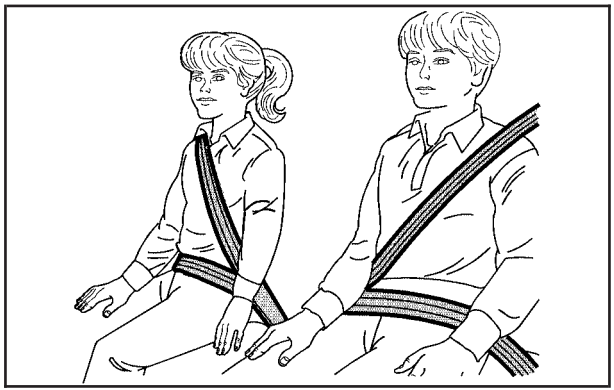
Safety Belt Extender

If the vehicle's safety belt will fasten around you, you should use it.

But if a safety belt is not long enough, your dealer will order you an extender. When you go in to order it, take the heaviest coat you will wear, so the extender will be long enough for you. To help avoid personal injury, do not let someone else use it, and use it only for the seat it is made to fit. The extender has been designed for adults. Never use it for securing child seats. To wear it, just attach it to the regular safety belt. For more information see the instruction sheet that comes with the extender.

Child Restraints

Older Children



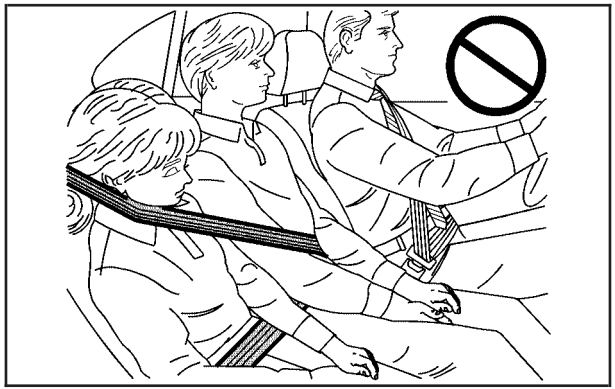
Older children who have outgrown booster seats should wear the vehicle's safety belts.

Q: What is the proper way to wear safety belts?

A: An older child should wear a lap-shoulder belt and get the additional restraint a shoulder belt can provide. The shoulder belt should not cross the face or neck. The lap belt should fit snugly below the hips, just touching the top of the thighs. It should never be worn over the abdomen, which could cause severe or even fatal internal injuries in a crash.

According to accident statistics, children are safer when properly restrained in the rear seating positions than in the front seating positions.

In a crash, children who are not buckled up can strike other people who are buckled up, or can be thrown out of the vehicle. Older children need to use safety belts properly.



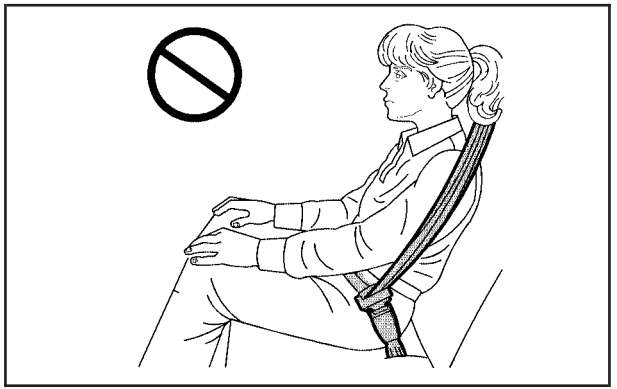
⚠ CAUTION:

Never do this.

Here two children are wearing the same belt. The belt can not properly spread the impact forces. In a crash, the two children can be crushed together and seriously injured. A belt must be used by only one person at a time.

Q: What if a child is wearing a lap-shoulder belt, but the child is so small that the shoulder belt is very close to the child's face or neck?

A: If the child is sitting in a seat next to a window, move the child toward the center of the vehicle. Also see *Rear Safety Belt Comfort Guides on page 37*. If the child is sitting in the center rear seat passenger position, move the child toward the safety belt buckle. In either case, be sure that the shoulder belt still is on the child's shoulder, so that in a crash the child's upper body would have the restraint that belts provide.



⚠ CAUTION:

Never do this.

Here a child is sitting in a seat that has a lap-shoulder belt, but the shoulder part is behind the child. If the child wears the belt in this way, in a crash the child might slide under the belt. The belt's force would then be applied right on the child's abdomen. That could cause serious or fatal injuries.

Wherever the child sits, the lap portion of the belt should be worn low and snug on the hips, just touching the child's thighs. This applies belt force to the child's pelvic bones in a crash.

Infants and Young Children

Everyone in a vehicle needs protection! This includes infants and all other children. Neither the distance traveled nor the age and size of the traveler changes the need, for everyone, to use safety restraints. In fact, the law in every state in the United States and in every Canadian province says children up to some age must be restrained while in a vehicle.

⚠ CAUTION:

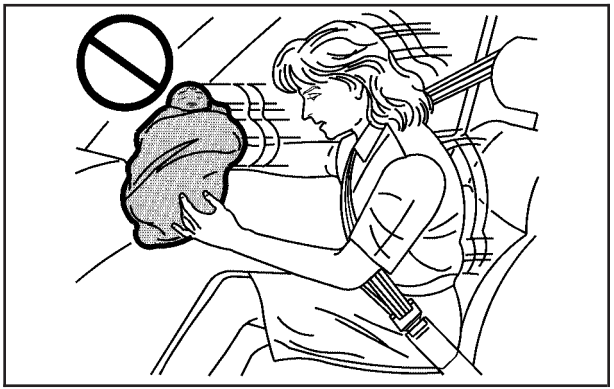
Children can be seriously injured or strangled if a shoulder belt is wrapped around their neck and the safety belt continues to tighten. Never leave children unattended in a vehicle and never allow children to play with the safety belts.

Every time infants and young children ride in vehicles, they should have the protection provided by appropriate restraints.

Young children should not use the vehicle's adult safety belts alone, unless there is no other choice. Instead, they need to use a child restraint.

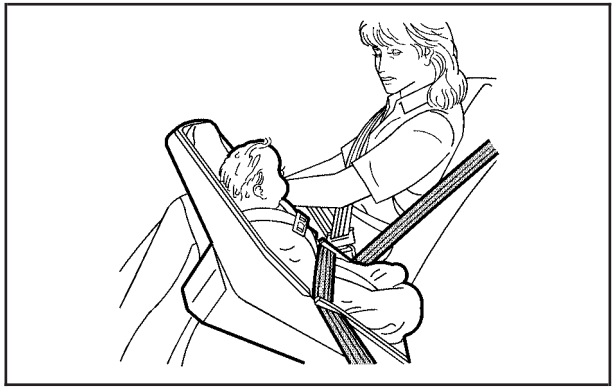
⚠ CAUTION:

People should never hold a baby in their arms while riding in a vehicle. A baby does not weigh much — until a crash. During a crash a baby will become so heavy it is not possible to hold it. For example, in a crash at only 25 mph (40 km/h), a 12 lb (5.5 kg) baby will suddenly become a 240 lb (110 kg) force on a person's arms. A baby should be secured in an appropriate restraint.



⚠ CAUTION:

Children who are up against, or very close to, any airbag when it inflates can be seriously injured or killed. Airbags plus lap-shoulder belts offer protection for adults and older children, but not for young children and infants. Neither the vehicle's safety belt system nor its airbag system is designed for them. Young children and infants need the protection that a child restraint system can provide.



Q: What are the different types of add-on child restraints?

A: Add-on child restraints, which are purchased by the vehicle's owner, are available in four basic types. Selection of a particular restraint should take into consideration not only the child's weight, height, and age but also whether or not the restraint will be compatible with the motor vehicle in which it will be used.

For most basic types of child restraints, there are many different models available. When purchasing a child restraint, be sure it is designed to be used in a motor vehicle. If it is, the restraint will have a label saying that it meets federal motor vehicle safety standards.

The restraint manufacturer's instructions that come with the restraint state the weight and height limitations for a particular child restraint. In addition, there are many kinds of restraints available for children with special needs.

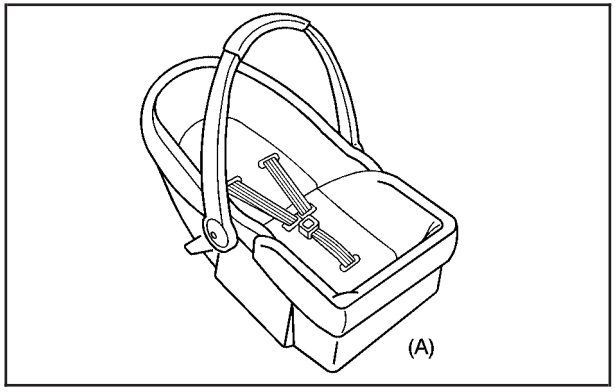
⚠ CAUTION:

Newborn infants need complete support, including support for the head and neck. This is necessary because a newborn infant's neck is weak and its head weighs so much compared with the rest of its body. In a crash, an infant in a rear-facing seat settles into the restraint, so the crash forces can be distributed across the strongest part of an infant's body, the back and shoulders. Infants always should be secured in appropriate infant restraints.

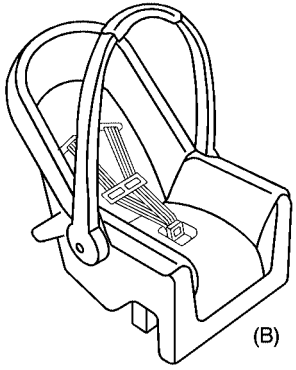
⚠ CAUTION:

The body structure of a young child is quite unlike that of an adult or older child, for whom the safety belts are designed. A young child's hip bones are still so small that the vehicle's regular safety belt may not remain low on the hip bones, as it should. Instead, it may settle up around the child's abdomen. In a crash, the belt would apply force on a body area that is unprotected by any bony structure. This alone could cause serious or fatal injuries. Young children always should be secured in appropriate child restraints.

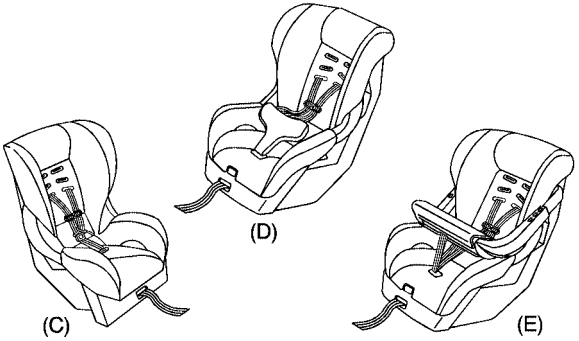
Child Restraint Systems



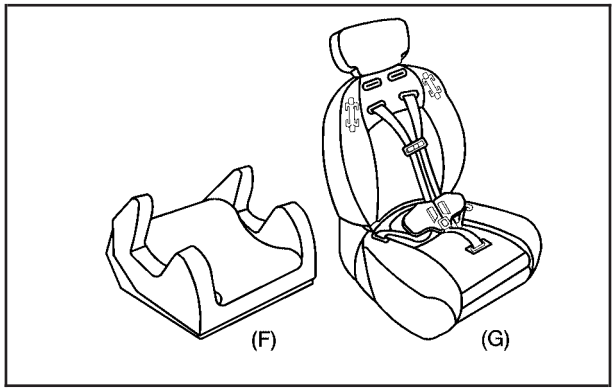
An infant car bed (A), a special bed made for use in a motor vehicle, is an infant restraint system designed to restrain or position a child on a continuous flat surface. Make sure that the infant's head rests toward the center of the vehicle.



A rear-facing infant seat (B) provides restraint with the seating surface against the back of the infant. The harness system holds the infant in place and, in a crash, acts to keep the infant positioned in the restraint.



A forward-facing child seat (C-E) provides restraint for the child's body with the harness and also sometimes with surfaces such as T-shaped or shelf-like shields.



A booster seat (F-G) is a child restraint designed to improve the fit of the vehicle's safety belt system. Some booster seats have a shoulder belt positioner, and some high-back booster seats have a five-point harness. A booster seat can also help a child to see out the window.

Q: How Should I Use a Child Restraint?

A: A child restraint system is any device designed for use in a motor vehicle to restrain, seat, or position children. A built-in child restraint system is a permanent part of the motor vehicle. An add-on child restraint system is a portable one, which is purchased by the vehicle's owner. To help reduce injuries, an add-on child restraint must be secured in the vehicle. With built-in or add-on child restraints, the child has to be secured within the child restraint.

When choosing an add-on child restraint, be sure the child restraint is designed to be used in a vehicle. If it is, it will have a label saying that it meets federal motor vehicle safety standards. Then follow the instructions for the restraint. You may find these instructions on the restraint itself or in a booklet, or both.

Securing an Add-on Child Restraint in the Vehicle

⚠ CAUTION:

A child can be seriously injured or killed in a crash if the child restraint is not properly secured in the vehicle. Make sure the child restraint is properly installed in the vehicle using the vehicle's safety belt or LATCH system, following the instructions that came with that restraint, and also the instructions in this manual.

To help reduce the chance of injury, the child restraint must be secured in the vehicle. Child restraint systems must be secured in vehicle seats by lap belts or the lap belt portion of a lap-shoulder belt, or by the LATCH system. See *Lower Anchors and Tethers for Children (LATCH) on page 53* for more information. A child can be endangered in a crash if the child restraint is not properly secured in the vehicle.

When securing an add-on child restraint, refer to the instructions that come with the restraint which may be on the restraint itself or in a booklet, or both, and to this manual. The child restraint instructions are important, so if they are not available, obtain a replacement copy from the manufacturer.

Keep in mind that an unsecured child restraint can move around in a collision or sudden stop and injure people in the vehicle. Be sure to properly secure any child restraint in your vehicle — even when no child is in it.

Securing the Child Within the Child Restraint

There are several systems for securing the child within the child restraint. One system, the three-point harness, has straps that come down over each of the infant's shoulders and buckle together at the crotch. The five-point harness system has two shoulder straps, two hip straps, and a crotch strap. A shield may take the place of hip straps. A T-shaped shield has shoulder straps that are attached to a flat pad which rests low against the child's body. A shelf- or armrest-type shield has straps that are attached to a wide, shelf-like shield that swings up or to the side.

⚠ CAUTION:

A child can be seriously injured or killed in a crash if the child is not properly secured in the child restraint. Make sure the child is properly secured, following the instructions that came with that restraint.

Because there are different systems, it is important to refer to the instructions that come with the restraint. A child can be endangered in a crash if the child is not properly secured in the child restraint.

Where to Put the Restraint

Accident statistics show that children are safer if they are restrained in the rear rather than the front seat. We, therefore, recommend that child restraints be secured in a rear seat, including an infant riding in a rear-facing infant seat, a child riding in a forward-facing child seat and an older child riding in a booster seat.

Your vehicle has a rear seat that will accommodate a rear-facing child restraint. A label on your sun visor says, “Never put a rear-facing child seat in the front.” This is because the risk to the rear-facing child is so great, if the airbag deploys.

⚠ CAUTION:

A child in a rear-facing child restraint can be seriously injured or killed if the right front passenger’s airbag inflates. This is because the back of the rear-facing child restraint would be very close to the inflating airbag.

Even though the passenger sensing system is designed to turn off the right front passenger’s frontal and seat-mounted side impact airbag if the system detects a rear-facing child restraint, no system is fail-safe, and no one can guarantee that an airbag will not deploy under some unusual circumstance, even though it is turned off.

CAUTION: (Continued)

CAUTION: (Continued)

We recommend that rear-facing child restraints be secured in the rear seat, even if the airbags are off.

If you need to secure a forward-facing child restraint in the right front seat, always move the front passenger seat as far back as it will go. It is better to secure the child restraint in a rear seat.

⚠ CAUTION:

A child in a child restraint in the center front seat can be badly injured or killed by the right front passenger’s airbag if it inflates. Never secure a child restraint in the center front seat. It is always better to secure a child restraint in the rear seat.

Wherever you install a child restraint, be sure to secure the child restraint properly.

Keep in mind that an unsecured child restraint can move around in a collision or sudden stop and injure people in the vehicle. Be sure to properly secure any child restraint in your vehicle — even when no child is in it.

Lower Anchors and Tethers for Children (LATCH)

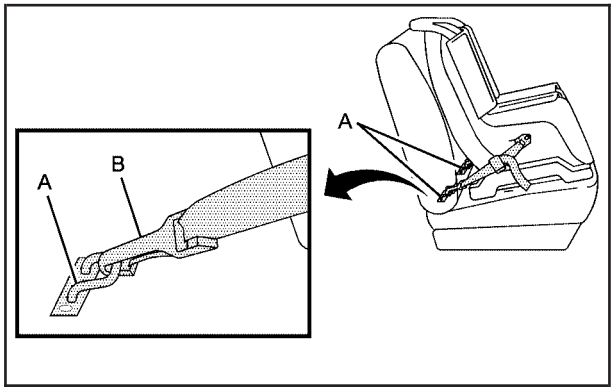
The LATCH system holds a child restraint during driving or in a crash. This system is designed to make installation of a child restraint easier. The LATCH system uses anchors in the vehicle and attachments on the child restraint that are made for use with the LATCH system.

Make sure that a LATCH-compatible child restraint is properly installed using the anchors, or use the vehicle's safety belts to secure the restraint, following the instructions that came with that restraint, and also the instructions in this manual. When installing a child restraint with a top tether, you must also use either the lower anchors or the safety belts to properly secure the child restraint. A child restraint must never be installed using only the top tether and anchor.

In order to use the LATCH system in your vehicle, you need a child restraint that has LATCH attachments. The child restraint manufacturer will provide you with instructions on how to use the child restraint and its attachments. The following explains how to attach a child restraint with these attachments in your vehicle.

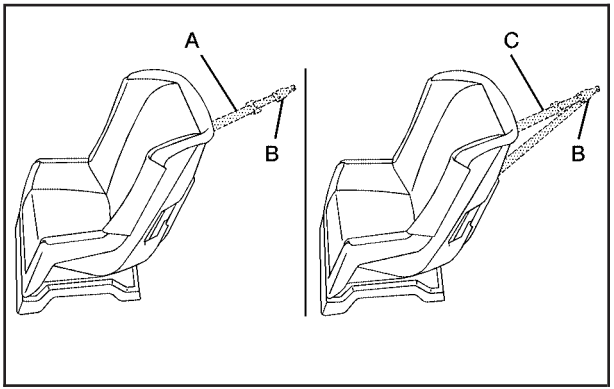
Not all vehicle seating positions or child restraints have lower anchors and attachments or top tether anchors and attachments.

Lower Anchors



Lower anchors (A) are metal bars built into the vehicle. There are two lower anchors for each LATCH seating position that will accommodate a child restraint with lower attachments (B).

Top Tether Anchor



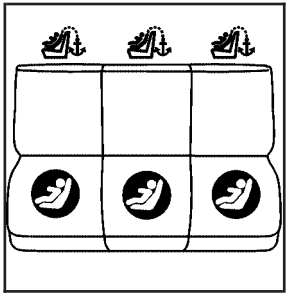
A top tether (A, C) anchors the top of the child restraint to the vehicle. A top tether anchor is built into the vehicle. The top tether attachment (B) on the child restraint connects to the top tether anchor in the vehicle in order to reduce the forward movement and rotation of the child restraint during driving or in a crash.

Your child restraint may have a single tether (A) or a dual tether (C). Either will have a single attachment (B) to secure the top tether to the anchor.

Some child restraints that have top tethers are designed for use with or without the top tether being attached. Others require the top tether always to be attached. In Canada, the law requires that forward-facing child restraints have a top tether, and that the tether be attached. In the United States, some child restraints also have a top tether. Be sure to read and follow the instructions for your child restraint.

If the child restraint does not have a top tether, one can be obtained, in kit form, for many child restraints. Ask the child restraint manufacturer whether or not a kit is available.

Lower Anchor and Top Tether Anchor Locations

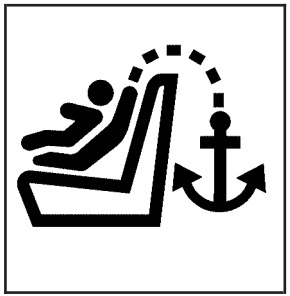


Rear Seat

(Top Tether Anchor): Seating positions with top tether anchors.

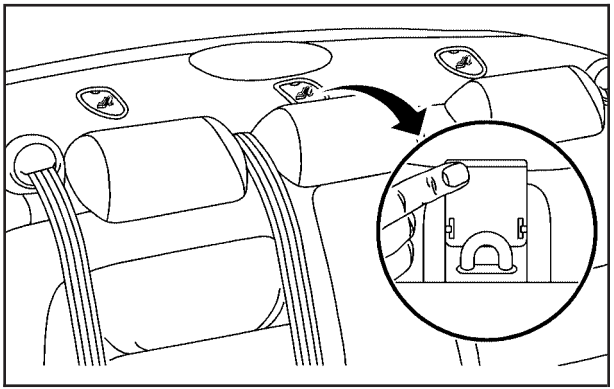
(Lower Anchor): Seating positions with two lower anchors.

To assist you in locating the lower anchors, each seating position with lower anchors has two labels, near the crease between the seatback and the seat cushion.



To assist you in locating the top tether anchors, the top tether anchor symbol is located on the trim cover.

The top tether anchors are located under the trim covers on the rear seatback filler panel. Pull open the trim cover to access the anchors. Be sure to use an anchor located on the same side of the vehicle as the seating position where the child restraint will be placed.



Do not secure a child restraint in the right front passenger's position if a national or local law requires that the top tether be attached, or if the instructions that come with the child restraint say that the top tether must be attached. There is no place to attach the top tether in this position.

Accident statistics show that children are safer if they are restrained in the rear rather than the front seat. See *Where to Put the Restraint on page 51* for additional information.

Securing a Child Restraint Designed for the LATCH System

⚠ CAUTION:

If a LATCH-type child restraint is not attached to anchors, the restraint will not be able to protect the child correctly. In a crash, the child could be seriously injured or killed. Make sure that a LATCH-type child restraint is properly installed using the anchors, or use the vehicle's safety belts to secure the restraint, following the instructions that came with that restraint, and also the instructions in this manual.

⚠ CAUTION:

Each top tether anchor and lower anchor in the vehicle is designed to hold only one child restraint. Attaching more than one child restraint to a single anchor could cause the anchor or attachment to come loose or even break during a crash. A child or others could be injured if this happens. To help prevent injury to people and damage to your vehicle, attach only one child restraint per anchor.

⚠ CAUTION:

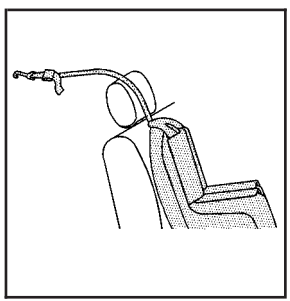
Children can be seriously injured or strangled if a shoulder belt is wrapped around their neck and the safety belt continues to tighten. Secure any unused safety belts behind the child restraint so children cannot reach them. Pull the shoulder belt all the way out of the retractor to set the lock, if your vehicle has one, after the child restraint has been installed. Be sure to follow the instructions of the child restraint manufacturer.

Notice: **Contact between the child restraint or the LATCH attachment parts and the vehicle's safety belt assembly may cause damage to these parts. Make sure when securing unused safety belts behind the child restraint that there is no contact between the child restraint or the LATCH attachment parts and the vehicle's safety belt assembly.**

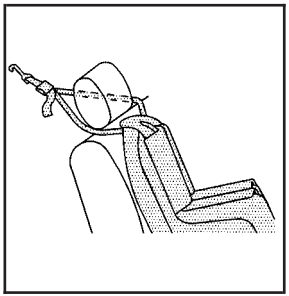
Folding an empty rear seat with the safety belts secured may cause damage to the safety belt or the seat. When removing the child restraint, always remember to return the safety belts to their normal, stowed position before folding the rear seat.

1. Attach and tighten the lower attachments to the lower anchors. If the child restraint does not have lower attachments or the desired seating position does not have lower anchors, secure the child restraint with the top tether and the safety belts. Refer to your child restraint manufacturer instructions and the instructions in this manual.
   1.1. Find the lower anchors for the desired seating position.
   1.2. Put the child restraint on the seat.
   1.3. Attach and tighten the lower attachments on the child restraint to the lower anchors.

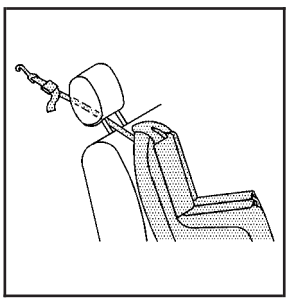
2. If the child restraint manufacturer recommends that the top tether be attached, attach and tighten the top tether to the top tether anchor, if equipped. Refer to the child restraint instructions and the following steps:
   2.1. Find the top tether anchor.
   2.2. Pull open the top tether anchor trim cover to expose the anchor.
   2.3. If you have an adjustable head restraint, raise the head restraint.
   2.4. Route, attach and tighten the top tether according to your child restraint instructions and the following instructions:



If the position you are using has a fixed head restraint and you are using a single tether, route the tether over the head restraint.



If the position you are using has a fixed or adjustable head restraint and you are using a dual tether, route the tether around the head restraint.



If the position you are using has an adjustable head restraint and you are using a single tether, route the tether under the head restraint and in between the head restraint posts.

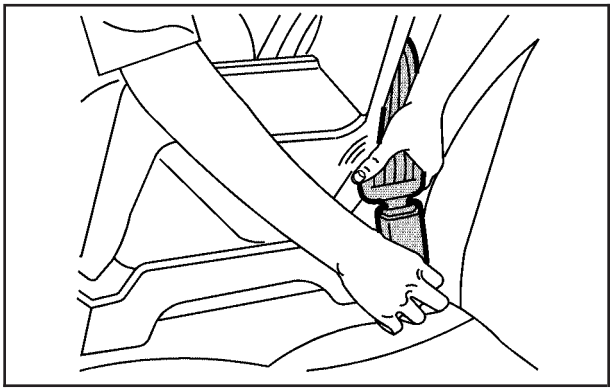
3. Push and pull the child restraint in different directions to be sure it is secure.

Securing a Child Restraint in a Rear Seat Position

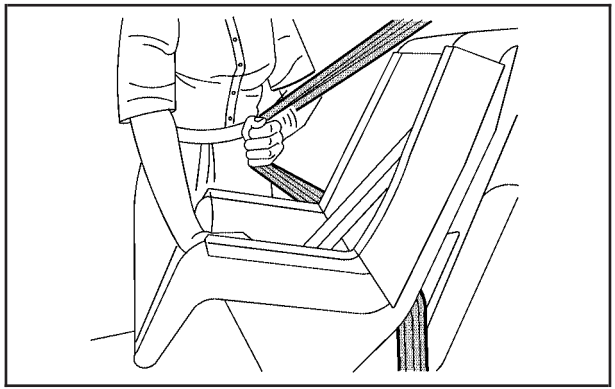
If your child restraint has the LATCH system, see *Lower Anchors and Tethers for Children (LATCH) on page 53*.

If your child restraint does not have the LATCH system, you will be using the lap-shoulder belt to secure the child restraint in this position. Be sure to follow the instructions that came with the child restraint. Secure the child in the child restraint when and as the instructions say.

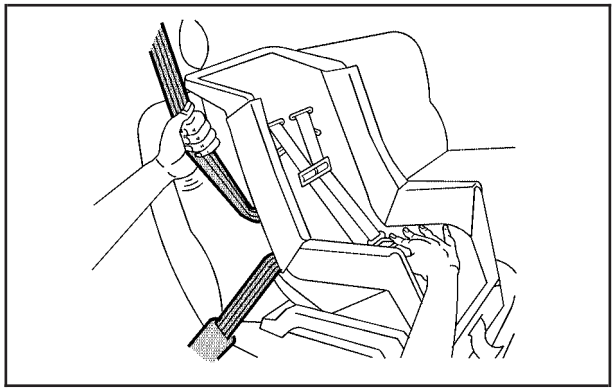
1. Put the child restraint on the seat.
2. Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint. The child restraint instructions will show you how.



3. Buckle the belt. Make sure the release button is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.



4. Pull the rest of the shoulder belt all the way out of the retractor to set the lock.



5. To tighten the belt, push down on the child restraint, pull the shoulder portion of the belt to tighten the lap portion of the belt, and feed the shoulder belt back into the retractor. If you are using a forward-facing child restraint, you may find it helpful to use your knee to push down on the child restraint as you tighten the belt.
6. If your child restraint manufacturer recommends using a top tether, attach and tighten the top tether to the top tether anchor. Refer to the instructions that came with the child restraint and see *Lower Anchors and Tethers for Children (LATCH) on page 53*.

7. Push and pull the child restraint in different directions to be sure it is secure.

To remove the child restraint, if the top tether is attached to the top tether anchor, disconnect it. Unbuckle the vehicle's safety belt and let it go back all the way. The safety belt will move freely again and be ready to work for an adult or larger child passenger.

Securing a Child Restraint in the Center Front Seat Position

⚠ CAUTION:

A child in a child restraint in the center front seat can be badly injured or killed by the right front passenger's airbag if it inflates. Never secure a child restraint in the center front seat. It is always better to secure a child restraint in the rear seat.

Do not secure a child restraint in the center front seat position.

Securing a Child Restraint in the Right Front Seat Position

Your vehicle has a right front passenger's airbag. A rear seat is a safer place to secure a forward-facing child restraint. See *Where to Put the Restraint on page 51*.

In addition, your vehicle has a passenger sensing system. The passenger sensing system is designed to turn off the right front passenger's frontal airbag when an infant in a rear-facing infant seat or a small child in a forward-facing child restraint or booster seat is detected. See *Passenger Sensing System on page 77* and *Passenger Airbag Status Indicator on page 220* for more information on this including important safety information.

A label on your sun visor says, "Never put a rear-facing child seat in the front." This is because the risk to the rear-facing child is so great, if the airbag deploys.

⚠ CAUTION:

A child in a rear-facing child restraint can be seriously injured or killed if the right front passenger's airbag inflates. This is because the back of the rear-facing child restraint would be very close to the inflating airbag.

Even though the passenger sensing system is designed to turn off the right front passenger's frontal and seat-mounted side impact airbag if the system detects a rear-facing child restraint, no system is fail-safe, and no one can guarantee that an airbag will not deploy under some unusual circumstance, even though it is turned off. We recommend that rear-facing child restraints be secured in the rear seat, even if the airbags are off.

CAUTION: (Continued)

CAUTION: (Continued)

If you need to secure a forward-facing child restraint in the right front seat, always move the front passenger seat as far back as it will go. It is better to secure the child restraint in a rear seat.

If you need to secure a forward-facing child restraint in the right front seat position, move the seat as far back as it will go before securing the forward-facing child restraint. See *Power Seats on page 9*.

If your child restraint is equipped with the LATCH system, see *Lower Anchors and Tethers for Children (LATCH) on page 53*.

There is no top tether anchor at the right front seating position. Do not secure a child seat in this position if a national or local law requires that the top tether be anchored or if the instructions that come with the child restraint say that the top tether must be anchored. See *Lower Anchors and Tethers for Children (LATCH) on page 53* if the child restraint has a top tether.

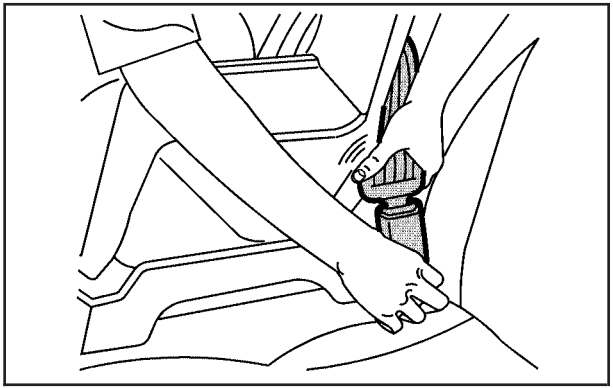
You will be using the lap-shoulder belt to secure the child restraint in this position. Be sure to follow the instructions that came with the child restraint. Secure the child in the child restraint when and as the instructions say.

1. Your vehicle has a right front passenger's frontal airbag. See *Passenger Sensing System on page 77*. We recommend that rear-facing child restraints be secured in a rear seat, even if the airbag is off. If your child restraint is forward-facing, move the seat as far back as it will go before securing the child restraint in this seat. See *Power Seats on page 9*.

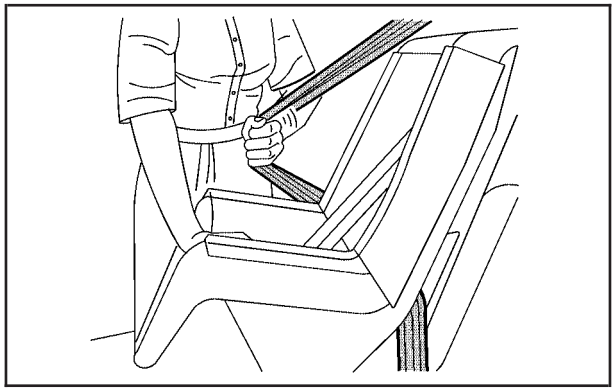
   When the passenger sensing system has turned off the right front passenger's frontal airbag, the off indicator on the passenger airbag status indicator should light and stay lit when you turn the ignition to RUN or START. See *Passenger Airbag Status Indicator on page 220*.

2. Put the child restraint on the seat.

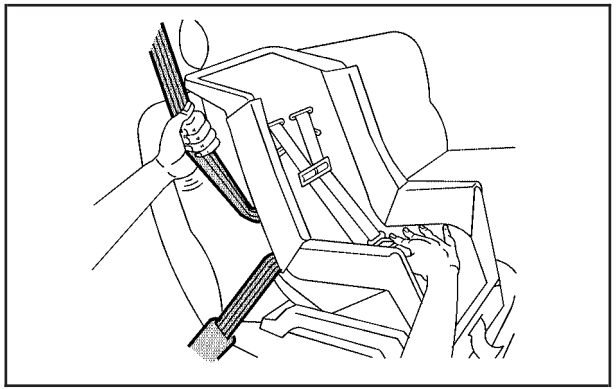
3. Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint. The child restraint instructions will show you how.



4. Buckle the belt. Make sure the release button is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.



5. Pull the rest of the shoulder belt all the way out of the retractor to set the lock.



6. To tighten the belt, push down on the child restraint, pull the shoulder portion of the belt to tighten the lap portion of the belt and feed the shoulder belt back into the retractor. If you are using a forward-facing child restraint, you may find it helpful to use your knee to push down on the child restraint as you tighten the belt. You should not be able to pull more of the belt from the retractor once the lock has been set.

7. Push and pull the child restraint in different directions to be sure it is secure.
8. If the airbag is off, the off indicator on the overhead console will be lit and stay lit when the key is turned to RUN or START.

If a child restraint has been installed and the on indicator is lit, turn the vehicle off. Remove the child restraint from the vehicle and reinstall the child restraint.

If, after reinstalling the child restraint and restarting the vehicle, the on indicator is still lit, check to make sure that the vehicle's seatback is not pressing the child restraint into the seat cushion. If this happens, slightly recline the vehicle's seatback and adjust the seat cushion if possible. Also make sure the child restraint is not trapped under the vehicle head restraint. If this happens, adjust the head restraint.

If the on indicator is still lit, secure the child in the child restraint in a rear seat position in the vehicle and check with your dealer.

To remove the child restraint, just unbuckle the vehicle's safety belt and let it go back all the way. The safety belt will move freely again and be ready to work for an adult or larger child passenger.

Airbag System

Your vehicle has the following airbags:

- A frontal airbag for the driver and another frontal airbag for the right front passenger, and
- A seat-mounted side impact airbag for the driver and another for the right front passenger.

Your vehicle may also have the following airbags:

- A roof-mounted side impact airbag for the driver and passenger directly behind the driver, and
- A roof-mounted side impact airbag for the right front passenger and the person seated directly behind that passenger.

Airbags are designed to supplement the protection provided by safety belts. Even though today's airbags are also designed to help reduce the risk of injury from the force of an inflating bag, all airbags must inflate very quickly to do their job.

Here are the most important things to know about the airbag system:

⚠ CAUTION:

You can be severely injured or killed in a crash if you are not wearing your safety belt — even if you have airbags. Wearing your safety belt during a crash helps reduce your chance of hitting things inside the vehicle or being ejected from it. Airbags are "supplemental restraints" to the safety belts. All airbags are designed to work with safety belts but do not replace them.

Frontal airbags for the driver and right front passenger are designed to deploy in moderate to severe frontal and near frontal crashes. They are not designed to inflate

CAUTION: (Continued)

CAUTION: (Continued)

in rollover, rear crashes, or in many side crashes. And, for some unrestrained occupants, frontal airbags may provide less protection in frontal crashes than more forceful airbags have provided in the past.

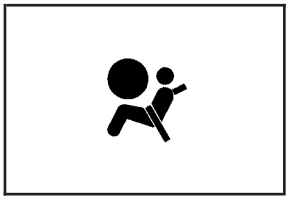
Seat-mounted side impact airbags and roof-mounted side impact airbags are designed to inflate in moderate to severe crashes where something hits the side of your vehicle. They are not designed to inflate in frontal, in rollover or in rear crashes. Everyone in your vehicle should wear a safety belt properly — whether or not there is an airbag for that person.

⚠ CAUTION:

Both frontal and side impact airbags inflate with great force, faster than the blink of an eye. If you are too close to an inflating airbag, as you would be if you were leaning forward, it could seriously injure you. Safety belts help keep you in position for airbag inflation before and during a crash. Always wear your safety belt even with frontal airbags. The driver should sit as far back as possible while still maintaining control of the vehicle. Occupants should not lean on or sleep against the door.

⚠ CAUTION:

Anyone who is up against, or very close to, any airbag when it inflates can be seriously injured or killed. Airbags plus lap-shoulder belts offer the best protection for adults, but not for young children and infants. Neither the vehicle's safety belt system nor its airbag system is designed for them. Young children and infants need the protection that a child restraint system can provide. Always secure children properly in your vehicle. To read how, see *Older Children on page 40* or *Infants and Young Children on page 43*.



There is an airbag readiness light on the instrument panel, which shows the airbag symbol.

The system checks the airbag electrical system for malfunctions. The light tells you if there is an electrical problem. See *Airbag Readiness Light on page 219* for more information.

Where Are the Airbags?

The driver's frontal airbag is in the middle of the steering wheel.

The right front passenger's frontal airbag is in the instrument panel on the passenger's side.

The seat-mounted side impact airbag for the driver is in the side of the driver's seatback closest to the door.

The seat-mounted side impact airbag for the right front passenger is in the side of the passenger's seatback closest to the door.

If your vehicle has one, the roof-mounted side impact airbag for the driver and the person seated directly behind the driver is in the ceiling above the side windows.

If your vehicle has one, the roof-mounted side impact airbag for the right front passenger and the person seated directly behind that passenger is in the ceiling above the side windows.

⚠ CAUTION:

If something is between an occupant and an airbag, the airbag might not inflate properly or it might force the object into that person causing severe injury or even death. The path of an inflating airbag must be kept clear. Do not put anything between an occupant and an airbag, and do not attach or put anything on the steering wheel hub or on or near any other airbag covering. If your vehicle has roof-mounted side impact airbags, never secure anything to the roof of your vehicle by routing the rope or tie-down through any door or window opening. If you do, the path of an inflating airbag will be blocked. Do not let seat covers block the inflation path of a side impact airbag. The path of an inflating airbag must be kept clear.

When Should an Airbag Inflate?

The driver's and right front passenger's frontal airbags are designed to inflate in moderate to severe frontal or near-frontal crashes. But they are designed to inflate only if the impact exceeds a predetermined deployment threshold. Deployment thresholds take into account a variety of desired deployment and non-deployment events and are used to predict how severe a crash is likely to be in time for the airbags to inflate and help restrain the occupants. Whether your frontal airbags will or should deploy is not based on how fast your vehicle is traveling. It depends largely on what you hit, the direction of the impact, and how quickly your vehicle slows down.

Your vehicle has a "dual stage" driver airbag, which adjusts the restraint according to crash severity using electronic frontal sensor(s) which help the sensing system distinguish between a moderate frontal impact and a more severe frontal impact. The "dual stage" driver airbag inflates to a level less than full deployment for moderate frontal impacts and to a full deployment for more severe frontal impacts.

Your vehicle has a "dual depth" passenger airbag that adjusts the restraint according to crash severity, seat location, and safety belt status using electronic frontal sensor(s) and other special sensors which enable the sensing system to monitor the status of the front passenger safety belt and the position of the front passenger seat. The passenger airbag inflates to a reduced depth when the passenger seat is in a forward position. For more rearward front seating positions, the passenger airbag may inflate to an increased depth (a full deployment), based on safety belt status and the crash severity measured early in the event. Always wear your safety belt, even with frontal airbags.

If the front of your vehicle goes straight into a wall that does not move or deform, the threshold level for the reduced deployment is about 12 to 16 mph (19 to 26 km/h), and the threshold level for a full deployment is about 17 to 23 mph (27 to 37 km/h) if the other sensors do not over-ride this. The threshold level can vary, however, with specific vehicle design, so that it can be somewhat above or below this range.

Frontal airbags may inflate at different crash speeds. For example:

- If the vehicle hits a stationary object, the airbags could inflate at a different crash speed than if the vehicle hits a moving object.
- If the vehicle hits an object that deforms, the airbags could inflate at a different crash speed than if the vehicle hits an object that does not deform.
- If the vehicle hits a narrow object (like a pole), the airbags could inflate at a different crash speed than if the vehicle hits a wide object (like a wall).
- If the vehicle goes into an object at an angle, the airbags could inflate at a different crash speed than if the vehicle goes straight into the object.

Frontal airbags (driver and right front passenger) are not intended to inflate during vehicle rollovers, rear impacts, or in many side impacts.

Your vehicle has sensors which enable the sensing system to monitor the position of the right front passenger's seat, whether the occupant is buckled or unbuckled.

The passenger seat position sensor and passenger safety belt buckle switch provide information which is used to determine if the airbags should deploy at a reduced level or full deployment.

Side impact airbags are intended to inflate in moderate to severe side crashes. A side impact airbag will inflate if the crash severity is above the system's designed "threshold level." The threshold level can vary with specific vehicle design. Side impact airbags are not intended to inflate in many frontal or near-frontal impacts, rollovers, or rear impacts. Both roof-mounted side impact airbags will deploy when either side of the vehicle is struck.

In any particular crash, no one can say whether an airbag should have inflated simply because of the damage to a vehicle or because of what the repair costs were. For frontal airbags, inflation is determined by what the vehicle hits, the angle of the impact, and how quickly the vehicle slows down. For side impact airbags, inflation is determined by the location and severity of the impact.

What Makes an Airbag Inflate?

In an impact of sufficient severity, the airbag sensing system detects that the vehicle is in a crash. The sensing system triggers a release of gas from the inflator, which inflates the airbag. The inflator, airbag and related hardware are all part of the airbag modules. Frontal airbag modules are located inside the steering wheel and the instrument panel. For vehicles with seat-mounted side impact airbags, there are also airbag modules in the side of the front seatbacks closest to the door. For vehicles with roof-mounted side impact airbags, there are also airbag modules in the ceiling of the vehicle, near the side window.

How Does an Airbag Restrain?

In moderate to severe frontal or near frontal collisions, even belted occupants can contact the steering wheel or the instrument panel. In moderate to severe side collisions, even belted occupants can contact the inside of the vehicle. Airbags supplement the protection provided by safety belts. Airbags distribute the force of the impact more evenly over the occupant's upper body, stopping the occupant more gradually. But the frontal airbags would not help you in many types of collisions, including rollovers, rear impacts, and many side impacts, primarily because an occupant's motion is not toward the airbag. Side impact airbags would not help you in many types of collisions, including many frontal or near frontal collisions, rollovers, and rear impacts.

Airbags should never be regarded as anything more than a supplement to safety belts, and then only in moderate to severe frontal or near-frontal collisions for the driver's and right front passenger's frontal airbags, and only in moderate to severe side collisions for vehicles with side impact airbags.

What Will You See After an Airbag Inflates?

After frontal airbags and seat-mounted side impact airbags inflate, they quickly deflate, so quickly that some people may not even realize an airbag inflated. Roof-mounted side impact airbags may still be at least partially inflated minutes after the vehicle comes to rest. Some components of the airbag module — the steering wheel hub for the driver's airbag, the instrument panel for the right front passenger's bag, the side of the seatback closest to the door for the seat-mounted side impact airbags, and the area along the ceiling of your vehicle near the side windows for roof-mounted side impact airbags — may be hot for a short time. The parts of the airbag that come into contact with you may be warm, but not too hot to touch. There may be some smoke and dust coming from the vents in the deflated airbags. Airbag inflation does not prevent the driver from seeing out of the windshield or being able to steer the vehicle, nor does it prevent people from leaving the vehicle.

⚠ CAUTION:

When an airbag inflates, there may be dust in the air. This dust could cause breathing problems for people with a history of asthma or other breathing trouble. To avoid this, everyone in the vehicle should get out as soon as it is safe to do so. If you have breathing problems but cannot get out of the vehicle after an airbag inflates, then get fresh air by opening a window or a door. If you experience breathing problems following an airbag deployment, you should seek medical attention.

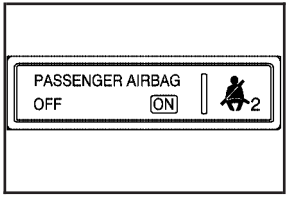
Your vehicle has a feature that may automatically unlock the doors, turn the interior lamps on, and turn the hazard warning flashers on when the airbags inflate. You can lock the doors, turn the interior lamps off, and turn the hazard warning flashers off by using the controls for those features.

In many crashes severe enough to inflate the airbag, windshields are broken by vehicle deformation. Additional windshield breakage may also occur from the right front passenger airbag.

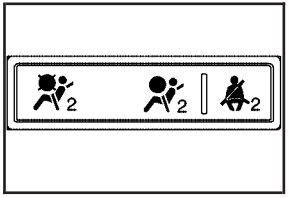
- Airbags are designed to inflate only once. After an airbag inflates, you will need some new parts for the airbag system. If you do not get them, the airbag system will not be there to help protect you in another crash. A new system will include airbag modules and possibly other parts. The service manual for your vehicle covers the need to replace other parts.
- Your vehicle has a crash sensing and diagnostic module which records information after a crash. See *Vehicle Data Collection and Event Data Recorders on page 484*.
- Let only qualified technicians work on the airbag systems. Improper service can mean that an airbag system will not work properly. See your dealer for service.

Passenger Sensing System

Your vehicle has a passenger sensing system. The passenger airbag status indicator on the overhead console will be visible when you turn your ignition key to RUN or START.



United States



Canada

The words ON and OFF or the symbol for on and off, will be visible during the system check. When the system check is complete, either the word ON or the word OFF, or the symbol for on or the symbol for off will be visible. See *Passenger Airbag Status Indicator on page 220*.

The passenger sensing system will turn off the right front passenger's frontal airbag and seat-mounted side impact airbag under certain conditions. The driver's airbags are not part of the passenger sensing system.

The passenger sensing system works with sensors that are part of the right front passenger's seat and safety belt. The sensors are designed to detect the presence of a properly-seated occupant and determine if the right front passenger's frontal airbag and seat-mounted side impact airbag should be enabled (may inflate) or not.

Accident statistics show that children are safer if they are restrained in the rear rather than the front seat. We recommend that child restraints be secured in a rear seat, including an infant riding in a rear-facing infant seat, a child riding in a forward-facing child seat and an older child riding in a booster seat.

Your vehicle has a rear seat that will accommodate a rear-facing child restraint. A label on your sun visor says, "Never put a rear-facing child seat in the front." This is because the risk to the rear-facing child is so great, if the airbag deploys.

⚠ CAUTION:

A child in a rear-facing child restraint can be seriously injured or killed if the right front passenger's airbag inflates. This is because the back of the rear-facing child restraint would be very close to the inflating airbag.

Even though the passenger sensing system is designed to turn off the right front passenger's frontal and seat-mounted side impact airbag if the system detects a rear-facing child restraint, no system is fail-safe, and no one can guarantee that an airbag will not deploy under some unusual circumstance, even though it is turned off. We recommend that rear-facing child restraints be secured in the rear seat, even if the airbags are off.

CAUTION: (Continued)

CAUTION: (Continued)

If you need to secure a forward-facing child restraint in the right front seat, always move the front passenger seat as far back as it will go. It is better to secure the child restraint in a rear seat.

The passenger sensing system is designed to turn off the right front passenger's frontal airbag and seat-mounted side impact airbag if:

- The right front passenger seat is unoccupied.
- The system determines that an infant is present in a rear-facing infant seat.
- The system determines that a small child is present in a forward-facing child restraint.
- The system determines that a small child is present in a booster seat.
- A right front passenger takes his/her weight off of the seat for a period of time.
- The right front passenger seat is occupied by a smaller person, such as a child who has outgrown child restraints.
- Or if there is a critical problem with the airbag system or the passenger sensing system.

When the passenger sensing system has turned off the right front passenger's frontal airbag and seat-mounted side impact airbag, the off indicator will light and stay lit to remind you that the airbags are off.

If a child restraint has been installed and the on indicator is lit, turn the vehicle off. Remove the child restraint from the vehicle and reinstall the child restraint following the child restraint manufacturer's directions and refer to *Securing a Child Restraint in the Right Front Seat Position on page 62*.

If, after reinstalling the child restraint and restarting the vehicle, the on indicator is still lit, check to make sure that the vehicle's seatback is not pressing the child restraint into the seat cushion. If this happens, slightly recline the vehicle's seatback and adjust the seat cushion if possible. Also make sure the child restraint is not trapped under the vehicle head restraint. If this happens, adjust the head restraint.

If the on indicator is still lit, secure the child in the child restraint in a rear seat position in the vehicle and check with your dealer.

The passenger sensing system is designed to enable (may inflate) the right front passenger's frontal airbag and seat-mounted side impact airbag anytime the system senses that a person of adult size is sitting properly in the right front passenger's seat. When the passenger sensing system has allowed the airbags to be enabled, the on indicator will light and stay lit to remind you that the airbags are active.

For some children who have outgrown child restraints and for very small adults, the passenger sensing system may or may not turn off the right front passenger's frontal airbag and seat-mounted side impact airbag, depending upon the person's seating posture and body build. Everyone in your vehicle who has outgrown child restraints should wear a safety belt properly — whether or not there is an airbag for that person.

If a person of adult-size is sitting in the right front passenger's seat, but the off indicator is lit, it could be because that person is not sitting properly in the seat.

If this happens, turn the vehicle off and ask the person to place the seatback in the fully upright position, then sit upright in the seat, centered on the seat cushion, with the person's legs comfortably extended. Restart the vehicle and have the person remain in this position for about two minutes. This will allow the system to detect that person and then enable the right front passenger's frontal airbag and seat-mounted side impact airbag.

⚠ CAUTION:

If the airbag readiness light in the instrument panel cluster ever comes on and stays on, it means that something may be wrong with the airbag system. If this ever happens, have the vehicle serviced promptly, because an adult-size person sitting in the right front passenger's seat may not have the protection of the frontal airbag. See *Airbag Readiness Light on page 219* for more on this, including important safety information.

Aftermarket equipment, such as seat covers, can affect how well the passenger sensing system operates. You may want to consider not using seat covers or other aftermarket equipment if your vehicle has the passenger sensing system. See *Adding Equipment to Your Airbag-Equipped Vehicle on page 83* for more information about modifications that can affect how the system operates.

⚠ CAUTION:

Stowing of articles under the passenger's seat or between the passenger's seat cushion and seatback may interfere with the proper operation of the passenger sensing system.

Servicing Your Airbag-Equipped Vehicle

Airbags affect how your vehicle should be serviced. There are parts of the airbag system in several places around your vehicle. You do not want the system to inflate while someone is working on your vehicle. Your dealer and the service manual have information about servicing your vehicle and the airbag system. To purchase a service manual, see *Service Publications Ordering Information on page 490*.

⚠ CAUTION:

For up to 10 seconds, after the ignition is turned off and the battery is disconnected, an airbag can still inflate during improper service. You can be injured if you are close to an airbag when it inflates. Avoid yellow connectors. They are probably part of the airbag system. Be sure to follow proper service procedures, and make sure the person performing work for you is qualified to do so.

The airbag system does not need regular maintenance.

Adding Equipment to Your Airbag-Equipped Vehicle

Q: Is there anything I might add to the front or sides of the vehicle that could keep the airbags from working properly?

A: Yes. If you add things that change your vehicle's frame, bumper system, height, front end or side sheet metal, they may keep the airbag system from working properly. Also, the airbag system may not work properly if you relocate any of the airbag sensors. If you have any questions about this, you should contact Customer Assistance before you modify your vehicle. The phone numbers and addresses for Customer Assistance are in Step Two of the Customer Satisfaction Procedure in this manual. See *Customer Satisfaction Procedure on page 474*.

Q: Because I have a disability, I have to get my vehicle modified. How can I find out whether this will affect my airbag system?

A: Changing or moving any parts of the front seats, safety belts, the airbag sensing and diagnostic module, steering wheel, instrument panel, overhead console, ceiling headliner, ceiling and pillar garnish trim, roof-mounted airbag modules, or airbag wiring can affect the operation of the airbag system. If you have questions, call Customer Assistance. The phone numbers and addresses for Customer Assistance are in Step Two of the Customer Satisfaction Procedure in this manual. See *Customer Satisfaction Procedure on page 474*.

Restraint System Check

Checking the Restraint Systems

Now and then, make sure the safety belt reminder light and all your belts, buckles, latch plates, retractors and anchorages are working properly. Look for any other loose or damaged safety belt system parts. If you see anything that might keep a safety belt system from doing its job, have it repaired. See *Care of Safety Belts on page 435* for more information.

Torn or frayed safety belts may not protect you in a crash. They can rip apart under impact forces. If a belt is torn or frayed, get a new one right away.

Also look for any opened or broken airbag covers, and have them repaired or replaced. The airbag system does not need regular maintenance.

Notice: **If you damage the covering for the driver's or the right front passenger's airbag, or the airbag covering on the driver's and right front passenger's seatback, or the side impact airbag covering (if equipped) on the ceiling near the side windows, the bag may not work properly. You may have to replace the airbag module in the steering wheel, both the airbag module and the instrument panel for the right front passenger's airbag, the airbag module and seatback for the driver's and right front passenger's seat-mounted side impact airbags, or side impact airbag module and ceiling covering for the roof-mounted side impact airbag (if equipped). Do not open or break the airbag coverings.**

Replacing Restraint System Parts After a Crash

⚠ CAUTION:

A crash can damage the restraint systems in your vehicle. A damaged restraint system may not properly protect the person using it, resulting in serious injury or even death in a crash. To help make sure your restraint systems are working properly after a crash, have them inspected and any necessary replacements made as soon as possible.

If you have had a crash, do you need new belts or LATCH system parts?

After a very minor collision, nothing may be necessary. But if the belts were stretched, as they would be if worn during a more severe crash, then you need new parts.

If the LATCH system was being used during a more severe crash, you may need new LATCH system parts.

If belts are cut or damaged, replace them. Collision damage also may mean you will need to have LATCH system, safety belt or seat parts repaired or replaced. New parts and repairs may be necessary even if the belt or LATCH system was not being used at the time of the collision.

If an airbag inflates, you will need to replace airbag system parts. See the part on the airbag system earlier in this section.

If the frontal airbags inflate you will also need to replace the driver and front passenger's safety belt retractor assembly. Be sure to do so. Then the new retractor assembly will be there to help protect you in a collision.

After a crash you may need to replace the driver and front passenger's safety belt retractor assemblies, even if the frontal airbags have not deployed. The driver and front passenger's safety belt retractor assemblies contain the safety belt pretensioners. Have your safety belt pretensioners checked if your vehicle has been in a collision, or if your airbag readiness light stays on after you start your vehicle or while you are driving. See *Airbag Readiness Light on page 219*.

NOTES

Section 2 Features and Controls

Keys 89
Remote Keyless Entry (RKE) System 91
Remote Keyless Entry (RKE) System Operation 92

Doors and Locks 98
Door Locks 98
Central Door Unlocking System 99
Power Door Locks 99
Programmable Automatic Door Locks 100
Rear Door Security Locks 100
Lockout Protection 101
Trunk 102

Windows 104
Power Windows 105
Sun Visors 107

Theft-Deterrent Systems 108
Valet Lockout Switch 108
Content Theft-Deterrent 109
PASS-Key® III+ 111
PASS-Key® III+ Operation 112

Starting and Operating Your Vehicle 113
New Vehicle Break-In 113
Ignition Positions 114
Retained Accessory Power (RAP) 115
Starting the Engine 115
Engine Coolant Heater 117
Automatic Transaxle Operation 118
Performance Shifting 121
Parking Brake 121
Shifting Into Park (P) 122
Shifting Out of Park (P) 125
Parking Over Things That Burn 125
Engine Exhaust 126
Running the Engine While Parked 127

Mirrors 128
Automatic Dimming Rearview Mirror with Intellibeam™, OnStar®, and Compass 128
Automatic Dimming Rearview Mirror with OnStar® and Compass 130

Automatic Dimming Rearview Mirror with Compass 132
Outside Power Foldaway Mirrors 133
Outside Automatic Dimming Mirror 134
Outside Curb View Assist Mirror 134
Outside Convex Mirror 134
Outside Heated Mirrors 134

OnStar® System 135

Universal Home Remote System 139
Universal Home Remote System (With Three Round LED) 139
Universal Home Remote System (With One Triangular LED) 140
Universal Home Remote System Operation (With Three Round LED) 141
Universal Home Remote System Operation (With One Triangular LED) 146

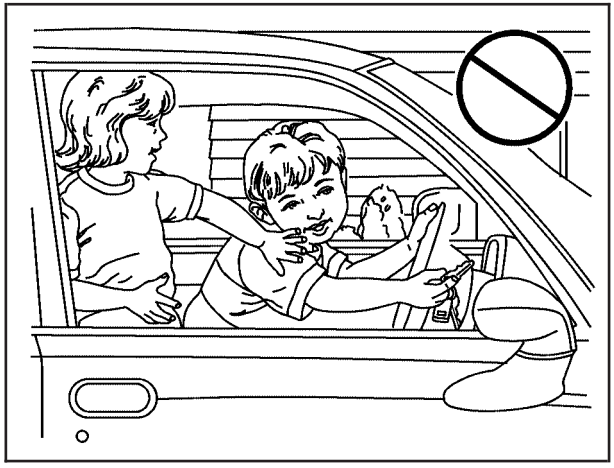
Storage Areas 150
Glove Box 150
Cupholder(s) 150
Coinholder(s) 150
Center Console Storage Area 150
Center Flex Storage Unit 151
Rear Seat Armrest 151
Convenience Net 151

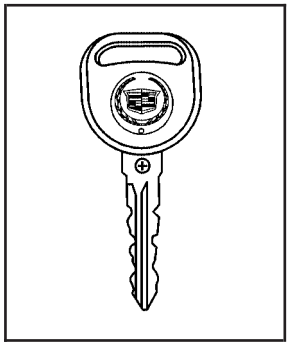
Sunroof 152

Keys

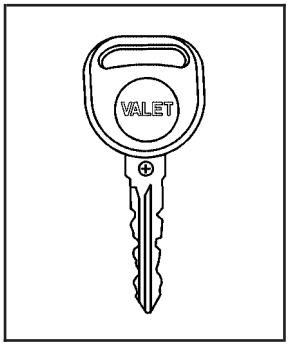
⚠ CAUTION:

Leaving children in a vehicle with the ignition key is dangerous for many reasons. They could operate the power windows or other controls or even make the vehicle move. The children or others could be badly injured or even killed. Do not leave the keys in a vehicle with children.





Master Key



Valet Key

There is a master key that can be used for the driver's door, ignition, and glove box.

There is also a valet key which only operates the driver's door and the ignition.

Notice: **If you ever lock your keys in your vehicle, you may have to damage the vehicle to get in. Be sure you have spare keys.**

In an emergency, contact Cadillac Roadside Assistance. See *Roadside Service on page 480*.

If your vehicle is equipped with the OnStar® system with an active subscription and you lock your keys inside the vehicle, OnStar® may be able to send a command to unlock your vehicle. See *OnStar® System on page 135* for more information.

Remote Keyless Entry (RKE) System

Your Remote Keyless Entry (RKE) system operates on a radio frequency subject to Federal Communications Commission (FCC) Rules and with Industry Canada.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

This device complies with RSS-210 of Industry Canada. Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

Changes or modifications to this system by other than an authorized service facility could void authorization to use this equipment.

At times you may notice a decrease in operating range. This is normal for any RKE system. If the transmitter does not work or if you have to stand closer to your vehicle for the transmitter to work, try this:

- Check the distance. You may be too far from your vehicle. You may need to stand closer during rainy or snowy weather.
- Check the location. Other vehicles or objects may be blocking the signal. Take a few steps to the left or right, hold the transmitter higher, and try again.
- Check to determine if battery replacement is necessary. See “Battery Replacement” under *Remote Keyless Entry (RKE) System Operation on page 92*.
- If you are still having trouble, see your dealer or a qualified technician for service.

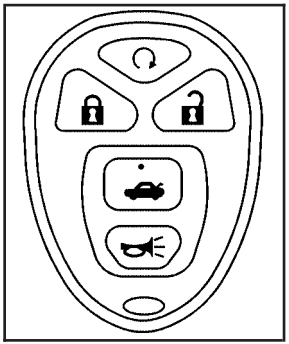
Remote Keyless Entry (RKE) System Operation

The Remote Keyless Entry (RKE) transmitter functions, including lock, unlock, remote trunk release, vehicle locator/panic alarm and remote vehicle start, if your vehicle has this feature, will work up to 195 feet (60 m) away.

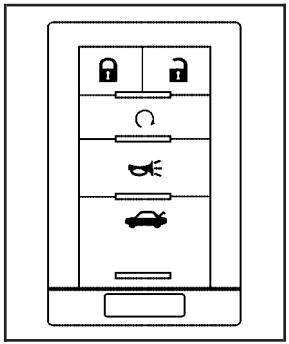
If your vehicle has the remote vehicle start feature, you will be able start your vehicle with the RKE transmitter. However, the range may be less while the vehicle is running and you may need to be closer to your vehicle to turn it off than you were to turn it on.

There are other conditions which can affect the performance of the transmitter. See *Remote Keyless Entry (RKE) System on page 91*.

You will have one of the RKE transmitters below.



With Remote Start (Without Remote Start Similar)



With Remote Start (Without Remote Start Similar)

The following functions are available with your vehicle's remote keyless entry system:

(Remote Vehicle Start): Your vehicle may be started from outside the vehicle using the RKE transmitter. See "Remote Vehicle Start" later in this section for more detailed information.

(Lock): Press the lock button to lock all the doors. If enabled through the Driver Information Center (DIC), the parking lamps may flash once to indicate locking has occurred, or the horn may chirp when the lock button is pressed again within five seconds from the previous press of the lock button. See *DIC Vehicle Customization on page 252* for additional information. If the vehicle has the content theft-deterrent system, pressing the lock button may also arm it. See *Content Theft-Deterrent on page 109*.

(Unlock): Press the unlock button to unlock the driver's door. If the button is pressed again within five seconds, all remaining doors will unlock. The interior lamps will come on and stay on for 20 seconds or until the ignition is turned on. If enabled through the DIC, the parking lamps can be programmed to come on for a set amount of time when the vehicle is unlocked using the RKE transmitter. See *DIC Vehicle Customization on page 252*. Pressing the unlock button on the RKE transmitter may disarm the content theft-deterrent system. See *Content Theft-Deterrent on page 109*.

(Remote Trunk Release): Press and hold this button for about one second to release the trunk lid. The transaxle must be in PARK (P) for this feature to operate.

(Vehicle Locator/Panic Alarm): Press and release this button to locate your vehicle. The turn signal lamps will flash and the horn will sound three times. Press and hold this button for more than two seconds to activate the panic alarm. The turn signal lamps will flash and the horn will sound repeatedly for 30 seconds. The alarm will turn off when the ignition is moved to RUN or the alarm button is pressed again. The ignition must be in OFF for the panic alarm to work.

Matching Transmitter(s) to Your Vehicle

Each RKE transmitter is coded to prevent another transmitter from unlocking your vehicle. If a transmitter is lost or stolen, a replacement can be purchased through your GM dealer. Remember to bring any additional transmitters so they can also be re-coded to match the new transmitter. Once your dealer has coded the new transmitter, the lost transmitter will not unlock your vehicle. The vehicle can have a maximum of eight transmitters matched to it. See RELEARN REMOTE KEY under *DIC Controls and Displays on page 233*.

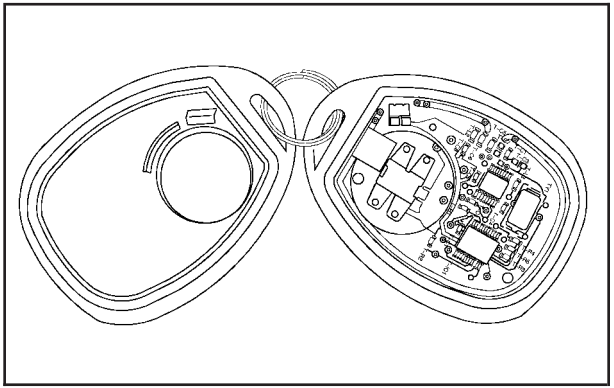
Battery Replacement

Under normal use, the battery in your RKE transmitter should last about four years.

The battery is weak if the transmitter will not work at the normal range in any location. If you have to get close to your vehicle before the transmitter works, it is probably time to change the battery.

The REPLACE BATTERY IN REMOTE KEY message in the vehicle's DIC will display if the RKE transmitter battery is low. See "REPLACE BATTERY IN REMOTE KEY" under *DIC Warnings and Messages on page 239* for additional information.

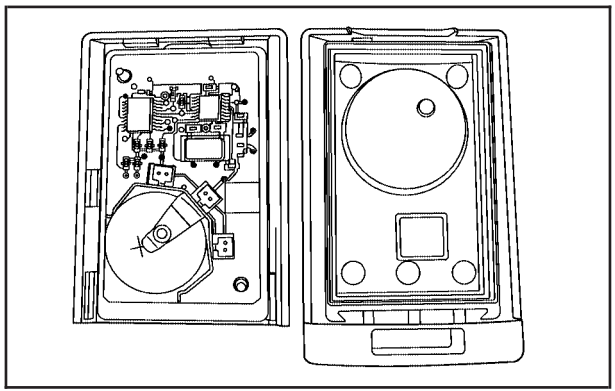
Notice: **When replacing the battery, use care not to touch any of the circuitry. Static from your body transferred to these surfaces may damage the transmitter.**



To replace the battery in the remote keyless entry transmitter, do the following:

1. Insert a flat object with a thin edge into the notch on the side of the transmitter and separate the bottom half from the top half.
2. Remove the old battery, but do not use a metal object to do this.
3. Slide the new battery into the transmitter with the positive side of the battery facing down. Use a type CR2032 battery, or equivalent type.

4. Snap the front and the back of the transmitter together tightly so moisture does not get in.
5. Test the operation of the transmitter with the vehicle.



To replace the battery in the RKE transmitter do the following:

1. Use a flat object with a thin edge into the notch, located above the metal base, and separate the bottom half from the top half of the transmitter.
2. Remove the old battery, but do not use a metal object to do this.
3. Slide the new battery into the transmitter with the positive side of the battery facing up. Use a type CR2032 battery, or equivalent type.
4. Snap the front and the back of the transmitter together tightly so moisture does not get in.
5. Test the operation of the transmitter with the vehicle.

Remote Vehicle Start

The remote vehicle starting feature allows you to start the engine from outside of the vehicle. It also starts up the vehicle's automatic climate control system. When the remote start system is active, the climate control system will heat and cool the inside of the vehicle according to the previous settings of the system before turning the vehicle off. The rear window defogger will be turned on by the climate control system when it is cold outside. If the vehicle has heated seats, they will also turn on. See *Heated and Cooled Seats on page 10* for additional information. Cooled seats are not activated during a remote start. Normal operation of the climate control system will return after the key is turned to RUN. See *Dual Climate Control System on page 204*.

Laws in some communities may restrict the use of remote starters. For example, some laws may require a person using remote start to have the vehicle in view when doing so. Check local regulations for any requirements on remote starting of vehicles.

Do not use the remote start feature if your vehicle is low on fuel. Your vehicle may run out of fuel.

Your RKE transmitter, with the remote start button, provides an increased range of operation. However, the range may be less while the vehicle is running. As a result, you may need to be closer to your vehicle to turn it off, than you were to turn it on.

There are other conditions which can affect the performance of the transmitter, see "Remote Keyless Entry System Operation" listed previously for additional information.

(Remote Start): Press and release the lock button and then press and hold this button to use the remote start feature.

To start the vehicle using the remote start feature, do the following:

1. Aim the transmitter at the vehicle.
2. Press and release the transmitter's lock button, then immediately press and hold the transmitter's remote start button until the turn signal lights flash or if the vehicle's lights are not visible, press and hold the remote start button for at least four seconds. The vehicle's doors will lock. Pressing the remote start button again after the vehicle has started will turn off the ignition.

   When the vehicle starts, the parking lamps will turn on and remain on while the vehicle is running.
3. If it is your first remote start since last driving, repeat these steps while the engine is still running for a 10 minute time extension. Remote start can be extended two times.

When you enter the vehicle during a remote start and the engine is still running, insert the key into the ignition, and turn the key to RUN to drive the vehicle.

If the vehicle is left running it will automatically shut off after 10 minutes unless a time extension has been done.

To manually shut off a remote start, do any of the following:

- Aim the RKE transmitter at the vehicle and press the remote start button until the parking lamps turn off.
- Turn on the hazard warning flashers.
- Turn the ignition switch on and then off.

The remote vehicle start feature provides two separate starts, each with 10 minutes of engine running, or it provides one start with 10 minutes of engine running that may be extended 10 more minutes. If you press and release the transmitter lock button and then press and hold the remote start button on the RKE transmitter again before the first 10 minutes of engine running time has expired, 10 minutes are added to the remaining minutes. For example, if the lock button and then the remote start buttons are pressed again after five minutes of the engine run time, 10 minutes are added and you now have 15 minutes of engine running. The added ten minutes are considered a second remote vehicle start. Once two remote starts or a single start with a time extension have been used, the vehicle must be started with the ignition key before you can use the remote start feature again.

The remote vehicle start feature will not operate if the key is in the ignition, the hood is not closed, or if there is an emission control system malfunction.

The engine will turn off during a remote vehicle start if the coolant temperature gets too high, or the oil pressure is too low.

Your vehicle was shipped from the factory with the remote vehicle start system enabled. The system may be disabled through the Driver Information Center (DIC). See “REMOTE START” under *DIC Vehicle Customization on page 252* for additional information.

See *Engine Exhaust on page 126* for important safety information when using remote start in a closed garage.

Remote Start Ready

If your vehicle does not have the remote vehicle start feature, it may have the remote start ready feature. This feature allows your dealer to add the manufacturer’s remote vehicle start feature. See your dealer if you would like to add the manufacturer’s remote vehicle start feature to your vehicle.

Doors and Locks

Door Locks

⚠ CAUTION:

Unlocked doors can be dangerous.

- **Passengers, especially children, can easily open the doors and fall out of a moving vehicle. When a door is locked, the handle will not open it. You increase the chance of being thrown out of the vehicle in a crash if the doors are not locked. So, wear safety belts properly and lock the doors whenever you drive.**
- **Young children who get into unlocked vehicles may be unable to get out. A child can be overcome by extreme heat and can suffer permanent injuries or even death from heat stroke. Always lock your vehicle whenever you leave it.**

CAUTION: (Continued)

CAUTION: (Continued)

- **Outsiders can easily enter through an unlocked door when you slow down or stop your vehicle. Locking your doors can help prevent this from happening.**

There are several ways to lock and unlock your vehicle.

Because your vehicle has the theft-deterrent system, you must unlock the doors with the key or remote keyless entry transmitter to avoid setting off the alarm.

From the outside, use either the key or the remote keyless entry transmitter.

From the inside, use the power door lock switches or manual lock knobs. The manual lock knobs are located at the top of the door panel near the window.

Push the manual lock knob down to lock the door. To unlock the door, pull up on the knob.

Central Door Unlocking System

Your vehicle has a central door unlocking mode. When unlocking the driver's door, you can unlock the other doors at the same time by turning the key clockwise in the door lock cylinder twice.

Power Door Locks

The power door lock switches are located on the armrest on the front doors.

(Unlock): Press the side of the switch with the unlock symbol to unlock the doors.

(Lock): Press the side of the switch with the lock symbol to lock the doors.

Programmable Automatic Door Locks

Your vehicle is programmed so that, when the doors are closed, the ignition is on, and the shift lever is moved out of PARK (P), all the doors will lock. The doors will unlock every time you stop the vehicle and move the shift lever into PARK (P).

If someone needs to get out while your vehicle is not in PARK (P), have the person use the manual lock knob or power door lock switch. When the door is closed again, it will not lock automatically. Use the manual lock knob or power door lock switch to lock the door.

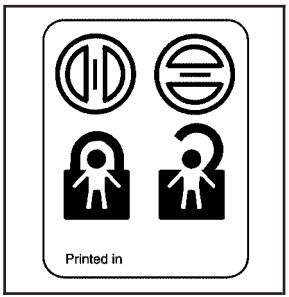
With the vehicle in PARK (P) and the ignition on, the door locks can be programmed through prompts displayed on the Driver Information Center (DIC). These prompts allow the driver to choose various lock and unlock settings. For programming information, see *DIC Vehicle Customization on page 252*.

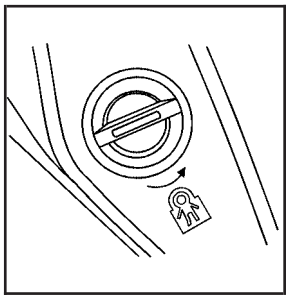
Rear Door Security Locks

Your vehicle has security locks that prevent passengers from opening the rear doors from the inside.

The rear door security locks are located on the inside edge of each rear door. You must open the rear doors to access them.

To assist you in finding the lock, your vehicle will have one of the following:





To use these locks, do the following:

1. Turn the knob to the vertical position to engage the lock.
2. Close the door.
3. Do the same for the other rear door.

The rear doors on your vehicle cannot be opened from the inside when this feature is in use.

When you want to open a rear door when the security lock is on, do the following:

1. Unlock the door using the remote keyless entry transmitter, the front door power lock switch, or by lifting the rear door manual lock knob.
2. Open the door from the outside.

To cancel the rear door security lock, do the following:

1. Unlock the door and open it from the outside.
2. Turn the knob to the horizontal position to disengage the lock.
3. Do the same for the other rear door.

Lockout Protection

If the key is in the ignition and the power door lock switch is used to lock the doors, all doors will lock and then the driver's door will unlock.
It is always recommended that you remove the ignition key when locking your vehicle.

The lockout protection feature can be overridden by holding the power door lock switch for three seconds or longer.

Trunk

⚠ CAUTION:

It can be dangerous to drive with the trunk lid open because carbon monoxide (CO) gas can come into your vehicle.
You cannot see or smell CO. It can cause unconsciousness and even death. If you must drive with the trunk lid open or if electrical wiring or other cable connections must pass through the seal between the body and the trunk lid:

- **Make sure all other windows are shut.**
- **Turn the fan on your heating or cooling system to its highest speed and select the control setting that will force outside air into your vehicle. See Climate Control System.**
- **If you have air outlets on or under the instrument panel, open them all the way.**

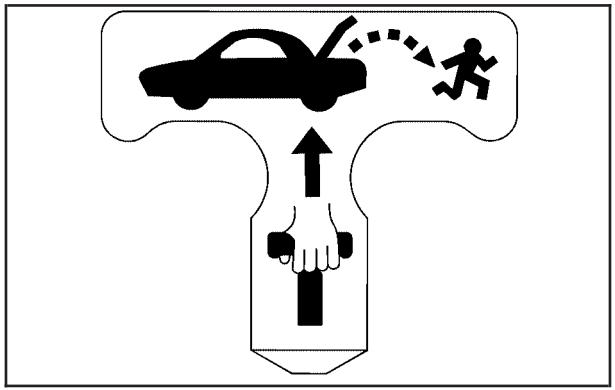
See *Engine Exhaust on page 126*.

Remote Trunk Release

(Remote Trunk Release): The remote trunk release button is located to the left of the steering wheel next to the instrument panel brightness control. Press the button to open the trunk. To use this feature, your vehicle must be in PARK (P) or NEUTRAL (N) and the valet lockout switch must be off.

You can also press the button with the trunk symbol on the remote keyless entry transmitter to open the trunk. To disable this feature, see *Valet Lockout Switch on page 108*.

Emergency Trunk Release Handle



Notice: **Do not use the emergency trunk release handle as a tie-down or anchor point when securing items in the trunk as it could damage the handle. The emergency trunk release handle is only intended to aid a person trapped in a latched trunk, enabling them to open the trunk from the inside.**

There is a glow-in-the-dark emergency trunk release handle located inside the trunk near the latch. This handle will glow following exposure to light. Pull the release handle to open the trunk from the inside.

Rear Seat Pass-Through

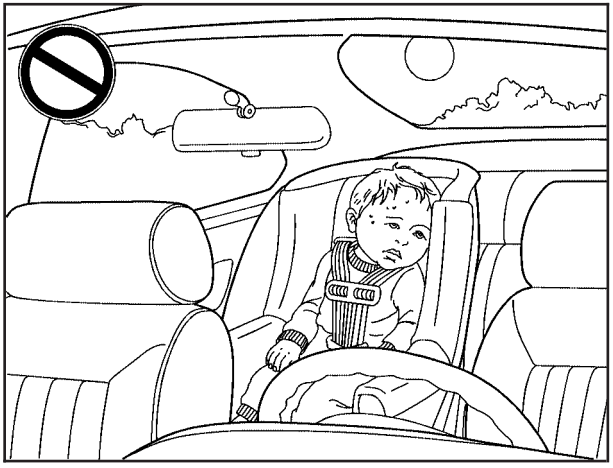
Your vehicle has a small door in the rear seat. This door allows you to access the trunk from inside the vehicle.

The rear seat armrest must be down for the pass-through door to open. To release the pass-through door, move the release up with your fingers. To close the door, raise it and push it until it latches.

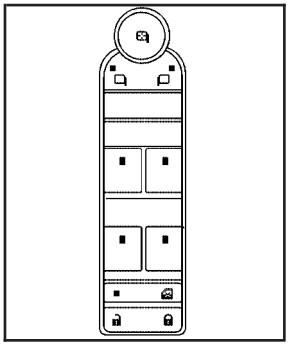
Windows

⚠ CAUTION:

Leaving children, helpless adults, or pets in a vehicle with the windows closed is dangerous. They can be overcome by the extreme heat and suffer permanent injuries or even death from heat stroke. Never leave a child, a helpless adult, or a pet alone in a vehicle, especially with the windows closed in warm or hot weather.



Power Windows



The power window switches are located on the driver's door armrest.

In addition, each door has a switch for its own window. The front power window switch operates with two positions for both up and down movement and the rear power window switch operates with one position for up and two positions for down movement. Press the switch to the first position to lower the window to the desired level.

Pull the switch up to raise the window. Your vehicle has Retained Accessory Power (RAP) that allows you to use the power windows once the ignition has been turned off. For more information, see *Retained Accessory Power (RAP) on page 115*.

Express-Down Window

This feature is on all windows. Press the switch to the second position and release the switch to activate the express-down feature. To stop the window as it is lowering, press down or pull up briefly on the switch again.

Express-Up Window

This feature is on the front windows. Pull the switch up to the second position and release the switch to activate the express-up feature. To stop the window as it is raising, pull up or press down briefly on the switch again.

Programming the Power Windows

If the battery on your vehicle has been recharged, disconnected, or is not working, you will need to reprogram each front power window for the express-up feature to work. Before reprogramming, you will need to replace or recharge your vehicle's battery.

To program each front window, follow these steps:

1. With the ignition in ACCESSORY, RUN, or when Retained Accessory Power (RAP) is active, close all doors.
2. Press and hold the power window switch until the window is fully open.
3. Pull the power window switch up until the window is fully closed.
4. Continue holding the switch up for approximately two seconds after the window is completely closed.

The window is now reprogrammed. Repeat the process for the other windows.

Express Window Anti-Pinch Feature

If any object is in the path of the window when the express-up is active, the window will stop at the obstruction and auto-reverse to a preset factory position. Weather conditions such as severe icing may also cause the window to auto-reverse. The window will return to normal operation once the obstruction or condition is removed.

Express Window Anti-Pinch Override

⚠ CAUTION:

If express override is activated, the window will not reverse automatically. You or others could be injured and the window could be damaged. Before you use express override, make sure that all people and obstructions are clear of the window path.

In an emergency, the anti-pinch feature can be overridden in a supervised mode. Hold the window switch all the way up to the second position. The window will rise for as long as the switch is held. Once the switch is released, the express mode is re-activated.

In this mode, the window can still close on an object in its path. Use care when using the override mode.

Window Lockout

(Window Lockout): The rear window lockout button is located on the driver's door armrest near the window switches.

Press the right side of the button to disable the rear window controls. The light on the button will illuminate, indicating the feature is in use. The rear windows still can be raised or lowered using the driver's window switches when the lockout feature is active.

To restore power to the rear windows, press the button again. The light on the button will go out.

Sun Visors

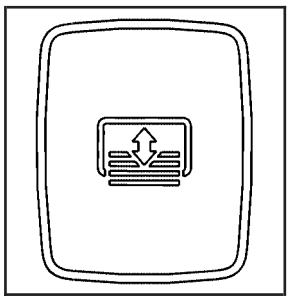
Swing down the primary visor to block out glare. It can also be detached from the center mount and moved to the side while the auxiliary sunshade remains to block the glare from the front. The visors also have side-to-side slide capability.

Lighted Visor Vanity Mirror

Pull the visor down and lift the cover to view the mirror. The light will come on when the cover is opened. It will go out when you close the cover. If your vehicle has the adjustable lighting feature, slide the switch up or down to brighten or dim the light.

Rear Power Sunshade

If your vehicle has a rear power sunshade, it helps to reduce the amount of heat and light entering the rear window.



The switch is located on the overhead console.

The rear power sunshade is located in the rear shelf. It only works while the ignition is on or while the Retained Accessory Power (RAP) is active. See *Retained Accessory Power (RAP) on page 115*.

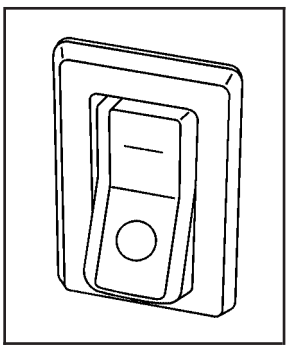
To raise the power sunshade, press and release the switch. To close the power sunshade, press and release the switch again.

Never store objects on the rear shelf because they may get caught in the sunshade or be tossed about in your vehicle.

Theft-Deterrent Systems

Vehicle theft is big business, especially in some cities. Although your vehicle has a number of theft-deterrent features, we know that nothing we put on it can make it impossible to steal.

Valet Lockout Switch



The valet lockout switch is located inside the glove box.

○ **(Off):** Press this side of the button to turn the lockout feature off. When the lockout feature is off, you can open the trunk using either the keyless entry transmitter or the trunk release button located near the headlamp switch on the instrument panel.

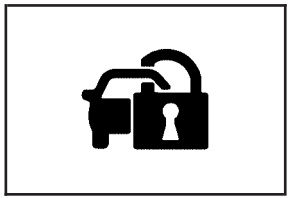
| **(On):** Press this side of the button to turn the lockout feature on. When the lockout feature is turned on, the trunk cannot be unlocked with the keyless entry transmitter or the trunk release button located near the headlamp switch on the instrument panel.

If the valet lockout feature is on it will also disable the Universal Home Remote transmitter, if equipped.

Locking the glove box with your key will also help to secure your vehicle.

See *Remote Keyless Entry (RKE) System Operation on page 92* and *Trunk on page 102* for additional information.

Content Theft-Deterrent



The security light is located on the instrument panel cluster.

If the ignition is off and any door is open, the security light will flash, reminding you to arm the system.

To arm the system, do the following:

1. Open the door.
2. Lock the door using the power door lock switch with the door open or the remote keyless entry transmitter. The security light should come on and stay on.
3. Close all the doors. The security light should go off within approximately 30 seconds.

If a door or the trunk is opened without a key or a remote keyless entry transmitter, the horn will sound and the lamps will flash for about 30 seconds.

The theft-deterrent system will not arm if you lock the doors with a key or use the manual door lock. It activates only if you use a power door lock with the door open or the remote keyless entry transmitter.

To avoid activating the alarm by accident do the following:

- The vehicle should be locked with the door key or the manual door lock after the doors are closed if you do not want to arm the theft-deterrent system.
- Always unlock a door with a key or use the remote keyless entry transmitter system. Pressing the unlock button on the remote keyless entry transmitter disables the theft-deterrent system. Unlocking a door any other way will activate the alarm when a door or the trunk is opened.

If you activate the alarm by accident, unlock the driver's door with your key. You can also turn off the alarm by using the unlock button on the remote keyless entry transmitter system, or by starting the car with a valid key.

Changes or modifications made to this system by other than an authorized service facility could void authorization to use the theft system.

Testing the Alarm

1. From inside the vehicle, roll down the window, then get out of the vehicle, keeping the door open.
2. From outside of the vehicle, with the door open, lock the vehicle using the power door lock or the remote keyless entry system and close the door. Wait 30 seconds until the security lamp goes off.
3. Reach in and unlock the door using the manual lock and open the door. The horn will sound and the hazard lights will flash.

You can turn off the alarm by unlocking the driver's door with your key, using the unlock button on the remote keyless entry transmitter or by starting the car with a valid key.

If the alarm does not sound when it should, check to see if the horn works. The horn fuse may be blown.

To replace the fuse, see *Fuses and Circuit Breakers on page 443*. If the fuse does not need to be replaced, you may need to have your vehicle serviced.

To reduce the possibility of theft, always arm the theft-deterrent system when leaving your vehicle.

PASS-Key® III+

The PASS-Key® III+ system operates on a radio frequency subject to Federal Communications Commission (FCC) Rules and with Industry Canada.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This device complies with RSS-210 of Industry Canada. Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

Changes or modifications to this system by other than an authorized service facility could void authorization to use this equipment.

PASS-Key® III+ uses a radio frequency transponder in the key that matches a decoder in your vehicle.

PASS-Key® III+ Operation

Your vehicle has PASS-Key® III+ (Personalized Automotive Security System) theft-deterrent system. PASS-Key® III+ is a passive theft-deterrent system. This means you do not have to do anything special to arm or disarm the system. It works when you insert or remove the key from the ignition or transition the key from run, accessory or start from the off position.

When the PASS-Key® III+ system senses that someone is using the wrong key, it prevents the vehicle from starting. Anyone using a trial-and-error method to start the vehicle will be discouraged because of the high number of electrical key codes.

If the engine does not start and the security light comes on when trying to start the vehicle, the key may have a damaged transponder. Turn the ignition off and try again.

If the engine still does not start, and the key appears to be undamaged, try another ignition key. At this time, you may also want to check the fuse, see *Fuses and Circuit Breakers on page 443*.
If the engine still does not start with the other key, your vehicle needs service. If your vehicle does start, the first key may be faulty. See your dealer who can service the PASS-Key® III+ to have a new key made. In an emergency, contact Roadside Assistance.

It is possible for the PASS-Key® III+ decoder to “learn” the transponder value of a new or replacement key. Up to nine additional keys may be programmed for the vehicle. The following procedure is for programming additional keys only. If all the currently programmed keys are lost or do not operate, you must see your dealer or a locksmith who can service PASS-Key® III+ to have keys made and programmed to the system.

See your dealer or a locksmith who can service PASS-Key® III+ to get a new key blank that is cut exactly as the ignition key that operates the system.

To program the new key do the following:

1. Verify that the new key has a ⊕ stamped on it.
2. Insert the original, already programmed, key in the ignition and start the engine. If the engine will not start, see your dealer for service.
3. After the engine has started, turn the key to OFF, and remove the key.
4. Insert the new key to be programmed and turn it to the RUN position within five seconds of removing the original key.
5. The security light will turn off once the key has been programmed.
6. Repeat Steps 1 through 5 if additional keys are to be programmed.

If you are driving and the security light comes on and stays on, you may be able to restart your engine. Your PASS-Key® III+ system, however, may not be working properly and must be serviced by your dealer.

If you lose or damage your PASS-Key® III+ key, see your dealer or a locksmith who can service PASS-Key® III+ to have a new key made.

Starting and Operating Your Vehicle

New Vehicle Break-In

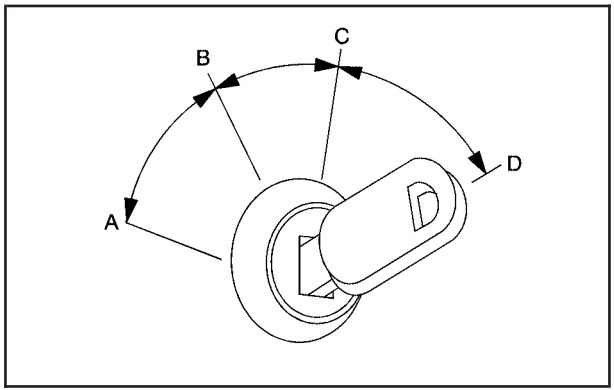
Notice: **Your vehicle does not need an elaborate break-in. But it will perform better in the long run if you follow these guidelines:**

- **Do not drive at any one constant speed, fast or slow, for the first 500 miles (805 km). Do not make full-throttle starts. Avoid downshifting to brake, or slow, the vehicle.**
- **Avoid making hard stops for the first 200 miles (322 km) or so. During this time your new brake linings are not yet broken in. Hard stops with new linings can mean premature wear and earlier replacement. Follow this breaking-in guideline every time you get new brake linings.**
- **Do not tow a trailer during break-in. See *Towing a Trailer on page 336* for the trailer towing capabilities of your vehicle and more information.**

Following break-in, engine speed and load can be gradually increased.

Ignition Positions

With the ignition key in the ignition, the key can be turned to four different positions:



Notice: **Using a tool to force the key from the ignition switch could cause damage or break the key. Use the correct key and turn the key only with your hand. Make sure the key is in all the way. If none of this works, then your vehicle needs service.**

A (OFF): This is the only position in which the ignition key can be inserted or removed. This position locks the ignition and transaxle. It is a theft-deterrent feature.

B (ACCESSORY): This position lets the radio and windshield wipers operate while the engine is off. To use ACCESSORY, turn the key clockwise.

C (RUN): This position is where the key returns to after the vehicle is started. This position displays some of the warning and indicator lights.

The battery could be drained if you leave the key in the ACCESSORY or RUN position with the engine off. You may not be able to start your vehicle if the battery is allowed to drain for an extended period of time.

D (START): This position starts the engine.

A warning chime will sound and the Driver Information Center (DIC) will display DRIVER DOOR OPEN when the driver's door is opened if the ignition is in OFF, ACCESSORY and the key is in the ignition. See *DIC Warnings and Messages on page 239* for more information.

Key In the Ignition

Never leave your vehicle with the keys inside, as it is an easy target for joy riders or thieves. If you leave the key in the ignition and park your vehicle, a chime will sound, when you open the driver's door. Always remember to remove your key from the ignition and take it with you. This will lock your ignition and transaxle. Also, always remember to lock the doors.

The battery could be drained if you leave the key in the ignition while your vehicle is parked.
You may not be able to start your vehicle after it has been parked for an extended period of time.

Retained Accessory Power (RAP)

The following accessories on your vehicle may be used for up to 10 minutes after the ignition key is turned from RUN to OFF:

- Radio
- Power Windows
- Audio Steering Wheel Controls
- Sunroof

Power to these accessories stops after 10 minutes or if the driver's door is opened. If you want power for another 10 minutes, close all the doors and turn the ignition key to RUN and then back to OFF.

Starting the Engine

Place the transaxle in the proper gear.

Move your shift lever to PARK (P) or NEUTRAL (N). Your engine will not start in any other position – this is a safety feature. To restart when you are already moving, use NEUTRAL (N) only.

Notice: **Shifting into PARK (P) with the vehicle moving could damage the transaxle. Shift into PARK (P) only when your vehicle is stopped.**

Starting Procedure

1. With your foot off the accelerator pedal, turn the ignition key to START. When the engine starts, let go of the key. The idle speed will go down as your engine gets warm.
   Do not race the engine immediately after starting it. Operate the engine and transaxle gently to allow the oil to warm up and lubricate all moving parts.

Your vehicle has a Computer-Controlled Cranking System. This feature assists in starting the engine and protects components. If the ignition key is turned to the START position, and then released when the engine begins cranking, the engine will continue cranking for a few seconds or until the vehicle starts. If the engine does not start and the key is held in START for many seconds, cranking will be stopped after 15 seconds to prevent cranking motor damage. To prevent gear damage, this system also prevents cranking if the engine is already running. Engine cranking can be stopped by turning the ignition switch to the ACCESSORY or OFF position.

Notice: **Cranking the engine for long periods of time, by returning the key to the START position immediately after cranking has ended, can overheat and damage the cranking motor, and drain the battery. Wait at least 15 seconds between each try, to allow the cranking motor to cool down.**

2. If the engine does not start after 5-10 seconds, especially in very cold weather (below 0°F or –18°C), it could be flooded with too much gasoline. Try pushing the accelerator pedal all the way to the floor and holding it there as you hold the key in START for up to a maximum of 15 seconds. Wait at least 15 seconds between each try, to allow the cranking motor to cool down. When the engine starts, let go of the key and accelerator. If the vehicle starts briefly but then stops again, do the same thing. This clears the extra gasoline from the engine. Do not race the engine immediately after starting it. Operate the engine and transaxle gently until the oil warms up and lubricates all moving parts.

Notice: **Your engine is designed to work with the electronics in your vehicle. If you add electrical parts or accessories, you could change the way the engine operates. Before adding electrical equipment, check with your dealer. If you do not, your engine might not perform properly. Any resulting damage would not be covered by your vehicle's warranty.**

Engine Coolant Heater

Your vehicle may have an engine coolant heater.

In very cold weather, 0°F (–18°C) or colder, the engine coolant heater can help. You will get easier starting and better fuel economy during engine warm-up. Usually, the coolant heater should be plugged in a minimum of four hours prior to starting your vehicle. At temperatures above 32°F (0°C), use of the coolant heater is not required.

To Use the Engine Coolant Heater

1. Turn off the engine.
2. Open the hood and unwrap the electrical cord.

   The electrical cord is located on the driver's side of the engine, behind the transaxle dipstick/fluid fill location and next to the engine.
3. Plug it into a normal, grounded 110-volt AC outlet.

⚠ CAUTION:

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. 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.

How long should you keep the coolant heater plugged in? The answer depends on the outside temperature, the kind of oil you have, and some other things. Instead of trying to list everything here, we ask that you contact your dealer in the area where you will be parking your vehicle. The dealer can give you the best advice for that particular area.

Automatic Transaxle Operation

The automatic transaxle may have a shift lever located either on the steering column or on the console between the seats.

P R N D 3 2 1

There are several different positions for the shift lever.

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

⚠ CAUTION:

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

Do not leave your vehicle when the engine is running unless you have to. If you have left the engine running, the vehicle can move suddenly. You or others could be injured. To be sure your vehicle will not move, even when you are on fairly level ground, always set your parking brake and move the shift lever to PARK (P). See *Shifting Into Park (P) on page 122*. If you are pulling a trailer, see *Towing a Trailer on page 336*.

Make sure the shift lever is fully in PARK (P) before starting the engine. Your vehicle has an automatic transaxle shift lock control system. You have to fully apply your regular brakes before you can shift from PARK (P) while the ignition key is in RUN. If you cannot shift out of PARK (P), ease pressure on the shift lever. Push the shift lever all the way into PARK (P) as you maintain brake application. Then move the shift lever into another gear. See *Shifting Out of Park (P) on page 125*.

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

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

Also use this gear to rock your vehicle back and forth to get out of snow, ice or sand without damaging your transaxle. See *If Your Vehicle is Stuck in Sand, Mud, Ice, or Snow on page 326* for additional information.

NEUTRAL (N): In this position, the engine does not connect with the wheels. To restart when you are already moving, use NEUTRAL (N) only. Also, use NEUTRAL (N) when your vehicle is being towed.

⚠ CAUTION:

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

Notice: **Shifting out of PARK (P) or NEUTRAL (N) while the engine is running at high speed may damage the transaxle. The repairs would not be covered by your warranty. Be sure the engine is not running at high speeds when shifting your vehicle.**

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

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

  The transaxle will shift down to the next gear and have more power.

Downshifting the transaxle in slippery road conditions could result in skidding, see Skidding under *Loss of Control on page 311*.

Notice: **Driving your vehicle if you notice that it is moving slowly or not shifting gears as you increase speed may damage the transaxle. Have your vehicle serviced right away. You can drive in SECOND (2) when you are driving less than 35 mph (55 km/h) and DRIVE (D) for higher speeds until then.**

DRIVE (D) can be used for towing. You may want to shift the transaxle to THIRD (3) or, if necessary, to a lower gear if the transaxle shifts too often under heavy loads and/or hilly conditions.

See *Towing a Trailer on page 336* for more information.

THIRD (3): This position is also used for normal driving. However, it reduces vehicle speed more than DRIVE (D) without using your brakes. You might choose THIRD (3) instead of DRIVE (D) when driving on hilly, winding roads, when towing a trailer, so there is less shifting between gears and when going down a steep hill.

SECOND (2): This position reduces vehicle speed more than THIRD (3) without using your brakes. You can use SECOND (2) on hills. It can help control your speed as you go down steep mountain roads, but then you would also want to use your brakes off and on.

Notice: **Do not shift into SECOND (2) unless you are going slower than 65 mph (105 km/h), or you can damage your engine and/or transaxle.**

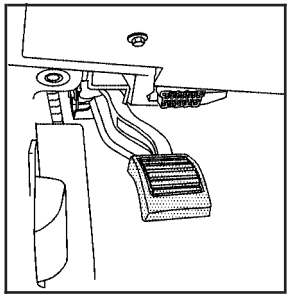
FIRST (1): This position reduces vehicle speed even more than SECOND (2) without using your brakes. You can use it on very steep hills, or in deep snow or mud. If the shift lever is put in FIRST (1) while the vehicle is moving forward, the transaxle will not shift into first gear until the vehicle is going slowly enough.

Notice: **Spinning the tires or holding the vehicle in one place on a hill using only the accelerator pedal may damage the transaxle. If you are stuck, do not spin the tires. When stopping on a hill, use the brakes, or parking brake to hold the vehicle in place.**

Performance Shifting

If your vehicle has this feature, it can detect a change in driving patterns. If you make an aggressive driving maneuver, the vehicle's transaxle automatically shifts to the lowest possible gear to maximize vehicle performance. The vehicle will automatically return to normal operation when you return to normal driving patterns.

Parking Brake



The parking brake pedal is located to the left of the regular brake pedal, near the driver's door.

To set the parking brake, hold the regular brake pedal down with your right foot and push the parking brake pedal down with your left foot.

If the ignition is on, the brake system warning light on the instrument panel cluster should come on. If it does not, you need to have your vehicle serviced.

A warning chime will sound if the parking brake is set, the ignition is on, and the vehicle speed is greater than 5 mph (8 km/h). The brake light will come on and stay on until the parking brake is released. See *Brake System Warning Light on page 222* for more information.

To release the parking brake, hold the regular brake pedal down with your right foot and push the parking brake pedal down with your left foot. When you lift your left foot, the parking brake pedal will follow it to the released position.

Notice: **Driving with the parking brake on can overheat the brake system and cause premature wear or damage to brake system parts. Verify that the parking brake is fully released and the brake warning light is off before driving.**

If you are towing a trailer and are parking on any hill, see *Towing a Trailer on page 336*.

Shifting Into Park (P)

⚠ CAUTION:

It can be dangerous to get out of your vehicle if the shift lever is not fully in PARK (P) with the parking brake firmly set. Your vehicle can roll. If you have left the engine running, the vehicle can move suddenly. You or others could be injured. To be sure your vehicle will not move, even when you are on fairly level ground, use the steps that follow. If you are pulling a trailer, see *Towing a Trailer on page 336*.

Steering Column Shift Lever

If your vehicle has a steering column shift lever, use the following procedure to shift the vehicle into PARK (P):

1. Hold the brake pedal down with your right foot.
2. Move the shift lever into PARK (P) by pulling the shift lever toward you and moving it up as far as it will go.
3. With your right foot still holding the brake pedal down, set the parking brake. See *Parking Brake on page 121* for more information.
4. Turn the ignition key to OFF.
5. Remove the key and take it with you. If you can leave your vehicle with the ignition key in your hand, your vehicle is in PARK (P).

Console Shift Lever

If your vehicle is equipped with a console shift lever, use the following procedure to shift the vehicle into PARK (P):

1. Hold the brake pedal down with your right foot.
2. Move the shift lever into PARK (P) by pushing the lever all the way toward the front of your vehicle and then to the left.
3. With your right foot still holding the brake pedal down, set the parking brake. See *Parking Brake on page 121* for more information.
4. Turn the ignition key to OFF.
5. Remove the key and take it with you. If you can leave your vehicle with the ignition key in your hand, your vehicle is in PARK (P).

Leaving Your Vehicle With the Engine Running

⚠ CAUTION:

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

If you have to leave your vehicle with the engine running, be sure your vehicle is in PARK (P) and your parking brake is firmly set before you leave it. See *Parking Brake on page 121* for more information.

Torque Lock

If you are parking on a hill and you do not shift your transaxle into PARK (P) properly, the weight of the vehicle may put too much force on the parking pawl in the transaxle. You may find it difficult to pull the shift lever out of PARK (P). This is called torque lock. To prevent torque lock, set the parking brake and then shift into PARK (P) properly before you leave the driver's seat. To find out how, see *Shifting Into Park (P) on page 122*.

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 transaxle, so you can pull the shift lever out of PARK (P).

Shifting Out of Park (P)

Your vehicle has an automatic transaxle shift lock control system. You have to fully apply your regular brakes before you can shift from PARK (P) when the ignition is RUN. See *Automatic Transaxle Operation on page 118*.

The shift lock control system is designed to do the following:

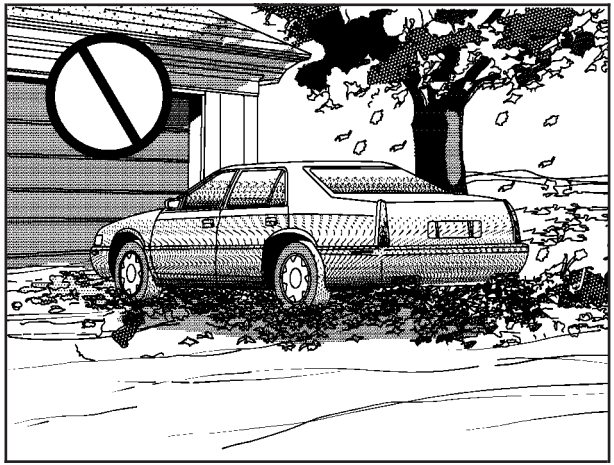
- Prevent the ignition key from being removed unless the shift lever is in PARK (P).
- Prevent movement of the console shift lever out of PARK (P) unless the ignition is in a position other than OFF.

The shift lock control system is always functional except in the case of a dead battery or low voltage (less than 9 V) battery.

If you cannot shift out of PARK (P), ease the pressure on the shift lever. Push the shift lever all the way into PARK (P) as you maintain brake application. Then move the shift lever into the gear you want.

If you are still having a problem shifting, then have your vehicle serviced soon.

Parking Over Things That Burn



⚠ CAUTION:

Things that can burn could touch hot exhaust parts under your vehicle and ignite. Do not park over papers, leaves, dry grass, or other things that can burn.

Engine Exhaust

⚠ CAUTION:

Engine exhaust can kill. It contains the gas carbon monoxide (CO), which you cannot see or smell. It can cause unconsciousness and death.

You might have exhaust coming in if:

- **Your exhaust system sounds strange or different.**
- **Your vehicle gets rusty underneath.**
- **Your vehicle was damaged in a collision.**

CAUTION: (Continued)

CAUTION: (Continued)

- **Your vehicle was damaged when driving over high points on the road or over road debris.**
- **Repairs were not done correctly.**
- **Your vehicle or exhaust system has been modified improperly.**

If you ever suspect exhaust is coming into your vehicle:

- **Drive it only with all the windows down to blow out any CO; and**
- **Have your vehicle fixed immediately.**

Running the Engine While Parked

It is better not to park with the engine running. But if you ever have to, here are some things to know.

⚠ CAUTION:

Idling the engine with the climate control system off could allow dangerous exhaust into your vehicle. See the earlier caution under *Engine Exhaust on page 126*.

Also, idling in a closed-in place can let deadly carbon monoxide (CO) into your vehicle even if the climate control fan is at the highest setting. One place this can happen is a garage. Exhaust — with CO — can come in easily. NEVER park in a garage with the engine running.

Another closed-in place can be a blizzard. See *Winter Driving on page 322*.

⚠ CAUTION:

It can be dangerous to get out of your vehicle if the shift lever is not fully in PARK (P) with the parking brake firmly set. Your vehicle can roll. Do not leave your vehicle when the engine is running unless you have to. If you have left the engine running, the vehicle can move suddenly. You or others could be injured. To be sure your vehicle will not move, even when you are on fairly level ground, always set your parking brake after you move the shift lever to PARK (P).

Follow the proper steps to be sure your vehicle will not move. See *Shifting Into Park (P) on page 122*.

If you are parking on a hill and if you are pulling a trailer, also see *Towing a Trailer on page 336*.

Mirrors

Automatic Dimming Rearview Mirror with Intellibeam™, OnStar®, and Compass

Your vehicle may have an automatic dimming rearview mirror with OnStar® and a compass display. For more information, see *OnStar® System on page 135*. For more information on Intellibeam™, see “Intellibeam Intelligent High-Beam Headlamp Control System” under *Exterior Lamps on page 186*.

The mirror includes an eight-point compass display in the upper right corner of the mirror face. When on, the compass automatically calibrates as the vehicle is driven.

Automatic Dimming

Your vehicle is equipped with an automatic dimming rearview mirror. The automatic dimming feature is activated whenever the vehicle is turned on and dims only during nighttime driving.

Compass Operation

AUTO : Press and hold the “auto highbeam” button for approximately three seconds to turn the compass on or off.

When the ignition and the compass feature are on, the compass will show two character boxes for about two seconds. After two seconds, the mirror will display the compass heading.

Compass Calibration

If after two seconds the display does not show the correct direction, (N for North for example), there may be a strong magnetic field interfering with the compass. Such interference may be caused by a magnetic antenna mount, magnetic note pad holder, or a similar magnetic item.

The compass can be placed in calibration mode manually by pressing and holding the “auto highbeam” button for approximately nine seconds until a C is shown in the compass display.

The mirror can then be calibrated by driving the vehicle in circles at 5 mph (8 km/h) or less until the display reads a direction.

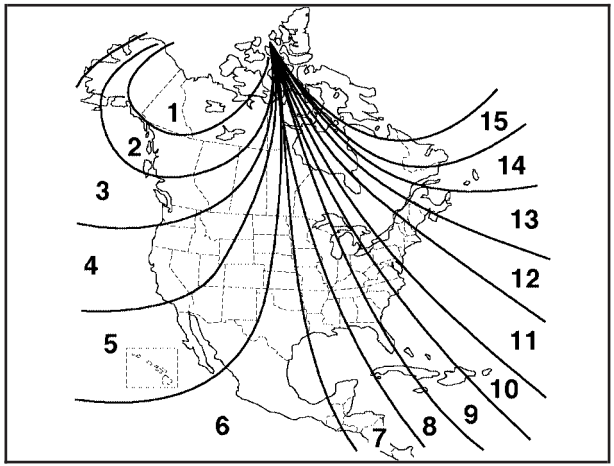
Compass Variance

The mirror is set to zone eight upon leaving the factory. It will be necessary to adjust the compass to compensate for compass variance if the vehicle is driven outside zone eight. Under certain circumstances, such as a long distance, cross-country trip, it will be necessary to adjust the compass variance.

Compass variance is the difference between earth's magnetic north and true geographic north. If the mirror is not adjusted to account for zone changes, the compass could give false readings.

To adjust for zone changes, do the following:

1. Find your current location and variance zone number on the zone map that follows.



2. Press and hold the "auto highbeam" button approximately six seconds until a zone number appears in the display.
3. Once the zone number appears in the display, press the "auto highbeam" button quickly until you reach the correct zone number. Stop pressing the button and the mirror will return to normal operation. If C appears in the compass window, the compass needs calibration. See "Compass Calibration" listed previously.

Cleaning the Mirror

When cleaning the mirror, use a paper towel or similar material dampened with glass cleaner. Do not spray glass cleaner directly on the mirror as that may cause the liquid cleaner to enter the mirror housing.

Automatic Dimming Rearview Mirror with OnStar® and Compass

Your vehicle may have an automatic dimming rearview mirror with a compass display. The mirror also contains OnStar® controls. For more information see *OnStar® System on page 135*.

The mirror includes an eight-point compass display in the upper right corner of the mirror face. When on, the compass automatically calibrates as the vehicle is driven.

Mirror Operation

⏻ **(On/Off):** Press and hold the button, located on the lower left side of the mirror face, for about three seconds to turn the automatic dimming feature on or off. The indicator light will illuminate when this feature is active. The automatic dimming feature is active each time the vehicle is started.

Compass Operation

Press the on/off button once to turn the compass on or off.

When the ignition and the compass feature are on, the compass will show two character boxes for about two seconds. After two seconds, the mirror will display the compass heading.

Compass Calibration

If after two seconds, the display does not show a compass heading (for example, N for North), there may be a strong magnetic field interfering with the compass. Such interference may be caused by a magnetic antenna mount, magnetic note pad holder or a similar magnetic item.
If the letter C should ever appear in the compass window, the compass may need calibration.

The mirror can be calibrated by driving the vehicle in circles at 5 mph (8 km/h) or less until the display reads a direction.

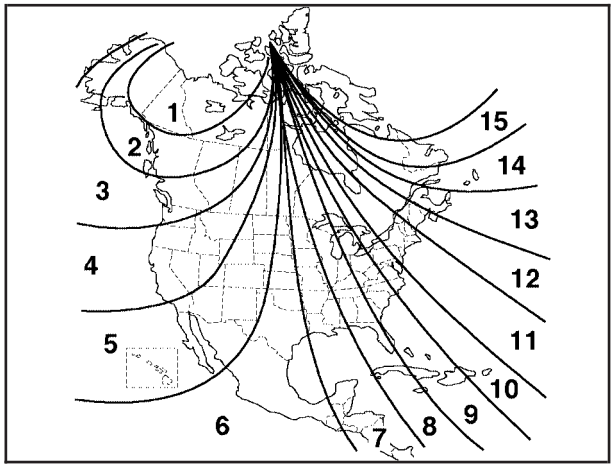
The compass can be placed in calibration mode manually by pressing and holding the on/off button until a C is shown in the compass display.

Compass Variance

The zone is set to zone eight upon leaving the factory. It will be necessary to adjust the compass to compensate for compass variance if you live outside zone eight. Under certain circumstances, as during a long distance cross-country trip, it will be necessary to adjust for compass variance. Compass variance is the difference between earth's magnetic north and true geographic north. If not adjusted to account for compass variance, your compass could give false readings.

To adjust for compass variance do the following:

1. Find the current location and variance zone number on the following zone map.



2. Press and hold the on/off button until a zone number appears in the display.
3. Once the zone number appears in the display, press the on/off button quickly until the correct zone number appears in the display. Stop pressing the button and the mirror will return to normal operation. If C appears in the compass window, the compass may need calibration. See *Compass Calibration* listed previously.

Cleaning the Mirror

When cleaning the mirror, use a paper towel or similar material dampened with glass cleaner. Do not spray glass cleaner directly on the mirror as that may cause the liquid cleaner to enter the mirror housing.

Automatic Dimming Rearview Mirror with Compass

Your vehicle may have an automatic dimming rearview mirror with a compass display.

The mirror includes an eight-point compass display in the upper right corner of the mirror face. When on, the compass automatically calibrates as the vehicle is driven.

Mirror Operation

⏻ **(On/Off):** Press and hold the button, located on the lower left side of the mirror face, for about three seconds to turn the automatic dimming feature on or off. The indicator light will illuminate when this feature is active. The automatic dimming feature is active each time the vehicle is started.

Compass Operation

Press the on/off button once to turn the compass on or off.

When the ignition and the compass feature are on, the compass will show two character boxes for about two seconds. After two seconds, the mirror will display the compass heading.

Compass Calibration

See “Compass Calibration” under *Automatic Dimming Rearview Mirror with OnStar® and Compass on page 130* for more information.

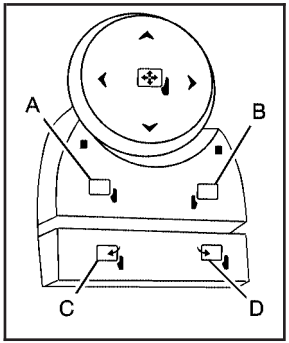
Compass Variance

See “Compass Variance” under *Automatic Dimming Rearview Mirror with OnStar® and Compass on page 130* for more information.

Cleaning the Mirror

When cleaning the mirror, use a paper towel or similar material dampened with glass cleaner. Do not spray glass cleaner directly on the mirror as that may cause the liquid cleaner to enter the mirror housing.

Outside Power Foldaway Mirrors



Your vehicle's mirror controls are located on the driver's door armrest.

- Press (A) to select the driver's side mirror. Then press the arrows located on the four-way control pad to adjust the mirror.
- Press (B) to select the passenger's side mirror. Then press the arrows located on the four-way control pad to adjust the mirror.

If your vehicle has manual fold mirrors, the mirrors can be manually folded inward to prevent damage when going through an automatic car wash. To fold, push the mirror toward the vehicle.

To return the mirror to its original position, push outward. Be sure to return both mirrors to their original unfolded position before driving.

If your vehicle has the power foldaway mirrors feature, do the following:

- Press (C) to unfold the mirrors.
- Press (D) to fold the mirrors.

If the mirrors are accidentally folded/unfolded manually, they may shake or flutter at normal driving speeds and may not stay in the unfolded position. If this happens, you will need to reset the mirrors. See "Resetting the Power Foldaway Mirrors" next.

Resetting the Power Foldaway Mirrors

You will need to reset the power foldaway mirrors if the following occurs:

- They are accidentally manually folded/unfolded.
- The mirrors will not stay in the unfolded position.
- The mirrors shake and flutter at normal driving speeds.

To reset the power foldaway mirrors, fold and unfold them three times using the mirror controls. This will reset them to their normal position.

Outside Automatic Dimming Mirror

If the vehicle is equipped with this feature, the driver's side mirror will adjust for the glare of headlamps behind you. This feature is controlled by the on and off settings on the automatic dimming rearview mirror.

Outside Curb View Assist Mirror

If your vehicle is equipped with memory mirrors, it will also be capable of performing the curb view assist mirror feature. This feature will allow the driver's and passenger's side mirror to tilt to a factory programmed position when the vehicle is in REVERSE (R). This feature may be useful in allowing you to view the curb when you are parallel parking.

When the vehicle is shifted out of REVERSE (R) and either a five-second delay has occurred, or the ignition is turned to OFF, the driver's and passenger's side mirror will return to its original position.

This feature can be enabled/disabled through the Driver Information Center (DIC).

Outside Convex Mirror

⚠ CAUTION:

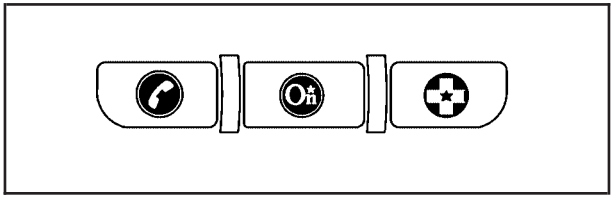
A convex mirror can make things (like other vehicles) look farther away than they really are. If you cut too sharply into the right lane, you could hit a vehicle on your right. Check your inside mirror or glance over your shoulder before changing lanes.

The passenger's side mirror is convex. A convex mirror's surface is curved so more can be seen from the driver's seat. This mirror does not have a dimming feature.

Outside Heated Mirrors

When you operate the rear window defogger, it also warms both outside mirrors to help clear them of fog or ice. See *Dual Climate Control System on page 204* for more information.

OnStar® System



OnStar® uses several innovative technologies and live advisors to provide you with a wide range of safety, security, information, and convenience services. If your airbags deploy, the system is designed to make an automatic call to OnStar® Emergency advisors who can request emergency services be sent to your location. If you lock your keys in the vehicle, call OnStar® at 1-888-4-ONSTAR and they can send a signal to unlock your doors. If you need roadside assistance, press the OnStar® button and they can contact Roadside Service for you.

OnStar® service is provided to you subject to the OnStar® Terms and Conditions. You may cancel your OnStar® service at any time by contacting OnStar® as provided below. A complete OnStar® Owner's Guide and the OnStar® Terms and Conditions are included in the vehicle's OnStar® Subscriber glove box literature. For more information, visit onstar.com or onstar.ca, contact OnStar® at 1-888-4-ONSTAR (1-888-466-7827) or TTY 1-877-248-2080, or press the OnStar® button to speak with an OnStar® advisor 24 hours a day, 7 days a week.

Not all OnStar® features are available on all vehicles. To check if your vehicle is equipped to provide the services described below, or for a full description of OnStar® services and system limitations, see the OnStar® Owner's Guide in your glove box or visit onstar.com.

OnStar® Services

For new vehicles equipped with OnStar®, the Safe & Sound Plan, or the Directions & Connections® Plan is included for one year from the date of purchase. You can extend this plan beyond the first year, or upgrade to the Directions & Connections® Plan. For more information, press the OnStar® button to speak with an advisor. Some OnStar® services (such as Remote Door Unlock or Stolen Vehicle Location Assistance) may not be available until you register with OnStar®.

Available Services with Safe & Sound® Plan

- Automatic Notification of Airbag Deployment
- Advanced Automatic Crash Notification (AACN) (If equipped)
- Link to Emergency Services
- Roadside Assistance
- Stolen Vehicle Location Assistance
- AccidentAssist
- Remote Door Unlock/Vehicle Alert
- OnStar® Vehicle Diagnostics
- GM® Goodwrench® On Demand Diagnostics
- OnStar® Hands-Free Calling with 30 complimentary minutes
- OnStar® Virtual Advisor

Available Services included with Directions & Connections® Plan

- All Safe and Sound Plan Services
- Driving Directions - Advisor delivered or OnStar® Turn-by-Turn Navigation (If equipped)
- RideAssist
- Information and Convenience Services

OnStar® Hands-Free Calling

OnStar® Hands-Free Calling allows eligible OnStar® subscribers to make and receive calls using voice commands. Hands-Free Calling is fully integrated into the vehicle, and can be used with OnStar® Pre-Paid Minute Packages. Hands-Free Calling may also be linked to a Verizon Wireless service plan, depending on eligibility. To find out more, refer to the OnStar® Owner's Guide in the vehicle's glove box, visit www.onstar.com or www.onstar.ca, or speak with an OnStar® advisor by pressing the OnStar® button or calling 1-888-4-ONSTAR (1-888-466-7827).

OnStar® Virtual Advisor

OnStar® Virtual Advisor is a feature of OnStar® Hands-Free Calling that uses your minutes to access location-based weather, local traffic reports, and stock quotes. By pressing the phone button and giving a few simple voice commands, you can browse through the various topics. See the OnStar® Owner's Guide for more information.

OnStar® Steering Wheel Controls

Your vehicle may have a Talk/Mute button that can be used to interact with OnStar® Hands-Free Calling. See *Audio Steering Wheel Controls on page 289* for more information.

On some vehicles, you may have to hold the button for a few seconds and give the command "ONSTAR" in order to activate the OnStar® Hands-Free Calling feature.

On some vehicles, the mute button can be used to dial numbers into voicemail systems, or to dial phone extensions. See the OnStar® Owner's Guide for more information.

How OnStar® Service Works

In order to provide you with OnStar® services, your vehicle's OnStar® system has the capability of recording and transmitting vehicle information. This information is automatically sent to an OnStar® Call Center at the time of an OnStar® button press, Emergency button press or if your airbags or AACN system deploys. The vehicle information usually includes your GPS location and, in the event of a crash, additional information regarding the accident that your vehicle has been involved in (e.g. the direction from which your vehicle was hit). When you use the Virtual Advisor feature of OnStar® Hands-Free Calling, your vehicle also sends OnStar® your GPS location so that we can provide you with location-based services.

OnStar® service cannot work unless your vehicle is in a place where OnStar® has an agreement with a wireless service provider for service in that area. OnStar® service also cannot work unless you are in a place where the wireless service provider OnStar® has hired for that area has coverage, network capacity and reception when the service is needed, and technology that is compatible with the OnStar® service. Not all services are available everywhere, particularly in remote or enclosed areas, or at all times.

OnStar® service that involves location information about your vehicle cannot work unless GPS satellite signals are unobstructed and available in that place as well.

Your vehicle must have a working electrical system (including adequate battery power) for the OnStar® equipment to operate. There are other problems OnStar® cannot control that may prevent OnStar® from providing OnStar® service to you at any particular time or place. Some examples are damage to important parts of your vehicle in an accident, hills, tall buildings, tunnels, weather or wireless phone network congestion.

Your Responsibility

You may need to increase the volume of your radio to hear the OnStar® advisor. If the light next to the OnStar® buttons is red, this means that your system is not functioning properly and should be checked by a dealer. If the light appears clear (no light is appearing), your OnStar® subscription has expired. You can always press the blue OnStar® button to confirm that your OnStar® equipment is active.

Universal Home Remote System

Universal Home Remote System (With Three Round LED)

The Universal Home Remote System provides a way to replace up to three hand-held Radio-Frequency (RF) transmitters used to activate devices such as garage door openers, security systems, and home lighting.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

The FCC Grant of Equipment Authorization Certificate number is KOBGTE05A.

This device complies with RSS-210 of Industry Canada. Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

The Canadian Registration ID number is 3521A-GTE05A.

Changes or modifications to this system by other than an authorized service facility could void authorization to use this equipment.

Universal Home Remote System (With One Triangular LED)

The Universal Home Remote System provides a way to replace up to three hand-held Radio-Frequency (RF) transmitters used to activate devices such as garage door openers, security systems, and home lighting.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

The FCC Grant of Equipment Authorization Certificate number is CB2OHHL3.

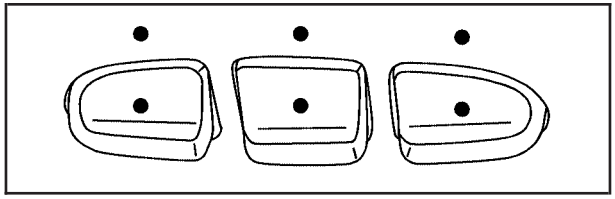
This device complies with RSS-210 of Industry Canada. Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

The Canadian Registration ID number is 2791032007A.

Changes or modifications to this system by other than an authorized service facility could void authorization to use this equipment.

Universal Home Remote System Operation (With Three Round LED)



Your vehicle may have the Universal Home Remote System. If there are three round Light Emitting Diode (LED) above the Universal Home Remote System buttons, follow the instructions below.
If there is one triangular LED above the Universal Home Remote System buttons, follow the instructions under Universal Home Remote System Operation (with one triangular LED).

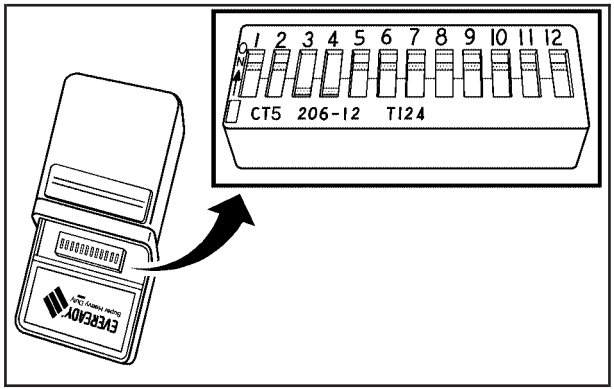
This system provides a way to replace up to three remote control transmitters used to activate devices such as garage door openers, security systems, and home lighting.

Do not use the this system with any garage door opener that does not have the stop and reverse feature. This includes any garage door opener model manufactured before April 1, 1982.

Read the instructions completely before attempting to program the transmitter. Because of the steps involved, it may be helpful to have another person available to assist you in programming the transmitter.

Be sure to keep the original remote control transmitter for use in other vehicles, as well as, for future programming. You only need the original remote control transmitter for fixed code programming. It is also recommended that upon the sale or lease termination of the vehicle, the programmed buttons should be erased for security purposes. See “Erasing your Universal Home Remote Buttons” later in this section.

Be sure that people and objects are clear of the garage door or security device you are programming. When programming a garage door, it is advised to park outside of the garage.



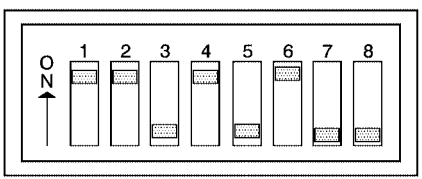
If you do not know if your garage door opener is a fixed code or rolling code device, open your garage door opener's remote control battery cover. Your garage door opener is a fixed code device if there is a panel of switches. If not, your garage door opener is a rolling code device.

Programming Universal Home Remote — Fixed Code

Fixed Code garage door openers are used for garage doors produced prior to 1996. Fixed code uses the same coded signal every time, which is manually programmed by setting DIP switches for a unique personal code.

Follow these steps to program up to three channels:

1. Remove the battery cover of the hand-held transmitter.



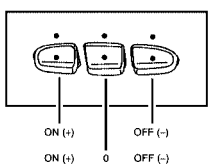
Switch Number	1	2	3	4	5	6	7	8
Switch Position	On	On	Off	On	Off	On	Off	Off

Example of Switch Settings

2. Write down the eight to 12 coding switch settings from left to right. When the switch is in the up position, write “on,” and when a switch is in the down position, write “off”. If a switch is set between the up and down position, write “middle”.
3. Enter these positions into the Universal Home Remote System as follows.

   Press and release all three buttons at the same time to put the device into programming mode.

Switch Number	1	2	3	4	5	6	7	8
Switch Position	On	On	Off	On	Off	On	Off	Off
Your UHR Button	Left	Left	Right	Left	Right	Left	Right	Right



Example

4. The indicator light will blink slowly. In order from left to right, and within two and one-half minutes, enter each switch setting into the Universal Home Remote System. Push one button for each switch as follows:
   - Left button = “on” switch position.
   - Right button = “off” switch position.
   - Middle button = “middle” switch position.
5. After entering the switch settings, press and release all three buttons at the same time. The indicator lights will turn on.
6. Press and hold the button you would like to use to control the garage door until the garage door moves. The indicator light above the selected button should slowly blink. You may need to hold the button from five to 55 seconds.
7. Immediately release the button when the garage door moves. The indicator light will blink rapidly until programming is complete.
8. Press and release the button again. The garage door should move, confirming that programming is successful and complete.

To program another device such as an additional garage door opener, a security device, or home lighting, repeat Steps 1 through 8, choosing a different function button in Step 7 than what you used for the garage door opener.

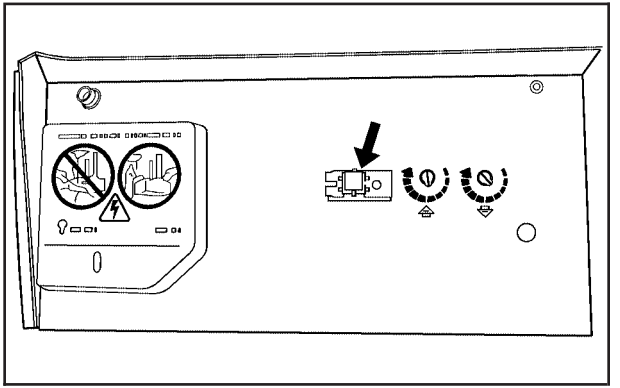
Programming Universal Home Remote — Rolling Code

Rolling code garage door openers are used for garage doors produced after 1996 and are code protected. Rolling code means the coded signal is changed every time your remote control garage door opener is used.

Programming a rolling code garage door opener involves time-sensitive actions, so read the entire procedure before you begin. If you do not follow these actions, the device will time out and you will have to repeat the procedure.

Follow these steps to program up to three channels:

1. Press the two outside buttons at the same time for one to two seconds, and immediately release them.



2. Go to the garage. Locate the garage door motor head and press and release the “learn” button.

   After pressing the “learn” button, you have 10 to 30 seconds to complete Step 4 depending on your garage control unit. If you cannot locate the “learn” button, refer to the owner’s guide for your garage door opener.

3. Press and hold the button you would like to use to control the garage door until the garage door moves. The indicator light, above the selected button, should slowly blink. You may need to hold the button from five to 20 seconds.
4. Immediately release the button when the garage door moves. The indicator light will blink rapidly until programming is complete.
5. Press and release the button again. The garage door should move, confirming that programming is successful and complete.

To program another device such as an additional garage door opener, a security device, or home lighting, repeat Steps 1 through 6, choosing a different function button in Step 4 than what you used for the garage door opener.

Using Universal Home Remote

Press and hold the appropriate button for at least half of a second. The indicator light will come on while the signal is being transmitted.

Reprogramming Universal Home Remote Buttons

You can reprogram any of the three buttons by repeating the instructions.

Erasing Universal Home Remote Buttons

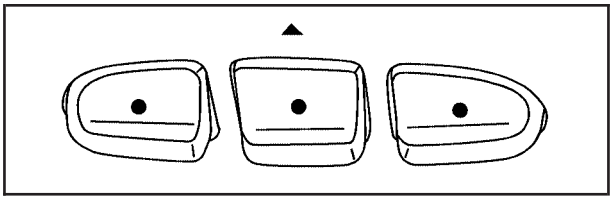
You should erase the programmed buttons when you sell the vehicle or terminate your lease.

To erase either rolling code or fixed code on the Universal Home Remote device, do the following:

1. Press and hold the two outside buttons at the same time for about 20 seconds, until the indicator lights, located directly above the buttons, begin to blink rapidly.
2. Once the indicator lights begin to blink, release both buttons. The codes from all button will be erased.

For additional information on Universal Home Remote, see *Customer Assistance Offices on page 478*.

Universal Home Remote System Operation (With One Triangular LED)



Your vehicle may have the Universal Home Remote System. If there is one triangular Light Emitting Diode (LED) above the Universal Home Remote buttons, follow the instructions below. If your vehicle has three round LED above the Universal Home Remote buttons, follow the instructions under Universal Home Remote System Operation (with three round LED).

Do not use the Universal Home Remote with any garage door opener that does not have the stop and reverse feature. This includes any garage door opener model manufactured before April 1, 1982. If you have a newer garage door opener with rolling codes, please be sure to follow Steps 6 through 8 to complete the programming of your Universal Home Remote Transmitter.

Read the instructions completely before attempting to program the Universal Home Remote. Because of the steps involved, it may be helpful to have another person available to assist you in the programming steps.

Keep the original hand-held transmitter for use in other vehicles as well as for future Universal Home Remote programming. It is also recommended that upon the sale of the vehicle, the programmed Universal Home Remote buttons should be erased for security purposes. See “Erasing Universal Home Remote Buttons” later in this section or, for assistance, see *Customer Assistance Offices on page 478*.

Be sure that people and objects are clear of the garage door or gate operator you are programming. When programming a garage door, it is advised to park outside of the garage.

It is recommended that a new battery be installed in your hand-held transmitter for quicker and more accurate transmission of the radio-frequency signal.

Programming Universal Home Remote

Follow these steps to program up to three channels:

1. Press and hold down the two outside Universal Home Remote buttons, releasing only when the Universal Home Remote indicator light begins to flash, after 20 seconds. Do not hold down the buttons for longer than 30 seconds and do not repeat this step to program a second and/or third hand-held transmitter to the remaining two Universal Home Remote buttons.
2. Position the end of your hand-held transmitter about 1 to 3 inches (3 to 8 cm) away from the Universal Home Remote buttons while keeping the indicator light in view.
3. Simultaneously press and hold both the desired Universal Home Remote button and the hand-held transmitter button. Do not release the buttons until Step 4 has been completed.

   Some entry gates and garage door openers may require you to substitute Step 3 with the procedure noted in “Gate Operator and Canadian Programming” later in this section.
4. The indicator light will flash slowly at first and then rapidly after Universal Home Remote successfully receives the frequency signal from the hand-held transmitter. Release both buttons.
5. Press and hold the newly-trained Universal Home Remote button and observe the indicator light.

   If the indicator light stays on continuously, programming is complete and your device should activate when the Universal Home Remote button is pressed and released.

   To program the remaining two Universal Home Remote buttons, begin with Step 2 under “Programming Universal Home Remote.” Do not repeat Step 1 as this will erase all of the programmed channels.

   If the indicator light blinks rapidly for two seconds and then turns to a constant light, continue with Steps 6 through 8 following to complete the programming of a rolling-code device, most commonly, a garage door opener.

6. Locate in the garage, the garage door opener receiver (motor-head unit). Locate the “Learn” or “Smart” button. This can usually be found where the hanging antenna wire is attached to the motor-head unit.
7. Firmly press and release the “Learn” or “Smart” button. The name and color of the button may vary by manufacturer.

   You will have 30 seconds to start Step 8.
8. Return to the vehicle. Firmly press and hold the programmed Universal Home Remote button for two seconds, then release it. Immediately press and hold the same button a second time for two seconds, then release it. Immediately, press and hold the same button a third time for two seconds, then release.

   The Universal Home Remote should now activate the rolling-code device.

To program the remaining two Universal Home Remote buttons, begin with Step 2 of “Programming Universal Home Remote.” Do not repeat Step 1, as this will erase all previous programming from the Universal Home Remote buttons.

Gate Operator and Canadian Programming

Canadian radio-frequency laws require transmitter signals to time out or quit after several seconds of transmission. This may not be long enough for Universal Home Remote to pick up the signal during programming. Similarly, some U.S. gate operators are manufactured to time out in the same manner.

If you live in Canada, or you are having difficulty programming a gate operator or garage door opener by using the “Programming Universal Home Remote” procedures, regardless of where you live, replace Step 3 under “Programming Universal Home Remote” with the following:

Continue to press and hold the Universal Home Remote button while you press and release every two seconds (cycle) the hand-held transmitter button until the frequency signal has been successfully accepted by the Universal Home Remote. The Universal Home Remote indicator light will flash slowly at first and then rapidly. Proceed with Step 4 under “Programming Universal Home Remote” to complete.

Using Universal Home Remote

Press and hold the appropriate Universal Home Remote button for at least half of a second. The indicator light will come on while the signal is being transmitted.

Erasing Universal Home Remote Buttons

To erase programming from the three Universal Home Remote buttons do the following:

1. Press and hold down the two outside buttons until the indicator light begins to flash, after 20 seconds. Do not hold the two outside buttons for longer than 30 seconds.
2. Release both buttons.

The Universal Home Remote is now in the training (learning) mode and can be programmed at any time beginning with Step 2 under “Programming Universal Home Remote” shown earlier in this section.

Individual buttons cannot be erased, but they can be reprogrammed. See “Reprogramming a Single Universal Home Remote Button” following this section.

Reprogramming a Single Universal Home Remote Button

To program a device to Universal Home Remote using a Universal Home Remote button previously trained, follow these steps:

1. Press and hold the desired Universal Home Remote button. Do not release the button.
2. The indicator light will begin to flash after 20 seconds. While still holding the Universal Home Remote button, proceed with Step 2 under “Programming Universal Home Remote” shown earlier in this section.

For additional information on Universal Home Remote, see *Customer Assistance Offices on page 478*.

Storage Areas

Glove Box

To open the glove box, lift up on the lever. Use the key to lock and unlock.

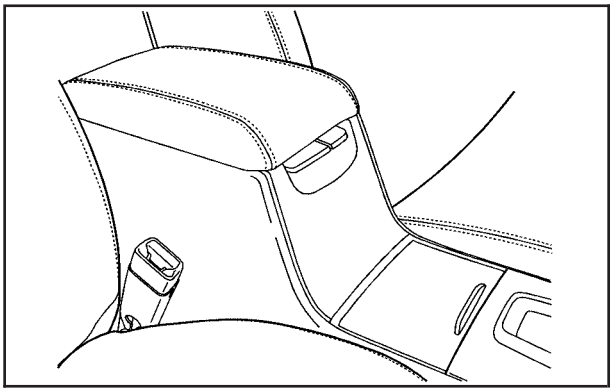
Cupholder(s)

There are cupholders located in the full floor console, or in the front of the center seat console. Cupholders are also located in the rear armrest. To access the full floor console cupholder slide the cover back. To access the center seat console cupholder, fold open the front of the console.

Coinholder(s)

Your vehicle may be equipped with a coinholder.

Center Console Storage Area



If your vehicle has a full floor console it has two storage areas. To access the upper tray storage, lift the left lever located in the front of the armrest lid. To access the lower storage area, lift the right lever. If your vehicle has a center seat console it will have two storage areas.

To access the upper storage area, press the button located on the front of the armrest and lift the armrest lid. To access the lower storage area, pull the strap located behind the cup holder.

Center Flex Storage Unit

Your vehicle may have a center flex storage unit that includes a front center seat with a lap belt and an underseat storage compartment. The center seatback can also be used as a fold down armrest. Cupholders are also located at the front edge of the storage unit and can be accessed by folding the compartment forward.

When not being used, the center seat lap belt can be stored in the underseat storage compartment.

Rear Seat Armrest

Your vehicle may be equipped with a rear seat center console and armrest. To open the console, push the button and lift the lid. Inside the console are two cupholders that can be pulled out when in use.

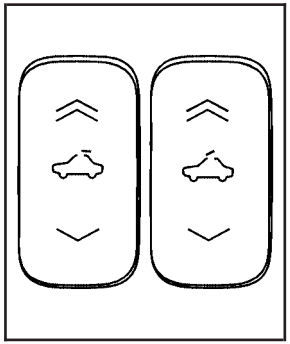
Convenience Net

Your vehicle may be equipped with a convenience net. The convenience net attaches to the floor of the trunk. Put small loads, like grocery bags, behind the net.

The net is not for larger, heavier loads. Store them in the trunk as far forward as you can. When not using the net, hook the net to the tabs securing it to the sill plate.

Sunroof

The vehicle may have a power sunroof.



The switches that operate the sunroof are located on the overhead console.

To open or close the sunroof, the ignition must be turned to RUN or Retained Accessory Power (RAP) must be active. See *Retained Accessory Power (RAP) on page 115*.

Express Open: The express open feature will operate from the closed or partially open position. To express open the power sunroof, fully press the driver's side switch rearward once. To stop the sunroof glass in a desired position other than to the express-open position, press the switch again, in either direction, to stop the movement. If the sunshade is in the closed position, it will open with the sunroof, or it can be opened manually.

Vent Open: From the closed position, press and hold the passenger's side switch forward to vent the sunroof. The rear of the sunroof panel will tilt upward to the full vent position. The sunshade must be opened manually.

Close: To close the sunroof, operate the controls according to one of the following:

- From the open position, press and hold the driver's side sunroof switch forward. The sunshade must be closed manually.
- From the vent position, press and hold the passenger's side sunroof switch rearward.

Section 3 Instrument Panel

Instrument Panel Overview 156
Hazard Warning Flashers 158
Other Warning Devices 158
Horn 158
Tilt Wheel 158
Power Tilt Wheel and Telescopic Steering Column 159
Heated Steering Wheel 159
Turn Signal/Multifunction Lever 160
Turn and Lane-Change Signals 160
Headlamp High/Low-Beam Changer 161
Forward Collision Alert (FCA) System 161
Flash-to-Pass 165
Windshield Wipers 166
Rainsense™ II Wipers 167
Windshield Washer 168
Cruise Control 169
Adaptive Cruise Control 173
Exterior Lamps 186
Wiper Activated Headlamps 190
Headlamps on Reminder 190
Daytime Running Lamps (DRL) 190
Fog Lamps 191
Cornering Lamps 192
Exterior Lighting Battery Saver 192
Instrument Panel Brightness 192
Courtesy Lamps 193
Entry Lighting 193
Parade Dimming 193
Reading Lamps 193
Battery Load Management 194
Electric Power Management 194
Inadvertent Power Battery Saver 195
Battery Run-Down Protection 195
Ultrasonic Front and Rear Parking Assist (UFRPA) 196
Accessory Power Outlet(s) 201
Ashtray(s) and Cigarette Lighter 202
Analog Clock 203
Climate Controls 204
Dual Climate Control System 204
Outlet Adjustment 210
Rear Climate Control System 211
Passenger Compartment Air Filter 213

Section 3 Instrument Panel

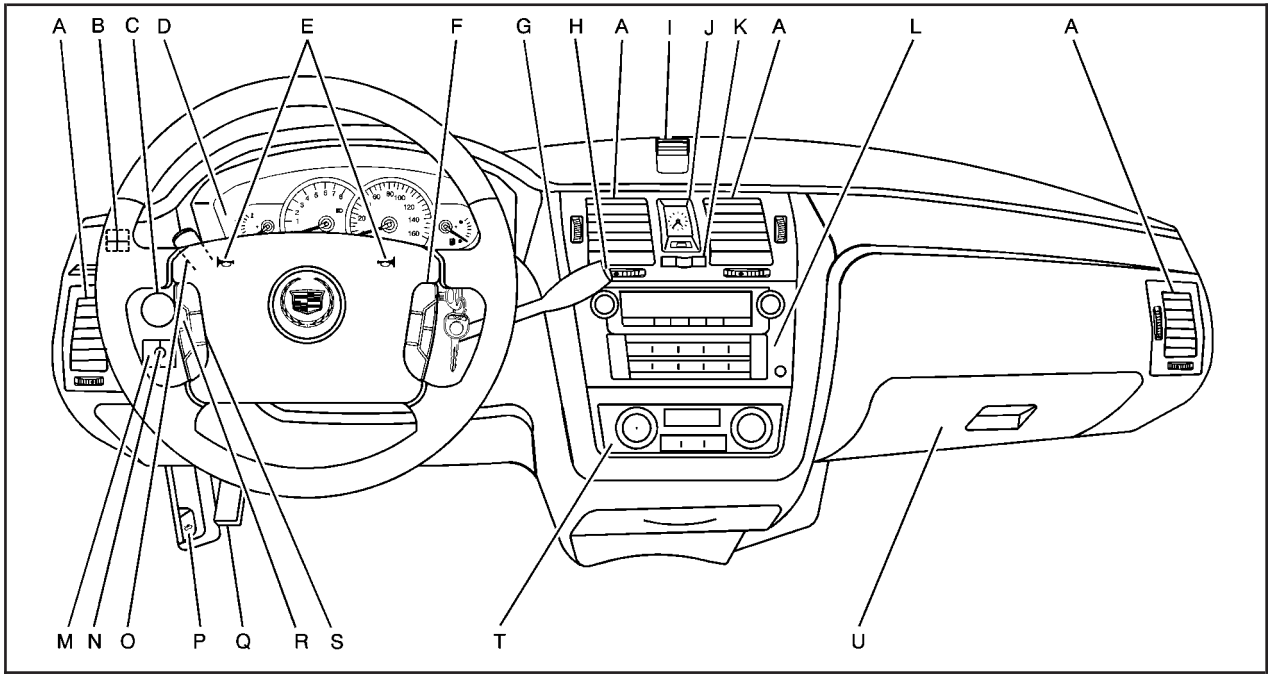
Warning Lights, Gages, and Indicators 215
Instrument Panel Cluster 216
Speedometer and Odometer 217
Tachometer 217
Safety Belt Reminder Light 218
Passenger Safety Belt Reminder Light 218
Airbag Readiness Light 219
Passenger Airbag Status Indicator 220
Charging System Light 222
Brake System Warning Light 222
Anti-Lock Brake System Warning Light 223
Low Tire Pressure Warning Light 224
Traction Control System (TCS) Warning Light 225
StabiliTrak® Indicator Light 225
Engine Coolant Temperature Warning Light 226
Engine Coolant Temperature Gage 226
Malfunction Indicator Lamp 227
Oil Pressure Light 230
Security Light 230
Fog Lamp Light 231
Lights On Reminder 231
Cruise Control Light 231
Highbeam On Light 231
Fuel Gage 232

Driver Information Center (DIC) 233
DIC Controls and Displays 233
DIC Warnings and Messages 239
DIC Vehicle Customization 252

Audio System(s) 261
Setting the Time (Radio with Single CD Player) 262
Setting the Time (Radio with Six-Disc CD Player) 264
Radio with CD (MP3) 266
Using an MP3 280
XM Radio Messages 287
Navigation/Radio System 289
Theft-Deterrent Feature 289
Audio Steering Wheel Controls 289
Radio Reception 291
Care of Your CDs 292
Care of the CD Player 292
Backglass Antenna 292
XM™ Satellite Radio Antenna System 293

NOTES

Instrument Panel Overview



Column-Shift Model shown, Console-Shift Model similar

The main components of the instrument panel are the following:

A. Air Outlets. See *Outlet Adjustment on page 210*.

B. Driver Information Center (DIC) Buttons. See *Driver Information Center (DIC) on page 233*.

C. Exterior Lamp Controls. See *Exterior Lamps on page 186*.

D. Instrument Panel Cluster. See *Instrument Panel Cluster on page 216*.

E. Horn. See *Horn on page 158*.

F. Audio Steering Wheel Controls. See *Audio Steering Wheel Controls on page 289*.

G. Shift Lever. See *Automatic Transaxle Operation on page 118*.

H. Traction Control System Button (Column-Shift Vehicles). See *Traction Control System (TCS) on page 303*.

I. Ultrasonic Front and Rear Parking Assist and Adaptive Cruise Control Display (If Equipped). See *Ultrasonic Front and Rear Parking Assist (UFRPA) on page 196* and *Adaptive Cruise Control on page 173*.

J. Analog Clock. See *Analog Clock on page 203*.

K. Hazard Warning Flashers Button. See *Hazard Warning Flashers on page 158*.

L. Radio. See *Audio System(s) on page 261*.

M. Trunk Release Button. See *Trunk on page 102*.

N. Instrument Panel Brightness Control. See *Instrument Panel Brightness on page 192*.

O. Turn Signal/Multifunction Lever. See *Turn Signal/Multifunction Lever on page 160*.

P. Hood Release. See *Hood Release on page 355*.

Q. Parking Brake. See *Parking Brake on page 121*.

R. Heated Steering Wheel Button (If Equipped). See *Heated Steering Wheel on page 159*.

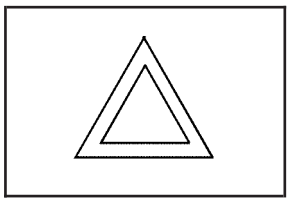
S. Cruise Control or Adaptive Cruise Control. See *Cruise Control on page 169* or *Adaptive Cruise Control on page 173*.

T. Climate Controls. See *Dual Climate Control System on page 204*.

U. Glove Box. See *Glove Box on page 150*.

Hazard Warning Flashers

Your hazard warning flashers let you warn others. They also let police know you have a problem. Your front and rear turn signal lamps will flash on and off.



The hazard warning flasher button is located in the center of the instrument panel.

Your hazard warning flashers work no matter what position your key is in, and even if the key is not in the ignition switch.

Press the button to make the front and rear turn signal lamps flash on and off. Press the button again to turn the flashers off.

When the hazard warning flashers are on, your turn signals will not work.

Other Warning Devices

If you carry reflective triangles, you can set them up at the side of the road about 300 feet (100 m) behind your vehicle.

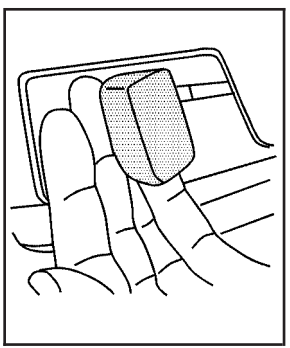
Horn

Press near or on the horn symbols on your steering wheel pad to sound the horn.

Tilt Wheel

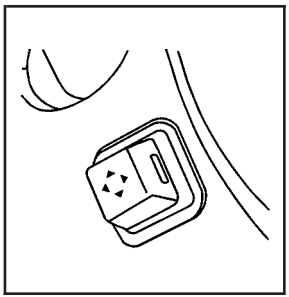
A tilt wheel lets you adjust the steering wheel before you drive. You can raise the steering wheel to the highest level to give your legs more room when you enter and exit the vehicle.

The lever that lets you tilt the steering wheel is located on the left side of the steering column.



To tilt the wheel, hold the wheel and pull the lever. Then move the wheel to a comfortable position and release the lever to lock the wheel in place.

Power Tilt Wheel and Telescopic Steering Column



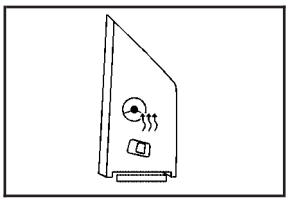
If your vehicle has this feature, the power tilt wheel control is located on the outboard side of the steering column.

To operate the power tilt feature, push the control up and the steering wheel will tilt up. Push the control down and the steering wheel will go down.

Push the control forward and the steering wheel moves toward the front of the vehicle. Push the control rearward and the steering wheel moves toward the rear of the vehicle. To set the memory position, see *DIC Vehicle Customization on page 252* and *Memory Seat, Mirrors and Steering Wheel on page 11*.

Heated Steering Wheel

Your vehicle may have a heated steering wheel.

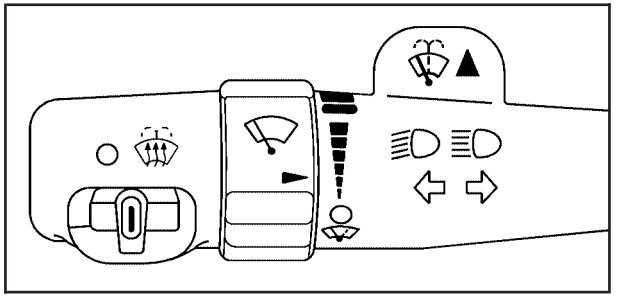


The button for this feature is located on the steering wheel.

Press the button to turn the heated steering wheel on or off. A light on the button will display while the feature is turned on.

The steering wheel will take about three minutes to start heating.

Turn Signal/Multifunction Lever

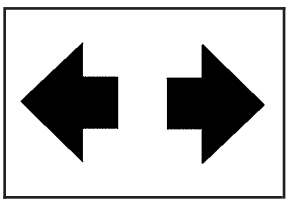


The lever on the left side of the steering column includes the following:

- Turn and Lane-Change Signals. See *Turn and Lane-Change Signals on page 160*.
- Headlamp High/Low-Beam Changer. See *Headlamp High/Low-Beam Changer on page 161*.
- Flash-To-Pass Feature. See *Flash-to-Pass on page 165*.
- Windshield Wipers. See *Windshield Wipers on page 166*.
- Windshield Washer. See *Windshield Washer on page 168*.
- Heated Washer Fluid. See *Windshield Washer on page 168*.

Turn and Lane-Change Signals

To signal a turn, move the lever all the way up or down. The lever returns automatically when the turn is complete. If you momentarily press and release the lever, the turn signal will flash 3 times.



An arrow on the instrument panel cluster and in the outside rearview mirror will flash in the direction of the turn or lane change.

Raise or lower the lever until the arrow starts to flash to signal a lane change. Hold it there until the lane change is complete. The lever returns when it is released.

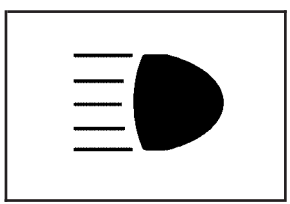
If the turn signal is left on, a warning chime will sound and the Driver Information Center (DIC) will display TURN SIGNAL ON after driving about a mile to remind you to turn it off. See *DIC Warnings and Messages on page 239*.

Arrows that flash rapidly when signaling for a turn or lane change may be caused by a burned out signal bulb. Other drivers will not see the turn signal.

Replace burned-out bulbs to help avoid possible accidents. Check the fuse and for burned-out bulbs if the arrow fails to work when signaling a turn. See *Rear Underseat Fuse Block on page 447*.

Headlamp High/Low-Beam Changer

Push forward to change the headlamps from low beam to high. Pull the lever back and then release it to change from high beam to low.



This light on the instrument panel cluster will be on, indicating high-beam usage.

Forward Collision Alert (FCA) System

If your vehicle has this feature, be sure to read this entire section before using it.

The system operates on a radio frequency subject to Federal Communications Commission (FCC) Rules and with Industry Canada.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

This device complies with RSS-210 of Industry Canada. Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

Changes or modifications to this system by other than an authorized service facility could void authorization to use this equipment.

The Forward Collision Alert (FCA) system provides an audible and visual alert if you approach a vehicle too quickly that is directly ahead. FCA also provides a visual alert with no audible alert if you are following another vehicle much too closely. The FCA alert symbol is located on top of the instrument panel to the right of the driver.
FCA uses the Adaptive Cruise Control radar to detect a vehicle directly ahead, in your path, within a distance of 328 ft (100 m) and operates at speeds above 20 mph (32 km/h).

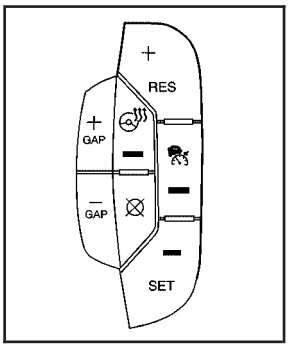
⚠ CAUTION:

FCA is only a warning system and does not apply the brakes. When you are approaching a vehicle or object too rapidly or when you are following a vehicle too closely that is ahead of you, FCA may not provide you with enough time to avoid a collision. FCA is not designed to warn the driver of pedestrians

CAUTION: (Continued)

CAUTION: (Continued)

or animals. Your complete attention is always required while driving and you should be ready to take action and apply the brakes. For more information, see *Defensive Driving on page 296*.



The FCA control is located on the steering wheel.

To enable or disable FCA, press the Adaptive Cruise Control button. See *Adaptive Cruise Control on page 173*.

FCA is enabled when the green light on the button is lit. FCA is disabled when the indicator light is amber.

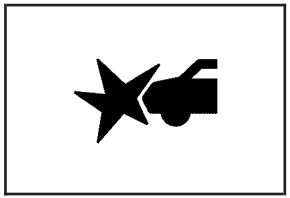
⚠ CAUTION:

- **On winding roads, FCA may not detect a vehicle ahead. You could crash into a vehicle ahead of you. Do not rely on FCA on winding roads.**
- **When weather limits visibility, such as in fog, rain, or snow, FCA performance is limited. There may not be enough warning distance to the vehicle in front of you. Do not rely on FCA in low visibility conditions.**

⚠ CAUTION:

When FCA is enabled, the Adaptive Cruise Control switch is on. If you press another Adaptive Cruise Control button, you might go into cruise when you do not want to. You could be startled and even lose control. Be careful not to press adaptive cruise buttons unless you want to use cruise control.

Alerting the Driver



The FCA alert symbol will flash and a warning beep will sound when driver action may be required.

The alert symbol will flash when:

- Your vehicle is approaching another vehicle too quickly.
- Your vehicle is following a vehicle ahead of you much too closely.

See *Defensive Driving on page 296* for more information.

Detecting the Vehicle Ahead

The vehicle ahead symbol, located next to the FCA symbol, will only appear when a vehicle ahead of you is detected in your path. If this symbol does not appear, or disappears briefly, FCA will not respond to vehicles you may see ahead. The symbol may disappear on curves, highway exit ramps, or hills. Also, when another vehicle enters the same lane as you, the FCA system will not detect the vehicle until it is completely in your driving lane.

⚠ CAUTION:

When the Adaptive Cruise Control radar is blocked by snow, ice, or dirt, it may not detect a vehicle ahead. FCA may not help you avoid a collision under these conditions. Do not use FCA when the radar is blocked by snow, ice, or dirt. Keep your radar clean. See "Cleaning the System" under *Adaptive Cruise Control on page 173*.

⚠ CAUTION:

FCA may not detect and warn soon enough to stationary or slow-moving vehicles or other objects ahead of you. You could crash into an object ahead of you. Do not rely on FCA when approaching stationary or slow-moving vehicles or other objects.

Unnecessary Alerts

FCA may occasionally provide alerts that you consider unnecessary. It could respond to a turning vehicle ahead of you, guard rails, signs, and other stationary objects. This is normal operation, your vehicle does not need service.

Other Messages

There are three messages that may appear on the Driver Information Center (DIC). They are CLEAN RADAR, RADAR CRUISE NOT READY and SERVICE RADAR CRUISE. See *DIC Warnings and Messages on page 239*.

Cleaning the System

The radar can become blocked by snow, ice, or dirt. If so, you may need to turn off the engine and clean the lens. See “Cleaning the System” under *Adaptive Cruise Control on page 173*.

Flash-to-Pass

This feature lets you use the high-beam headlamps to signal the driver in front of you that you want to pass.

The flash-to-pass feature will only work with the headlamps on. It does not work with Daytime Running Lamps (DRL).

Pull and hold the turn signal lever toward you to use.

If the headlamps are on high beam, they will switch to low beam. To return to high beam, push the lever away from you.

Windshield Wipers

You control the windshield wipers by turning the band with the wiper symbol on it.

(Mist): Turn the band to mist for a single wiping cycle. Hold it there until the wipers start. Then let go. The wipers stop after one wipe. For more wipe cycles, hold the band longer on mist.

(Delay): Turn the band to choose the delay time between wipe cycles. The wiper speed can be set for a long or short delay between wipes. The closer the band is set to the top of the lever, the shorter the delay.

(Low Speed): Turn the band away from you to the first solid band past the delay settings for steady wiping at low speed.

(High Speed): For high-speed wiping, turn the band further, to the second solid band past the delay settings.

(Off): To stop the wipers, move the band to off.

Clear ice and snow from the wiper blades before using them. If they are frozen to the windshield, carefully loosen or thaw them. If the blades become worn or damaged, replace with new blades or blade inserts.

Heavy snow or ice can overload the wiper motor. A circuit breaker will stop the motor until it cools. Clear away snow or ice to prevent an overload.

Your vehicle has wiper-activated headlamps. After the windshield wipers have completed eight wipe cycles within four minutes, the headlamps automatically turn on. See *Wiper Activated Headlamps on page 190* for more information.

Rainsense™ II Wipers

If your vehicle has this feature, the moisture sensor is mounted on the interior side of the windshield behind the rearview mirror. It is used to automatically operate the wipers by monitoring the amount of moisture build-up on the windshield. Wipes occur as needed to clear the windshield depending on driving conditions and the sensitivity setting. In light rain or snow, fewer wipes will occur. In heavy rain or snow, wipes will occur more frequently. The Rainsense™ II wipers operate in a delay mode as well as a continuous low or high speed as needed. If the system is left on for long periods of time, occasional wipes may occur without any moisture on the windshield. This is normal and indicates that the Rainsense™ II system is activated.

The Rainsense™ II system can be activated by turning the wiper band to one of the five sensitivity levels indicated on the wiper stalk. The position closest to off is the lowest sensitivity setting, level one. This allows more rain or snow to collect on the windshield between wipes. Turning the wiper band away from you to higher sensitivity levels increases the sensitivity of the system and frequency of wipes. The highest sensitivity setting, level five is closest to low. A single wipe will occur each time you turn the wiper stalk to a higher sensitivity level to indicate that the sensitivity level has been increased.

Notice: **Going through an automatic car wash with the wipers on can damage them. Turn the wipers off when going through an automatic car wash.**

The mist and wash cycles operate as normal and are not affected by the Rainsense™ II function. The Rainsense™ II system can be overridden at any time by manually turning the wiper band to low or high speed.

When Rainsense™ II is active, the headlamps will turn on automatically. The headlamps will turn off again once the wipers turn off if it is light enough outside. If it is dark, they will remain on. See *Wiper Activated Headlamps on page 190* for more information.

Notice: **Do not place stickers or other items on the exterior glass surface directly in front of the moisture sensor. Doing this could cause the moisture sensor to malfunction.**

Windshield Washer

⚠ CAUTION:

In freezing weather, do not use your washer until the windshield is warmed. Otherwise the washer fluid can form ice on the windshield, blocking your vision.

(Washer Fluid): Press and release this paddle, located at the top of the turn signal/ multifunction lever, to spray washer fluid on the windshield. The wipers will clear the windshield and either stop or return to your preset speed. For more washer cycles, press and hold the paddle.

(Heated Washer Fluid): If your vehicle is equipped, the heated windshield washer fluid system may be used to help clear ice, snow, tree sap, or bugs from your windshield. Sliding the switch on the turn signal/multifunction lever to this position and then releasing it will activate the heated windshield washer fluid system. This activation will initiate four heated wash/wipe cycles. The first heated wash/wipe cycle may take up to 40 seconds to occur, depending on outside temperature. After the first wash/wipe cycle, it may take up to 20 seconds for each of the remaining cycles. The heated windshield washer fluid system may be turned off at any time by sliding the switch on the turn signal/multifunction lever to this position again.

When the heated windshield washer fluid system is activated under certain outside temperature conditions, steam may flow out of the washer nozzles for a short period of time before washer fluid is sprayed. This is a normal condition.

A message will be displayed on the Driver Information Center (DIC) when the washer fluid is low. See *DIC Warnings and Messages on page 239*.

Cruise Control

With cruise control, you can maintain a speed of approximately 25 mph (40 km/h) or more without keeping your foot on the accelerator. This is helpful on long trips. Cruise control does not work at speeds below about 25 mph (40 km/h). When cruise control is on, you will see a cruise light on the instrument panel cluster.

When you apply your brakes, the cruise control shuts off.

⚠ CAUTION:

Cruise control can be dangerous where you cannot drive safely at a steady speed. So, do not use your cruise control on winding roads or in heavy traffic.

CAUTION: (Continued)

CAUTION: (Continued)

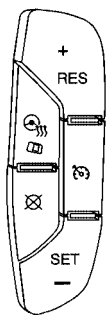
Cruise control can be dangerous on slippery roads. On such roads, fast changes in tire traction can cause excessive wheel slip, and you could lose control. Do not use cruise control on slippery roads.

If your vehicle is in cruise control when the Traction Control System (TCS) begins to limit wheel spin, the cruise control automatically turns off. See *Traction Control System (TCS) on page 303*. When road conditions let you safely use it again, you can turn the cruise control back on.

Setting Cruise Control

⚠ CAUTION:

If you leave your cruise control on when you are not using cruise, you might hit a button and go into cruise when you do not want to. You could be startled and even lose control. Keep the cruise control switch off until you want to use cruise control.



The cruise control buttons are located on left side of the steering wheel.

(On): This position turns on the system.

+ RES (Resume/Accelerate): Press this button to make the vehicle accelerate or resume to a previously set speed.

SET– (Set): Press this button to set the speed.

(Cancel): Press this button to cancel cruise control.

Cruise control will not work if the parking brake is set, or if the master cylinder brake fluid level is low.

If the brakes are applied, the cruise control shuts off.

The cruise light on the instrument panel cluster comes on after the cruise control has been set to the desired speed.

1. Press the cruise control button.
2. Get up to the desired speed.
3. Press the SET– button located on the steering wheel and release it.
4. Take your foot off the accelerator.

Resuming a Set Speed

Suppose you set the cruise control at a desired speed and then you apply the brake. This shuts off the cruise control. But you do not need to reset it.

Once the vehicle is traveling approximately 25 mph (40 km/h) or more, you can press the +RES (resume/accelerate) button to return to your desired preset speed. The cruise light displays again.

The vehicle returns to and stays at your preset speed. If you press and hold the +RES button, the vehicle speed increases until you release the button or apply the brake. Do not hold in the +RES button, if you do not want the vehicle speed to increase.

Increasing Speed While Using Cruise Control

There are two ways to go to a higher speed:

- Use the accelerator pedal to get to the higher speed. Press the SET– button, then release the button and the accelerator pedal. The vehicle now cruises at the higher speed.
- Press the +RES button. Hold it there until you get up to the desired speed, and then release the button. To increase your speed in very small amounts, briefly press the +RES button and then release it. Each time you do this, the vehicle accelerates approximately 1 mph (1.6 km/h).

The accelerate feature only works after you have set the cruise control speed by pressing the SET– button.

Reducing Speed While Using Cruise Control

There are two ways to reduce your speed while using cruise control:

- Press the SET– button until you reach the lower desired speed, then release it.
- To slow down in very small amounts, push the SET– button briefly. Each time you do this, the vehicle slows down approximately 1 mph (1.6 km/h).

Passing Another Vehicle While Using Cruise Control

Use the accelerator pedal to increase your speed. When you take your foot off the pedal, the vehicle slows down to your previous cruise control speed.

Using Cruise Control on Hills

How well your cruise control works on hills depends upon the vehicle speed, load, and the steepness of the hills. When going up steep hills, you might have to step on the accelerator pedal to maintain the vehicle's speed. When going downhill, you might have to brake or shift to a lower gear to keep the vehicle's speed down. Applying the brake or shifting into a lower gear ends cruise control. If you need to apply the brake or shift to a lower gear due to the grade of the downhill slope, you might not want to attempt to use the cruise control feature.

Ending Cruise Control

To turn off the cruise control, step lightly on the brake pedal, or press the cancel button on the steering wheel.

Erasing Speed Memory

When you turn off the cruise control or the ignition, your cruise control set speed memory is erased.

Adaptive Cruise Control

If your vehicle has this feature, be sure to read this entire section before using it.

The system operates on a radio frequency subject to Federal Communications Commission (FCC) Rules and with Industry Canada.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

This device complies with RSS-210 of Industry Canada. Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

Changes or modifications to this system by other than an authorized service facility could void authorization to use this equipment.

Adaptive Cruise Control is an enhancement to traditional cruise control. It allows you to keep cruise control engaged in moderate traffic conditions without having to constantly reset your cruise control. Adaptive Cruise Control uses radar to detect a vehicle directly ahead in your path, within a distance of 330 ft (100 m), and operates at speeds above 25 mph (40 km/h).

When it is engaged by the driver, the system can apply limited braking or acceleration of the vehicle automatically to maintain a selected follow distance to the vehicle ahead. Braking is limited to 0.25 g's (2.45 m/sec2) of deceleration, which is comparable to moderate application of the vehicle's brakes. To disengage Adaptive Cruise Control, apply the brake. If no vehicle is in your path, the vehicle will react like traditional cruise control.

⚠ CAUTION:

Adaptive Cruise Control will not apply hard braking or bring the vehicle to a complete stop. It will not respond to stopped vehicles, pedestrians or animals. When you are approaching a vehicle or object, Adaptive Cruise Control may not have time to slow your vehicle enough to avoid a collision. Your complete attention is always required while driving and you should be ready to take action and apply the brakes. For more information, see *Defensive Driving on page 296*.

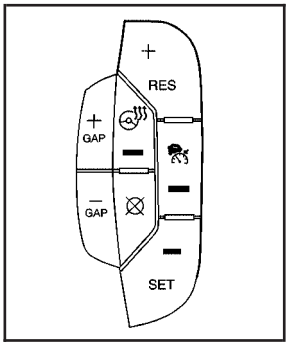
⚠ CAUTION:

- **On winding roads, Adaptive Cruise Control may not detect a vehicle ahead. You could crash into a vehicle ahead of you. Do not use Adaptive Cruise Control on winding roads.**
- **Adaptive Cruise Control may not have time to slow your vehicle enough to avoid a crash when you are driving in conditions where vehicles may suddenly slow or stop ahead of you, enter your lane, or cross your vehicle's path. If you are driving in these conditions, do not use Adaptive Cruise Control. The warning beep and alert symbol may indicate that you are driving in conditions where Adaptive Cruise Control should not be used. See "Alerting the Driver" in this section.**

CAUTION: (Continued)

CAUTION: (Continued)

- **On slippery roads, fast changes in tire traction can cause needless wheel spinning, and you could lose control. Do not use cruise control on slippery roads.**
- **When weather limits visibility, such as when in fog, rain, or snow conditions, Adaptive Cruise Control performance is limited. There may not be enough distance to adapt to the changing traffic conditions. Do not use cruise control when visibility is low.**



The Adaptive Cruise controls are located on the steering wheel.

The cruise control buttons are located on left side of the steering wheel.

(On): This position turns on the system.

+ Resume (Resume/Accelerate): Press this button to make the vehicle resume to a previously set speed or to increase the set speed when Adaptive Cruise Control is already active.

Set–: Press this button to set the speed or to decrease the set speed when Adaptive Cruise Control is already active.

⊗ **(Cancel):** Press this button to cancel adaptive cruise control.

+GAP (Increase Following Distance): Press this button to increase the distance between your vehicle and other vehicles.

–GAP (Decrease Following Distance): Press this button to decrease the distance between your vehicle and other vehicles.

Adaptive cruise control will not work if the master cylinder brake fluid level is low.

Engaging Adaptive Cruise Control With the Set Button

⚠ CAUTION:

If you leave your Adaptive Cruise Control switch on when you are not using cruise, you might hit a button and go into cruise when you do not want to. You could be startled and even lose control. Keep the Adaptive Cruise Control switch off until you want to use cruise control.

The set speed is selected by the driver. This is the speed you will travel if there is no vehicle detected in your path.

To set Adaptive Cruise Control, do the following:

1. Press the (On) button.
2. Get up to the speed you want.
3. Press in the SET– button and release it.
4. Take your foot off the accelerator pedal.

Once Adaptive Cruise Control is set, it may immediately apply the brakes if it detects a vehicle ahead is too close or moving slower than your vehicle.

The on symbol is located on the display at the top of the instrument panel to the right of the driver. When the on symbol is lit on the display, it indicates that Adaptive Cruise Control is active.

A message on the DIC will also display when Adaptive Cruise Control is set. See *DIC Warnings and Messages on page 239*.

Keep in mind speed limits, surrounding traffic speeds, and weather conditions when adjusting your set speed.

If your vehicle is in Adaptive Cruise Control when the traction control system begins to limit wheel spin, the Adaptive Cruise Control will automatically disengage. See *Traction Control System (TCS) on page 303* and *StabiliTrak® System on page 305*. When road conditions allow you to safely use it again, you may turn the Adaptive Cruise Control back on.

Increasing Set Speed While Using Adaptive Cruise Control

There are two ways to increase the set speed:

- Use the accelerator to get to the higher speed. Press the SET– button and then release the button and the accelerator pedal. You will now cruise at the higher speed.
- Press the +RES button. Hold it there until the desired set speed is displayed on the Driver Information Center (DIC), then release the switch. To increase your set speed in very small amounts, move the switch briefly to +RES. Each time you do this, your vehicle set speed will increase by 1 mph (1 km/h).

Your vehicle will not reach the set speed until the system determines there is not a vehicle in front of you. At that point, your vehicle speed will increase to the set speed.

Decreasing Set Speed While Using Adaptive Cruise Control

Press the SET– button until you reach the lower speed you want, then release it.

To slow down in very small amounts, briefly press the SET– button. Each time you do this, your set speed will decrease by 1 mph (1 km/h) slower.

Resuming a Set Speed

Suppose you set your Adaptive Cruise Control at a desired speed and then you apply the brake. This will turn off the Adaptive Cruise Control. But you do not need to reset it.

Once you are going about 25 mph (40 km/h) or more, press the +RES button. Adaptive Cruise Control will be engaged with the previously chosen set speed.

Selecting the Follow Distance (GAP)

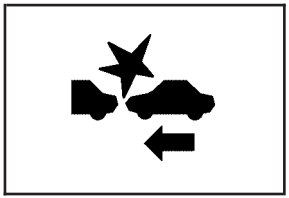
When the system detects a slower moving vehicle, it will adjust your vehicle's speed and maintain the follow distance (gap) you select.

Use the plus and minus buttons on the steering wheel to adjust the follow distance.

Press the plus button to increase the distance or the minus button to decrease the distance. The first button press will show you the current follow distance setting on the DIC. Your current follow distance setting will be maintained until you change it.

There are six follow distances to choose from. The follow distance selection ranges from near to far (one second to two seconds follow time). The distance maintained for a selected follow distance will vary based on vehicle speed. The faster the vehicle speed the further back your vehicle will follow. Consider traffic and weather conditions when selecting the follow distance. The range of selectable distances may not be appropriate for all drivers and driving conditions. If you prefer to travel at a follow distance farther than Adaptive Cruise Control allows, disengage the system and drive manually.

Alerting the Driver



The Adaptive Cruise Control alert symbol is located on the display at the top of the instrument panel to the right of the driver.

The alert symbol will flash and a warning beep will sound when driver action may be required. If Adaptive Cruise Control is engaged, the alert symbol will flash when:

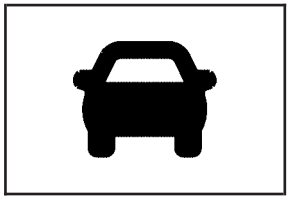
- Adaptive Cruise Control cannot apply sufficient braking because you are approaching a vehicle too rapidly.
- The vehicle speed drops below about 20 mph (32 km/h).
- A temporary condition prohibits Adaptive Cruise Control from operating. See *DIC Warnings and Messages on page 239* for more information.
- A malfunction is detected in the system. See *DIC Warnings and Messages on page 239* for more information.

See *Defensive Driving on page 296*.

⚠ CAUTION:

Adaptive Cruise Control has only limited braking ability to slow your vehicle. In some cases, Adaptive Cruise Control may not have time to slow your vehicle enough to avoid a collision. Be ready to take action and apply the brakes yourself. See *Defensive Driving on page 296*.

Approaching and Following a Vehicle



The Vehicle Ahead symbol is located on the top of the instrument panel to the right of the driver.

The Vehicle Ahead symbol will only appear when a vehicle is detected in your path.

If this symbol does not appear, or disappears briefly, Adaptive Cruise Control will not respond to vehicles you may see ahead.

⚠ CAUTION:

When the Adaptive Cruise Control radar is blocked by snow, ice, or dirt, it may not detect a vehicle ahead. Adaptive Cruise Control may not have time to slow your vehicle enough to avoid a collision. Do not use Adaptive Cruise Control when the radar is blocked by snow, ice, or dirt. Keep your radar clean. See "Cleaning the System" later in this section.

Adaptive Cruise Control will automatically slow your vehicle down when approaching a slower moving vehicle. It will then adjust your speed to follow the vehicle in front at the selected follow distance. Your speed will increase or decrease to follow the vehicle in front of you but will not exceed the set speed. It may apply limited braking, if necessary. When braking is active, your brake lights will come on. Braking may feel or sound different than if you were applying the brakes yourself. This is normal.

Stationary or Very Slow-Moving Objects

⚠ CAUTION:

Adaptive Cruise Control may not detect and react to stationary or slow-moving vehicles or other objects ahead of you. You could crash into an object ahead of you. Do not use Adaptive Cruise Control when approaching stationary or slow-moving vehicles or other objects.

⚠ CAUTION:

Adaptive Cruise Control may not detect and react to stationary or slow-moving vehicles or other objects ahead of you. Your vehicle may accelerate toward objects, such as a stopped vehicle that suddenly appears after the lead vehicle changes lanes. Your complete attention is always required while driving and you should be ready to take action and apply the brakes.

Low-Speed Deactivation

If your speed falls below 20 mph (32 km/h) while following a vehicle ahead, Adaptive Cruise Control will begin to disengage. The Driver Alert symbol will flash and the warning beep will sound.
The driver must take action since Adaptive Cruise Control will not slow the vehicle to a stop.

Passing a Vehicle/Adaptive Cruise Control Override

If you need to increase speed to pass a vehicle, use the accelerator pedal. While you are doing this, the system will not automatically apply the brakes. A message will appear on the DIC. See *DIC Warnings and Messages on page 239*. Once you remove your foot from the accelerator pedal, Adaptive Cruise Control will return to normal operation and be able to apply the brakes, if needed.

⚠ CAUTION:

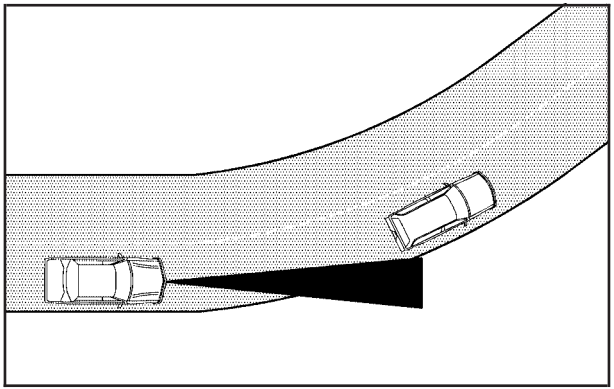
If you rest your foot on the accelerator pedal, the system will not automatically apply the brakes. You could crash into a vehicle ahead of you. Do not rest your foot on the accelerator pedal when using Adaptive Cruise Control.

Curves in the Road

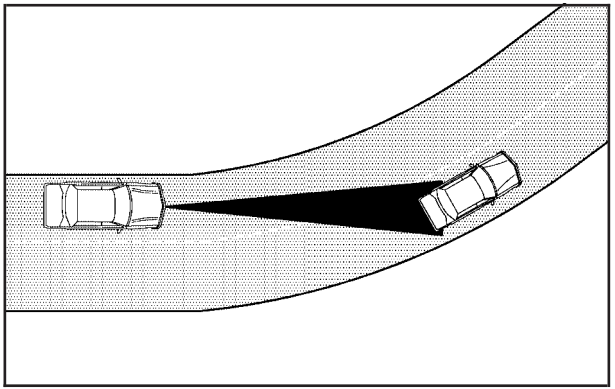
⚠ CAUTION:

Due to Adaptive Cruise Control limitations in curves, it may respond to a vehicle in another lane, or may not have time to react to a vehicle in your lane. You could crash into a vehicle ahead of you, or lose control of your vehicle. Give extra attention in curves and be ready to use the brakes if necessary. Select an appropriate speed while driving in curves.

Adaptive Cruise Control may operate differently in a sharp curve. It may reduce your speed if the curve is too sharp.



When following a vehicle and entering a curve, Adaptive Cruise Control could lose track of the vehicle in your lane and accelerate your vehicle. When this happens the Vehicle Ahead symbol will not appear.



Adaptive Cruise Control may detect a vehicle that is not in your lane and apply the brakes.

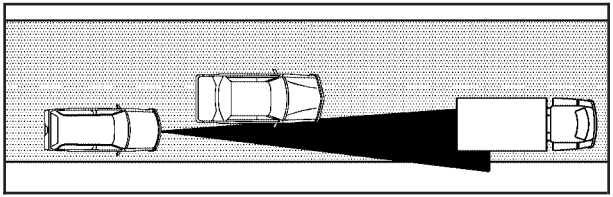
Adaptive Cruise Control may, occasionally, provide a driver alert and/or braking that you consider unnecessary. It could respond to signs, guardrails, and other stationary objects when entering or exiting a curve. This is normal operation. Your vehicle does not need service.

Highway Exit Ramps

⚠ CAUTION:

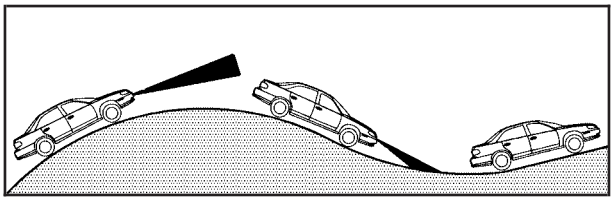
Adaptive Cruise Control may lose track of the vehicle ahead and accelerate up to your set speed while entering or on highway exit ramps. You could be startled by this acceleration and even lose control of the vehicle. Disengage Adaptive Cruise Control before entering a highway exit ramp. Do not use Adaptive Cruise Control while entering or on exit ramps.

Other Vehicle Lane Changes



If another vehicle enters the same lane as you, Adaptive Cruise Control will not detect the vehicle until it is completely in the lane. Be ready to take action and apply the brakes yourself.

Using Adaptive Cruise Control on Hills and When Towing a Trailer



How well Adaptive Cruise Control will work on hills and when towing a trailer depends on your vehicle's speed, vehicle load, traffic conditions and the steepness of the hills. It may not detect a vehicle in your lane while driving on hills. When going up steep hills, you may want to use the accelerator pedal to maintain your vehicle's speed. When going downhill, especially when towing a trailer, you may want to brake to keep your speed down. Applying the brake disengages the system. You may choose not to use Adaptive Cruise Control on steep hills, especially when towing a trailer.

Disengaging Adaptive Cruise Control

To turn off the system, apply the brake pedal, press the cancel button, or press the Adaptive Cruise Control button.

Erasing Set Speed Memory

When you press the Adaptive Cruise Control button or turn the ignition off, the set speed memory is erased.

Other Messages

There are three additional messages that may appear on the DIC. They are SERVICE RADAR CRUISE, RADAR CRUISE NOT READY and CLEAN RADAR. These messages will appear to indicate a problem with the Adaptive Cruise Control. See *DIC Warnings and Messages on page 239* for more information.

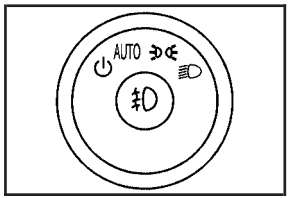
Cleaning the System

The radar can become blocked by snow, ice, or dirt. If so, you may need to turn off the engine and clean the lens. Remember, do not use Adaptive Cruise Control in icy conditions, or when visibility is low, such as in fog, rain or snow.

The emblem/lens is located in the center of the grille.

To clean the emblem/lens, wipe the surface with a soft cloth. After cleaning the emblem/lens, try to engage the Adaptive Cruise Control. If you are unable to do so, see your dealer.

Exterior Lamps



The exterior lamps control is located on the instrument panel to the left of the steering wheel.

It controls the following systems:

- Headlamps
- Taillamps
- Parking Lamps
- License Plate Lamps
- Instrument Panel Lights
- Fog Lamps

The exterior lamps control has four positions:

(Off): This position turns off the exterior lamps except for Daytime Running Lamps (DRL).

AUTO (Automatic): This position automatically turns on the headlamps at normal brightness, together with the following:

- Parking Lamps
- Instrument Panel Lights
- IntelliBeam™

(Parking Lamps): This position turns on the parking lamps together with the following:

- Instrument Panel Lights
- License Plate Lamps
- Taillamps
- Side Marker Lamps

The parking brake indicator light comes on and stays on while the parking lamps are on with the engine off and the ignition in ACCESSORY or RUN.

(Headlamps): This position turns on the headlamps together with the previously listed lamps. A warning chime sounds if you open the driver's door when the ignition switch is off and the headlamps are on.

(Fog Lamps): Press the exterior lamps control to turn on the fog lamps. See *Fog Lamps on page 191*.

IntelliBeam™ Intelligent High-Beam Headlamp Control System

If your vehicle has this feature, be sure to read this entire section before using it.

IntelliBeam™ is an enhancement to your vehicle's headlamp system. Using a digital light sensor on your rearview mirror, this system turns the vehicle's high-beam headlamps on and off according to surrounding traffic conditions.

The IntelliBeam™ system turns the high-beam headlamps on when it is dark enough, there is no other traffic present, and the IntelliBeam system is enabled.

Turning On and Enabling IntelliBeam™

Press and release the IntelliBeam™ button on the inside rear view mirror. The IntelliBeam™ indicator on the mirror turns on to indicate the system is on. Once the system has been turned on, it remains on each time the vehicle is started, but the IntelliBeam system must be enabled.

To enable the IntelliBeam™ system, turn the exterior lamp control to AUTO, with the turn signal/multifunction lever in its neutral position. The High-Beam On Light appears on the instrument panel cluster when the high-beams are on. See *Highbeam On Light on page 231*.

Driving with IntelliBeam™

IntelliBeam™ only activates the high-beams when driving over 20 mph (32 km/h).

The high-beam headlamps remain on, under the automatic control of IntelliBeam™, until any of the following situations occur:

- The system detects an approaching vehicle's headlamps.
- The system detects a preceding vehicle's taillamps.
- The outside light is bright enough that high-beam headlamps are not required.
- The vehicle's speed drops below 15 mph (24 km/h).
- The headlamp stalk is moved forward to the high-beam position or the flash-to-pass feature is used. See *Headlamp High/Low-Beam Changer on page 161* and *Flash-to-Pass on page 165*.

  When either of these conditions occur, the IntelliBeam™ feature is disabled and the IntelliBeam™ light in the mirror turns off until the high-beam stalk is returned to the neutral position.
- If IntelliBeam™ was using low-beams prior to this action, the IntelliBeam™ feature is temporarily disabled until the stalk is returned to the neutral position.
- The exterior lamp control is turned to any setting except AUTO.

  When this occurs, IntelliBeam™ is disabled until the control is turned back to the AUTO position.
- The IntelliBeam™ system is turned off at the inside rearview mirror.

IntelliBeam™ might not turn off the high-beams if the system cannot detect other vehicle's lamps because of any of the following:

- The other vehicle's lamp(s) are missing, damaged, obstructed from view, or otherwise undetected.
- The other vehicle's lamp(s) are covered with dirt, snow, and/or road spray.

- The other vehicle's lamp(s) cannot be detected due to dense exhaust, smoke, fog, snow, road spray, mist, or other airborne obstructions.
- Your vehicle's windshield is dirty, cracked, or obstructed by something that blocks the view of the IntelliBeam™ light sensor.
- Your vehicle's windshield is covered with ice, dirt, haze, or other obstructions.
- Your vehicle is loaded such that the front end of the vehicle points upward, causing the IntelliBeam™ sensor to aim high and not detect headlamps and taillamps.
- You are driving on winding or hilly roads.

You might need to manually disable or cancel the high-beam headlamps by turning the low-beam headlamps on, if any of the above conditions exist.

Disabling and Resetting IntelliBeam™ at the Rearview Mirror

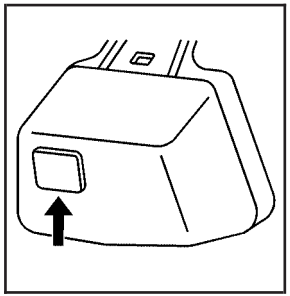
IntelliBeam™ can be disabled by using the controls on the inside rearview mirror.

AUTO (On/Off): To disable the system, press this button on the inside rearview mirror. The IntelliBeam™ indicator turns off and does not come back on until the IntelliBeam™ button is pressed again.

When IntelliBeam™ has turned on the high-beams, pull or push the high-beam stalk. This will disable IntelliBeam™. The IntelliBeam™ indicator on the mirror turns off. To turn IntelliBeam™ back on, press the IntelliBeam™ button on the mirror.

A different sensitivity setting is available for dealer diagnostics. This is done by pushing and holding this button for 20 seconds until the IntelliBeam™ indicator light flashes three times. If you accidentally activate this, the vehicle' s setting automatically is reset when the ignition is turned off and then on again.

Cleaning the IntelliBeam™ Light Sensor



The light sensor is located on the inside of the vehicle in front of the inside rearview mirror.

Clean the light sensor window, periodically, using glass cleaner on a soft cloth. Gently wipe the sensor window. Do not spray glass cleaner directly on the surface of the sensor window.

Wiper Activated Headlamps

This feature activates the headlamps and parking lamps after the windshield wipers are turned on and have completed eight wipe cycles within four minutes.

When the ignition is turned to OFF, the wiper-activated headlamps immediately turn off. The wiper-activated headlamps also turn off if the windshield wipers are turned off.

Headlamps on Reminder

A warning chime will sound if the exterior lamp control is left on in either the headlamp or parking lamp position and the driver's door is opened with the ignition off.

Daytime Running Lamps (DRL)

Daytime Running Lamps (DRL) can make it easier for others to see the front of your vehicle during the day. DRL can be helpful in many different driving conditions, but they can be especially helpful in the short periods after dawn and before sunset. Fully functional daytime running lamps are required on all vehicles first sold in Canada.

The DRL system will make the turn signal lamps come on when the following conditions are met:

- It is still daylight and the ignition is on.
- The exterior lamp control is in the off position.
- The transaxle is not in PARK (P) (United States only).
- The light sensor is covered or not detecting light. See "Sensors" under *Dual Climate Control System on page 204*.

When DRL are on, no other exterior lamps such as the parking lamps, taillamps, etc. will be on when the DRL are being used. Your instrument panel will not be lit up either.

When automatic lighting is on and it is dark enough outside, the turn signal lamps will turn off and normal low-beam headlamp operation will occur.

When automatic lighting is on and it is bright enough outside, the regular lamps will go off, and the DRL will take over. If you start your vehicle in a dark garage, the automatic headlamp system will come on immediately. Once you leave the garage, it will take approximately one minute for the automatic headlamp system to change to DRL if there is light outside. During that delay, your instrument panel cluster may not be as bright as usual. Make sure your instrument panel brightness knob is in the full bright position. See *Instrument Panel Brightness on page 192*.

Turning on automatic lighting or the headlamps will deactivate the DRL. If the parking lamps or the fog lamps were turned on instead, the DRL will still deactivate.

To idle your vehicle with the DRL off at night, turn off automatic lighting and shift the transaxle into PARK (P). Placing your vehicle in PARK (P) disables the DRL. The DRL will stay off until you shift out of PARK (P).

To drive your vehicle with the DRL off, turn off automatic lighting and manually turn on the parking lamps or fog lamps (if equipped).

As with any vehicle, you should turn on the regular headlamp system when you need it.

Fog Lamps

Use the fog lamps for better vision in foggy or misty conditions.

(Fog Lamps): The fog lamps button is located on the exterior lamps control. The exterior lamps control is located on the instrument panel to the left of the steering column.

When you press the exterior lamps control, the fog lamp lights on the instrument panel cluster will come on to indicate that the fog lamps and the parking lamps are on.

Press the button again to turn them off.

If you turn on the high-beam headlamps, the fog lamps will turn off. They will turn back on again when you switch to low-beam headlamps.

When automatic lighting is on and the fog lamps are turned on, the fog lamps, headlamps and parking lamps will remain on.

The ignition must be on for the fog lamps to operate.

Some localities have laws that require the headlamps to be on along with the fog lamps.

Cornering Lamps

The cornering lamps come on when the headlamps or parking lamps are on and you signal a turn with the multifunction lever. They provide more light for cornering.

Exterior Lighting Battery Saver

If the manual parking lamps or headlamps have been left on, the exterior lamps will turn off approximately 10 minutes after the ignition is turned to OFF. This protects against draining the battery in case you have accidentally left the headlamps or parking lamps on. The battery saver does not work if the headlamps are turned on after the ignition switch is turned to OFF.

If you need to leave the lamps on for more than 10 minutes, use the exterior lamp control to turn the lamps back on.

Instrument Panel Brightness

(Instrument Panel Brightness): This feature controls the brightness of the instrument panel lights.

The button for this control is located below the exterior lamps control.

Push the button in and release to extend the button. Turn the button clockwise for brightness of the instrument panel lights and counter clockwise to turn the brightness down.

Courtesy Lamps

The courtesy lamps are located on the headliner above the rear seat. These lamps come on by turning the instrument panel brightness knob fully clockwise or when any door is opened and it is dark outside. Puddle lamps are located on the bottom of the front and rear door trim.

Professional vehicles have an additional dome lamp and also opera lamps.

Entry Lighting

This feature turns on the courtesy lamps and the backlighting to the door switches and to the exterior lamp control when a door is opened or if you press the remote keyless entry transmitter unlock button. If activated due to the transmitter, the lighting will remain active for about 40 seconds. Since the entry lighting system uses the light sensor, it must be dark outside in order for the courtesy lamps to turn on. The courtesy lamps turn off approximately 25 seconds after the last door is closed. They will dim to off if the ignition key is turned to RUN, or immediately deactivate if the power locks are activated.

Parade Dimming

This feature prohibits dimming of the digital displays and backlighting during daylight hours when the key is in the ignition and the headlamps are on. This feature is fully automatic. When the light sensor reads darkness outside and the parking lamps are active, the digital displays can be adjusted by turning the instrument panel brightness knob counterclockwise to dim and clockwise to brighten lighting.

Reading Lamps

The reading lamps are located on the overhead console on the headliner and in the rear door opening. These lamps come on automatically when any door is opened and it is dark outside.

For manual operation, press the button to turn them on. Press it again to turn them off.

If the reading lamps are left on, they automatically shut off 10 minutes after the ignition has been turned off.

Battery Load Management

The battery load management feature is designed to monitor the vehicle's electrical load and determine when the battery is in a heavy discharge condition. During times of high electrical loading, the engine may idle at a higher revolutions per minute (rpm) setting than normal to make sure the battery charges. High electrical loads may occur when several of the following are on: headlamps, high beams, fog lamps, rear window defogger, the climate control fan at high speeds, heated seats and engine cooling fans.

If the battery continues to discharge, even with the engine idling at a higher rpm setting, some electrical loads will automatically be reduced. When this occurs, the rear window defogger may take slightly longer to clear the glass, the heated seats may not get as warm as they usually do and the climate control fan may cut back to a lower speed. For more battery saving information, see "Battery Saver Active Message" under *DIC Warnings and Messages on page 239*.

Electric Power Management

The vehicle has Electric Power Management (EPM) that estimates the battery's temperature and state of charge. It then adjusts the voltage for best performance and extended life of the battery.

When the battery's state of charge is low, the voltage is raised slightly to quickly put the charge back in. When the state of charge is high, the voltage is lowered slightly to prevent overcharging. If the vehicle has a voltmeter gage or voltage display on the Driver Information Center (DIC), you may see the voltage move up or down. This is normal. If there is a problem, an alert will be displayed.

The battery can be discharged at idle if the electrical loads are very high. This is true for all vehicles. This is because the generator (alternator) may not be spinning fast enough at idle to produce all the power that is needed for very high electrical loads.

A high electrical load occurs when several of the following loads are on: headlamps, high beams, fog lamps, rear window defogger, climate control fan at high speed, heated seats, engine cooling fans, trailer loads, and loads plugged into accessory power outlets.

EPM works to prevent excessive discharge of the battery. It does this by balancing the generator's output and the vehicle's electrical needs. It can increase engine idle speed to generate more power, whenever needed. It can temporarily reduce the power demands of some accessories.

Normally, these actions occur in steps or levels, without being noticeable. In rare cases at the highest levels of corrective action, this action may be noticeable to the driver. If so, a Driver Information Center (DIC) message might be displayed, such as Battery Saver Active or Service Battery Charging System. If this message is displayed, it is recommended that the driver reduce the electrical loads as much as possible. See *DIC Warnings and Messages on page 239*.

Inadvertent Power Battery Saver

This feature is designed to protect your vehicle's battery against drainage from the interior lamps, trunk lamp, glove box lamp, or the garage door opener. When the ignition is turned off, the power to these features will automatically turn off after 10 minutes. Power will be restored for an additional 10 minutes if any door or trunk is opened, or the courtesy lamp switch is turned on.

Battery Run-Down Protection

This vehicle has a feature to help prevent the battery from being drained, if the interior courtesy lamps, reading/map lamps, visor vanity lamps or trunk lamp are accidentally left on. If any of these lamps are left on, they will automatically turn off after 10 minutes, if the ignition is off. The lamps will not come back on again until one of the following occurs:

- The ignition is turned on.
- The exterior lamps control is turned off, then on again.

The headlamps will timeout after 10 minutes, if they are manually turned on before the ignition is off.

Ultrasonic Front and Rear Parking Assist (UFRPA)

If your vehicle is equipped, the Ultrasonic Front and Rear Parking Assist (UFRPA) system is designed to help you park. It operates only at speeds less than 5 mph (8km/h). UFRPA helps make parking easier and helps you avoid colliding with objects such as parked vehicles. The UFRPA system detects objects that are close to the vehicle which are at least 10 inches (25.4 cm) off the ground and below hood or trunk level. The system detects objects up to 4 feet (1.2 m) in front of the vehicle and up to 8 feet (2.5 m) behind your vehicle. UFRPA determines how close these objects are from your bumpers within this area. Four ultrasonic sensors on the front and rear bumpers are used to detect the distance to the object.

⚠ CAUTION:

The Ultrasonic Front and Rear Park Assist (UFRPA) system does not replace driver vision. UFRPA does not:

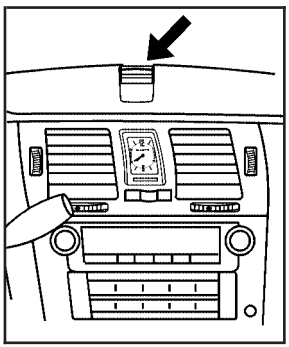
- **Operate above speeds of 5 mph (8 km/h).**
- **Detect objects more than 4 feet (1.2 meters) in front of the vehicle and more than 8 feet (2.5 meters) behind the vehicle. This distance may be less during warmer or humid weather.**
- **Detect objects that are below the bumper, underneath the vehicle, or that are very close to the vehicle.**
- **Detect children, pedestrians, bicyclists, or pets.**

So if you do not use proper care before moving forward or backing up, you could hit a vehicle, child, pedestrian, bicyclist, or

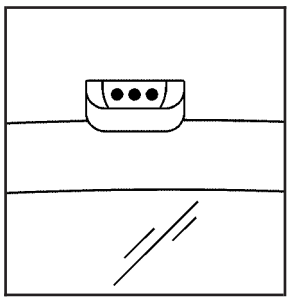
CAUTION: (Continued)

CAUTION: (Continued)

pet, resulting in vehicle damage, injury, or death. Even though the vehicle has the UFRPA system, always check carefully before moving forward or backing up by checking in front of and behind your vehicle.



Front Parking Assist Display



Rear Parking Assist Display

The front display is located on top of the instrument panel to the right of the driver. The rear display is located near the rear window and can be seen by looking over your right shoulder.
The rear display has three color-coded lights. The front display will have either three or six lights depending on whether your vehicle is equipped with Adaptive Cruise Control (ACC). If your vehicle has ACC, it will have three lights along with the ACC lights. If your vehicle does not have ACC, it will have six UFRPA lights. The UFRPA lights are used to provide distance and system information, along with beeps played out either the front or rear speakers. For objects detected near the front bumper, high-toned beeps will be played out the front speakers. For objects detected near the rear bumper, low-toned beeps will be played out the rear speakers.

How the System Works

When the vehicle is started, the front display will briefly illuminate to let you know the display is operating correctly. When the shift lever is moved into REVERSE (R), the rear display will briefly illuminate to let you know the display is operating correctly. UFRPA comes on automatically when the shift lever is moved out of PARK (P). The system does not work at a forward speed greater than 5 mph (8 km/h), so the front display indicators are turned off. The system also does not work at a reverse speed greater than 5 mph (8 km/h). To remind you of this, the red light on the rear display will flash.

The system can be disabled using the Driver Information Center (DIC). See *DIC Controls and Displays on page 233*.

How the System Works when Moving Forward

When moving forward, the system detects objects only near the front bumper.

If an object is detected at a forward speed of less than 5 mph (8 km/h), or if you are already within a 4 ft (1.2 m) distance to a detected object when UFRPA first comes on, the following describes what will occur according to your distance from an object located in front of the vehicle:

- At distances between 40 inches (1 m) and 4 ft (1.2 m), two amber lights will be lit. If you have Adaptive Cruise Control, a single amber light will be lit.
- At distances between 23 inches (0.6 m) and 40 inches (1 m), four amber lights will be lit. If you have Adaptive Cruise Control, two amber lights will be lit.
- At distances between 12 inches (0.3 m) and 23 inches (0.6 m), all six lights (four amber lights/two red lights) will be lit. If you have Adaptive Cruise Control, all three lights (amber/amber/red) will be lit.
- At distances less than 12 inches (0.3 m), a chime will sound for a short time and all six lights (four amber lights/two red lights) will be lit and flashing. If you have Adaptive Cruise Control, a chime will sound for a short time and all three lights (two amber lights/one red light) will be lit and flashing.

How the System Works when Backing

When backing, UFRPA detects objects close to the front and rear bumpers. The first time an object is detected a single chime will sound. If an object is detected at a REVERSE (R) speed of less than 5 mph (8 km/h), or if you are already within an 8 ft (2.5 m) distance to a detected object when the system first comes on, the following describes what will occur according to your distance from an object located behind the vehicle:

- At distances between 40 inches (1 m) and 8 ft (2.5 m), a single amber light will be lit.
- At distances between 23 inches (0.6 m) and 40 inches (1 m), both amber lights will be lit.
- At distances between 12 inches (0.3 m) and 23 inches (0.6 m), all three lights (amber/amber/red) will be lit.
- At distances less than 12 inches (0.3 m), a chime will sound for a short time and all three lights (amber/amber/red) will be lit and flashing.

When you are backing the vehicle and objects are detected at the same time near both the front and rear bumpers, both color-coded light displays will notify you of objects close to each bumper. If there are objects detected near both bumpers, the beeps will only be sounded to notify that objects are close to the rear bumper. However, if while you are backing and an object comes within 1 ft (0.3 m) of the front bumper, and at the same time there is another object further than 1 ft (0.3 m) from the rear bumper, then the beeps will only be sounded to notify you of the closer object that is near the front bumper.

When the System Does Not Seem to Work Properly

If the UFRPA system will not activate due to a temporary condition, the message PARKING ASSIST OFF will be displayed on the DIC and a red light will be shown on the rear UFRPA display when the shift lever is moved into REVERSE (R). This occurs under the following conditions:

- The driver disables the system. See *DIC Controls and Displays on page 233*.
- The parking brake pedal is depressed.
- A trailer was attached to your vehicle, or a bicycle or an object was hanging out of your trunk during your last drive when you turned off the vehicle. If the attached objects are removed from your vehicle before the start of your next drive, the system will return to normal operation unless an object is detected when the vehicle is shifted out of park. If this occurs, you will have to wait until the vehicle is driven forward above 15 mph (25 km/h) before UFRPA will return to normal operation.
- A bicycle or an object is attached to the front bumper during your last drive when you turned off the vehicle. If the attached objects are removed from your vehicle before the start of your next drive, the system will return to normal unless an object is detected when the vehicle is shifted out of park. If this occurs, UFRPA will return to normal operation when the vehicle is driven forward above 15 mph (25 km/h).
- The ultrasonic sensors are not kept clean. So be sure to keep your vehicle's front and rear bumpers free of mud, dirt, snow, ice and slush. For cleaning instructions, see *Washing Your Vehicle on page 435*. If after cleaning the front and rear bumpers and driving forward at a speed of at least 15 mph (25 km/h), the DIC displays the PARKING ASSIST OFF message, see your dealer.
- Other conditions that may affect system performance include vibrations from a jackhammer or the compression of air brakes on a very large truck or other mechanical devices that interfere with UFRPA performance.
- When UFRPA is disabled without driver action and the driver attempts to turn UFRPA back on using the Driver Information Center (DIC), the PARKING ASSIST ON option will not be selectable if the necessary conditions stated above for normal system operation are not met.

As always, drivers should use care when backing up a vehicle. Always look behind you, being sure to check for other vehicles, obstructions and blind spots.

For Driver Information Center messages related to UFRPA, see *DIC Warnings and Messages on page 239*.

If the bumper is damaged, your UFRPA system may not work properly. Take the vehicle to your dealer to repair the system.

Accessory Power Outlet(s)

Your vehicle is equipped with accessory power outlets. The outlets can be used to plug in electrical equipment such as a cellular telephone, CB radio, etc.

If your vehicle has a stationary center console, the power outlet is located inside the lower storage area. There are outlets also on the right front lower part of the driver's seat and in the lower storage bin. See *Center Console Storage Area on page 150*.

There are two accessory power outlets in the rear seat area located on the door armrests next to the ashtrays.

Your vehicle may have a small cap that must be removed to access the accessory power outlet. If it does, when not using the outlet be sure to cover it with the protective cap.

The accessory power outlet can be used at any time.

Notice: **Leaving electrical equipment on for extended periods will drain the battery. Always unplug electrical equipment when not in use and do not plug in equipment that exceeds the maximum 20 ampere rating.**

Certain accessory power plugs may not be compatible to the accessory power outlet and could result in blown vehicle or adapter fuses. If you experience a problem see your dealer for additional information on the accessory power outlets.

Notice: **Adding any electrical equipment to your vehicle may damage it or keep other components from working as they should. The repairs would not be covered by your warranty. Do not use equipment exceeding maximum amperage rating of 20 amperes. Check with your dealer before adding electrical equipment.**

Follow the proper installation instructions that are included with any electrical equipment you install.

Notice: **Improper use of the power outlet can cause damage not covered by your warranty. Do not hang any type of accessory or accessory bracket from the plug because the power outlets are designed for accessory power plugs only.**

Ashtray(s) and Cigarette Lighter

Notice: **If you put papers, pins, or other flammable items in the ashtray, hot cigarettes or other smoking materials could ignite them and possibly damage your vehicle. Never put flammable items in the ashtray.**

Front Ashtray

With the full floor console, the ashtray is located below the climate control system. To open, push down and then release the cover. To clean the ashtray, push the lip of the ashtray to remove it. Push the opposite side of the ashtray's lip to install.

For vehicles without the floor console, pull the tray located below the climate controls to reveal the ashtray. The ashtray can be removed by pulling on the ledge located at the top of the ashtray.

Rear Ashtray

The ashtrays are located on the door armrests. To use an ashtray, lift the lid.

Cigarette Lighter

Notice: **Holding a cigarette lighter in while it is heating will not allow the lighter to back away from the heating element when it is hot. Damage from overheating may occur to the lighter or heating element, or a fuse could be blown. Do not hold a cigarette lighter in while it is heating.**

The cigarette lighter is located near the front ashtray.

Press the lighter all the way in and release it. It will pop back out by itself once the element has heated for use.

Cigarette lighters can be used to provide electrical power to accessories. See *Accessory Power Outlet(s) on page 201* for more information.

Analog Clock

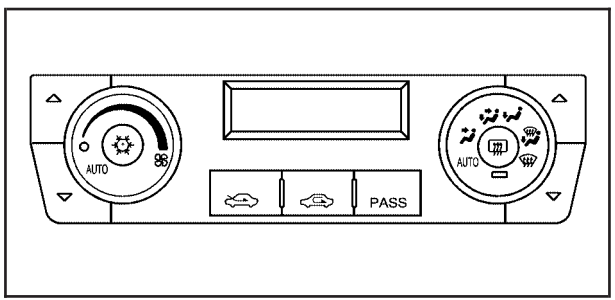
The analog clock is located on the instrument panel above the radio. The clock is not connected with any other vehicle system and runs by itself. To adjust the clock, do the following:

1. Locate the adjustment button directly below the clock face.
2. Push and hold the adjustment button to advance the clock hands. Holding the button down will cause the clock to advance faster. Release the button *before* you get to the desired time.
3. Push and release the button to increase the time by one minute increments until the desired time is reached.

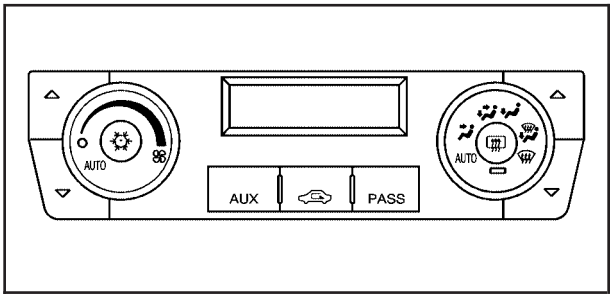
Climate Controls

Dual Climate Control System

With this system you can control the heating, cooling, and ventilation for the vehicle. To avoid window fogging on rainy and humid days at temperatures above freezing, run the air conditioning compressor. Also, it is best to avoid the use of recirculation mode except when maximum air conditioning performance is needed for a short amount of time to avoid exterior odors and fogging.



Dual Climate Control System



Dual Climate Control System for Vehicles with Rear Climate Control

Automatic Operation

AUTO (Automatic Fan): When this position is selected on the fan control, the system will adjust the fan speed. If the OnStar® system is activated when this position is selected, the climate control fan speed will lower.

AUTO (Automatic Mode):

1. Turn the fan control to the AUTO position.
2. Turn the mode control to the AUTO position.

3. Adjust the temperature to a comfortable setting between 68°F (21°C) and 78°F (26°C).

   Choosing the coldest or warmest temperature setting will not cause the system to heat or cool any faster. In cold weather, the system will start at reduced fan speeds to avoid blowing cold air into your vehicle until warmer air is available. The system will start out blowing air at the floor but may change modes automatically as the vehicle warms up to maintain the chosen temperature setting. The length of time needed to warm the interior will depend on the outside temperature and temperature of the vehicle.

4. Wait 20 to 30 minutes for the system to stabilize in order for the system to regulate automatically. Then adjust the temperature as necessary to find your comfort setting.

Do not cover the solar sensor located in the center of the instrument panel near the windshield. For more information on the solar sensor, see “Sensors” later in this section.

After the vehicle is started, the display will show the interior temperature settings and the outside temperature.

If the AUTO position is selected on the fan or mode control, the system will automatically control the air conditioning compressor. The A/C compressor will run automatically even at cool outside temperatures in order to dehumidify the air. The A/C indicator light will be lit when the system is operating automatically, even at near freezing outside temperatures. Press the A/C button on the fan control to turn off the A/C. For improved window clearing performance in defog or defrost modes, the A/C compressor will run automatically.

(AUTO RECIRCULATION): If the AUTO position is selected on either the fan or mode control, the system will automatically control the air inlet to supply fresh outside air or recirculate the interior air to cool the car faster. The indicator light on the recirculation button will light whenever the system switches to recirculation. You may force outside air by pressing the recirculation button when the light is lit. For vehicles without rear climate controls, press the outside air button to force outside air. The next time AUTO fan or mode is selected, the air inlet will reset back to AUTO operation.

Manual Operation

(Fan): Turn the left control either to the left or right to adjust the fan speed. Turning this control completely counterclockwise will turn on the automatic fan operation. Turning this control to the “O” position will turn the climate control system off. If the airflow seems low when the fan speed is at the highest setting, the passenger compartment air filter may need to be replaced. See *Passenger Compartment Air Filter on page 213*.

(Off): Turn the left control to this position to turn the entire climate control system off.

To change the current mode, select one of the following positions using the right control:

AUTO: Turn the control to this position to turn on the automatic delivery mode operation.

(Vent): Turn the control to this mode to direct air to the instrument panel outlets.

(Bi-Level): Turn the control to this mode to direct approximately half of the air to the instrument panel outlets and most of the remaining air to the floor outlets. In automatic operation, cooler air is directed to the upper outlets and warmer air to the floor outlets.

(Floor): Turn the control to this mode to direct most of the air to the floor outlets with some air directed to the side window outlets and the windshield.

The mode control can also be used to select the floor/defog mode. In this mode, the system will automatically use outside air. If recirculation is selected, it will only stay on for three minutes to reduce windshield fogging. Information on defogging and defrosting can be found later in this section.

(Outside Air): Press this button to allow outside air to come into the vehicle. It is used to prevent the air inside the vehicle from becoming too dry. Press this button to turn the outside air mode on or off. When the button is pressed, the indicator light will come on. Pressing the recirculation button will cancel this mode.

(Recirculation): Press this button to keep outside air from coming in the vehicle. It is used to prevent outside air and odors from entering the vehicle or to help cool the air inside the vehicle faster. Press this button to turn the recirculation mode on or off. When the button is pressed, an indicator light will come on.

△▽ **(Driver's Temperature Controls):** Press these buttons next to the fan control to manually increase or decrease the temperature inside your vehicle.

△▽ **(Passenger's Temperature Controls):** Press these buttons next to the mode control to manually increase or decrease the temperature for the front passenger. If the passenger's climate control system is off, pressing one of these buttons will turn it on.

PASS (Passenger's Climate Control): Press this button to turn the passenger's climate control systems on or off. The temperature selected by the front passenger will also control the rear system air temperature unless the rear seat passengers select their own comfort setting.

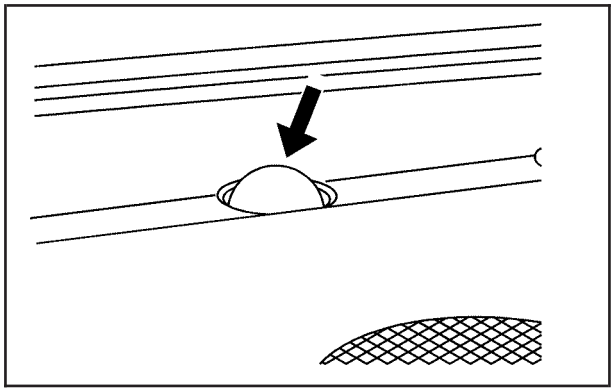
If the PASS button is pressed to turn the passenger temperature setting off, the driver's temperature knob will control the temperature for the entire vehicle.

AUX: If your vehicle has a rear climate control system, press this button to turn the rear climate control fan on for automatic operation. After the AUX button is pressed, the indicator light will come on. Press the button again to turn the auxiliary fan off. See *Rear Climate Control System on page 211*.

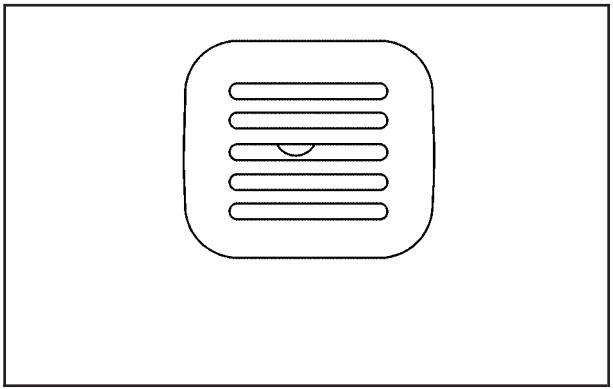
(Air Conditioning): Press the center of the left control to override the automatic system and turn the air conditioning system on or off. When in AUTO, the air conditioning compressor will come on automatically, as necessary.

The air conditioning system removes moisture from the air, so you may notice a small amount of water dripping underneath your vehicle while idling or after turning off the engine. This is normal.

Sensors



The solar sensor, located in the defrost grille, middle of the instrument panel, monitors the solar radiation. Do not cover the solar sensor or the system will not work properly.



There is also an interior temperature sensor located next to the steering wheel that measures the temperature of the air inside your vehicle.

There is also an exterior temperature sensor located behind the front grille. This sensor reads the outside air temperature and helps maintain the temperature inside the vehicle. Any cover on the front of the vehicle could cause a false reading in the displayed temperature.

In order to prevent false temperature readings at startup, the displayed temperature will not change until the following occurs:

- Vehicle speed is above 10 mph (16 kmh) for 5 minutes.
- Vehicle speed is above 32 mph (51 kmh) for 2 and a half minutes.

The climate control system uses the information from these sensors to maintain your comfort setting by adjusting the outlet temperature, fan speed, and the air delivery mode. The system may also supply cooler air to the side of the vehicle facing the sun. The recirculation mode will also be used as needed to maintain cool outlet temperatures.

Defogging and Defrosting

Fog on the inside of windows is a result of high humidity (moisture) condensing on the cool window glass. This can be minimized if the climate control system is used properly. There are two modes to clear fog from your windshield. Use the floor/defog mode to clear the windows of fog or moisture and warm the passengers. Use the defrost mode to remove fog or frost from the windshield more quickly.

(Floor/Defog): Turn the control to this mode to direct approximately half of the air to the floor outlets and the remaining air is directed to the side window outlets and to the windshield. When you select this mode, the system turns off recirculation and runs the air conditioning compressor unless the outside temperature is at or below freezing. The recirculation mode cannot be selected while in the floor/defog mode.

(Defrost): Turn the control to this mode to direct most of the air to the windshield and the side window outlets. In this mode, the system will automatically turn off recirculation and run the air conditioning compressor, unless the outside temperature is at or below freezing. Recirculation cannot be selected while in the defrost mode. Do not drive the vehicle until all the windows are clear.

For professional vehicles, air will be allowed to flow through the rear outlets. For quicker defrost, press the AUX button on the front climate control system so that the light is not lit.

Rear Window Defogger

The rear window defogger uses a warming grid to remove fog or frost from the rear window.

(Rear Defogger): Press the center of the right control to turn the rear window defogger on or off. Be sure to clear as much snow from the rear window as possible. The rear window defogger will turn off approximately 20 minutes after the button is pressed if your vehicle is moving at slower vehicle speeds. At higher vehicle speeds, the rear defogger may stay on continuously. Each additional press will run the defogger for approximately 10 minutes.

The heated outside rearview mirrors will heat to help clear fog or frost from the surface of the mirror when the rear window defogger is on.

Notice: **Do not use a razor blade or sharp object to clear the inside rear window. Do not adhere anything to the defogger grid lines in the rear glass. These actions may damage the rear defogger. Repairs would not be covered by your warranty.**

Outlet Adjustment

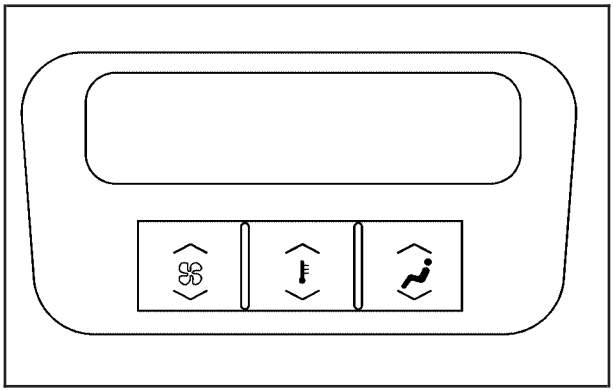
For the front outlets, use the thumbwheel located below each outlet to change the direction of the airflow. Use the thumbwheel located next to the outlets to shut the airflow or to open the outlets and re-direct the air.

For the rear outlets, slide the lever left or right and up or down to change the direction of the airflow.

Operation Tips

- Clear away any ice, snow or leaves from the air inlets at the base of the windshield that may block the flow of air into your vehicle.
- Use of non-GM approved hood deflectors may adversely affect the performance of the system.
- Keep the path under the front seats clear of objects to help circulate the air inside of your vehicle more effectively.

Rear Climate Control System



If your vehicle has a rear climate-control system, the rear-seat passengers can use it to adjust the direction of the airflow, the fan speed and the temperature for the rear-seating area. This system also works with the main climate-control system in your vehicle.

The control panel for this system is located on the back of the center console.

If the AUX button located on the front climate control panel is pressed, the rear climate control system will be turned on. The rear system will operate in automatic mode and the temperature settings selected for the front climate control panel will also be selected for the rear passengers.

If the rear passenger would like to adjust the rear climate control system, they can select a different temperature and a different mode or fan speed.

Whenever the rear passengers have adjusted settings on the rear climate control system, the AUX light is lit on the front climate control system. The driver can turn off the auxiliary fan by pressing the AUX button.

When the front climate control system is turned off or in defrost mode, the rear climate control system is turned off. The rear system will turn back on once another front mode is selected.

For more information on how to use the climate control system, see *Dual Climate Control System on page 204*. For more information on the air outlets, see *Outlet Adjustment on page 210*.

Automatic Operation

∧ ✣ ∨ **(Fan):** Press this button until AUTO appears on the display to place the system in automatic mode. When automatic operation is active, the system will automatically control the fan speed. If in auto fan mode, pressing the up arrow button will cancel automatic operation and places the system in manual mode. If in auto mode, pressing the down arrow will turn the rear climate control system off.

∧ ⌇ ∨ **(Mode):** Press the this button until AUTO appears on the display to place the system in automatic mode. When automatic operation is active, the system will automatically control the air delivery mode.

Manual Operation

∧ ✣ ∨ **(Fan):** Press these up or down arrow buttons to increase or decrease the fan speed.

∧ ⌇ ∨ **(Temperature):** Press these up or down arrow buttons to increase or decrease the temperature for the rear seat passengers. Once the rear setting temperature is altered from following the front setting temperature, it will no longer follow changes to the front setting temperature until the front climate control AUX button resets it.

∧ ⌇ ∨ **(Mode):** Press these buttons to change the air delivery mode. If in AUTO air delivery mode, pressing the up arrow button will cancel automatic operation and place the system in manual mode.

⌇ **(Vent):** This mode directs air to the upper outlets.

⌇ **(Bi-Level):** This mode directs half the air to the upper outlets, and the other half to the floor outlets.

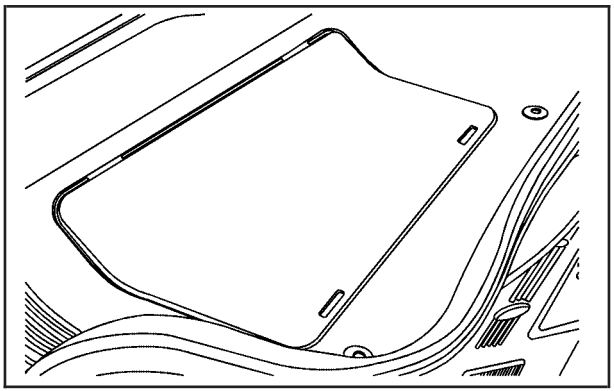
⌇ **(Floor):** This mode directs the air to the floor outlets.

For more information on how to use the front climate control system, see *Dual Climate Control System on page 204*.

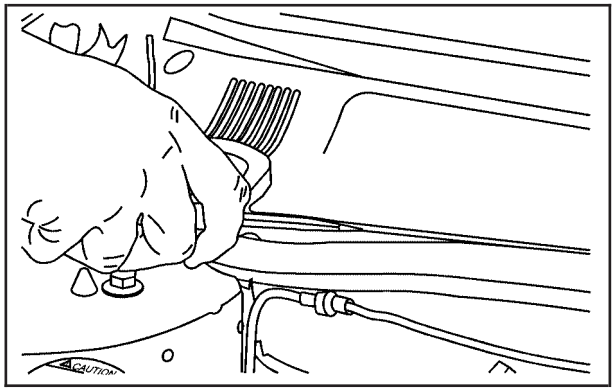
For more information on the air outlets, see *Outlet Adjustment on page 210*. Be sure to keep the area under the front seats clear of any objects so that the air inside of your vehicle can circulate effectively.

Passenger Compartment Air Filter

The passenger compartment air filter traps most of the pollen from the air entering your vehicle. Like your vehicle's engine air cleaner/filter, it may need to be changed periodically. For how often to change the passenger compartment air filter, see *Scheduled Maintenance on page 457*.

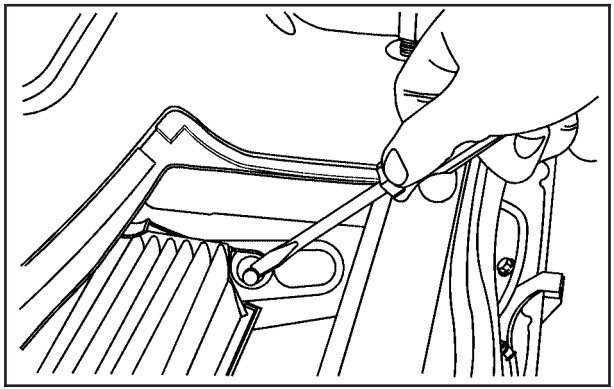


The access panel for the passenger compartment air filter is located under the hood near the windshield, on the passenger's side of the vehicle.

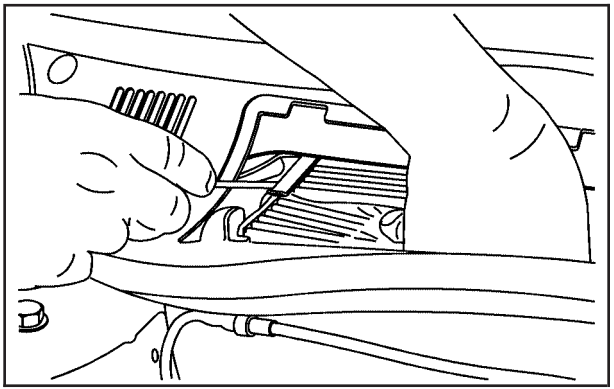


To access the passenger compartment air filter, do the following:

1. Use a tool to gently pry the cover up. If your vehicle has tabs that allow you to unlatch the cover with your fingers, you will not need a tool for this step.



2. Then, insert a tool behind the push pin located on the inboard side of the air filter compartment to carefully pry the pin out.



3. To remove the air filter, insert a tool between the air filter and the compartment wall on the outboard side of the vehicle. Then, push in to flatten the pin holding the air filter in place. Gently remove the air filter and any loose debris that may be inside the air filter compartment.
4. Insert the new air filter by pushing until you hear a click. Then, reinstall the push pin and snap the cover into place.

Warning Lights, Gages, and Indicators

This part describes the warning lights and gages that may be on your vehicle. The pictures will help you locate them.

Warning lights and gages can signal that something is wrong before it becomes serious enough to cause an expensive repair or replacement. Paying attention to your warning lights and gages could also save you or others from injury.

Warning lights come on when there may be or is a problem with one of your vehicle's functions. As you will see in the details on the next few pages, some warning lights come on briefly when you start the engine just to let you know they are working. If you are familiar with this section, you should not be alarmed when this happens.

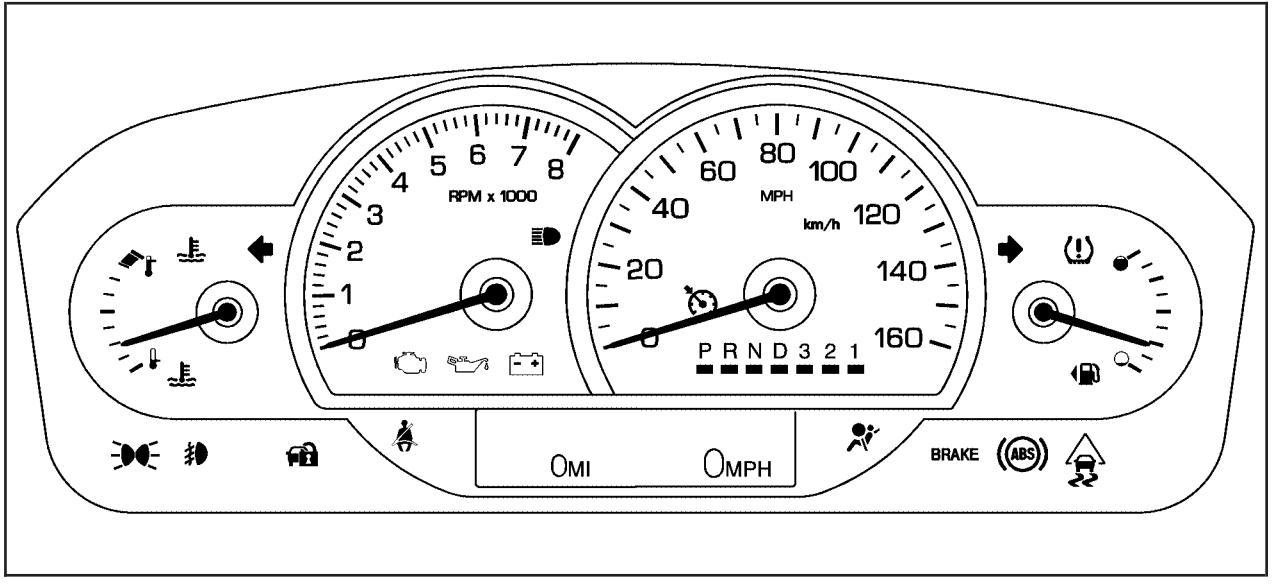
Gages can indicate when there may be or is a problem with one of your vehicle's functions. Often gages and warning lights work together to let you know when there is a problem with your vehicle.

When one of the warning lights comes on and stays on when you are driving, or when one of the gages shows there may be a problem, check the section that tells you what to do about it. Follow this manual's advice. Waiting to do repairs can be costly – and even dangerous. So please get to know your warning lights and gages. They are a big help.

Your vehicle also has a Driver Information Center (DIC) that works along with the warning lights and gages. See *Driver Information Center (DIC) on page 233* for more information.

Instrument Panel Cluster

The instrument panel cluster is designed to let you know at a glance how your vehicle is running. You will know how fast you are going, how much fuel you are using and many of the other things you will need to know to drive safely and economically.



United States version shown, Canada similar

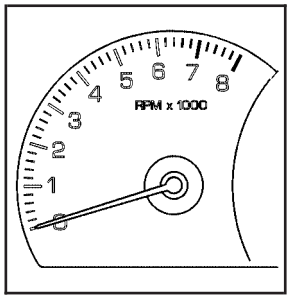
Speedometer and Odometer

The speedometer lets you see your speed in both miles per hour (mph) and kilometers per hour (km/h). See “MPH (km)” under *DIC Controls and Displays on page 233* for more information.

The odometer mileage can be checked without the vehicle running. Your vehicle’s odometer works together with the driver information center. You can set a Trip A and a Trip B odometer. See “Trip Fuel” under *DIC Controls and Displays on page 233* for more information.

If your vehicle ever needs a new odometer installed, the new one will be set to the correct mileage total of the old odometer.

Tachometer



This gage indicates the engine speed in revolutions per minute (rpm).

Safety Belt Reminder Light

When the key is turned to RUN or START, a chime will sound for several seconds to remind you and your passengers to buckle your safety belts. The driver safety belt light will also come on and stay on for several seconds, then it will flash for several more. You should buckle your seat belt.

This chime and light will be repeated if the driver remains unbuckled and the vehicle is in motion.

If the driver's belt is buckled, neither the chime nor the light will come on.

Passenger Safety Belt Reminder Light

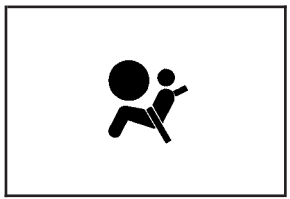
Several seconds after the key is turned to RUN or START, a chime will sound for several seconds to remind the front passenger to buckle their safety belt. This would only occur if the passenger airbag is enabled. See *Passenger Sensing System on page 77* for more information. The passenger safety belt light will also come on and stay on for several seconds, then it will flash for several more.

This chime and light will be repeated if the passenger remains unbuckled and the vehicle is in motion.

If the passenger's safety belt is buckled, neither the chime nor the light will come on.

Airbag Readiness Light

There is an airbag readiness light on the instrument panel, which shows the airbag symbol. The system checks the airbag's electrical system for malfunctions. The light tells you if there is an electrical problem. The system check includes the airbag sensors, the airbag modules, the wiring and the diagnostic module. For more information on the airbag system, see *Airbag System on page 66*.



This light will come on when you start your vehicle, and it will flash for a few seconds. Then the light should go out. This means the system is ready.

If the airbag readiness light stays on after you start the vehicle or comes on when you are driving, your airbag system may not work properly. Have your vehicle serviced right away.

⚠ CAUTION:

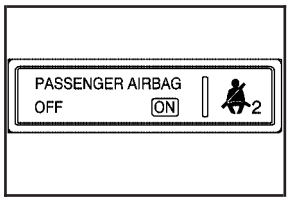
If the airbag readiness light stays on after you start your vehicle, it means the airbag system may not be working properly. The airbags in your vehicle may not inflate in a crash, or they could even inflate without a crash. To help avoid injury to yourself or others, have your vehicle serviced right away if the airbag readiness light stays on after you start your vehicle.

The airbag readiness light should flash for a few seconds when you turn the vehicle on. If the light does not come on then, have it fixed so it will be ready to warn you if there is a problem.

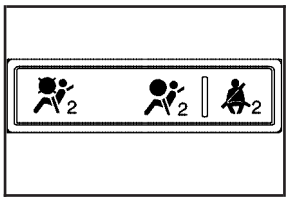
If there is a problem with the airbag system in your vehicle, the SERVICE AIR BAG message will appear on the DIC display. See *DIC Warnings and Messages on page 239* and *Safety Belt Pretensioners on page 39* for more information.

Passenger Airbag Status Indicator

Your vehicle has the passenger sensing system. Your overhead console has a passenger airbag status indicator.



United States



Canada

When the ignition key is turned to RUN or START, the passenger airbag status indicator will light ON and OFF, or the symbol for on and off, for several seconds as a system check. Then, after several more seconds, the status indicator will light either ON or OFF, or either the on or off symbol to let you know the status of the right front passenger's frontal airbag and seat-mounted side impact airbag.

If the word ON or the on symbol is lit on the passenger airbag status indicator, it means that the right front passenger's frontal airbag and seat-mounted side impact airbag are enabled (may inflate).

⚠ CAUTION:

If the on indicator comes on when you have a rear-facing child restraint installed in the right front passenger's seat, it means that the passenger sensing system has not turned off the passenger's frontal airbag and seat-mounted side impact airbag. A child in a rear-facing child restraint can be seriously injured or killed if the right front passenger's airbag inflates. This is because the back of the rear-facing child restraint would be very close to the inflating airbag. Do not use a rear-facing child restraint in the right front passenger's seat if the airbag is turned on.

Your vehicle has a rear seat that will accommodate a rear-facing child restraint. A label on your sun visor says, “Never put a rear-facing child seat in the front.” This is because the risk to the rear-facing child is so great, if the airbag deploys.

⚠ CAUTION:

Even though the passenger sensing system is designed to turn off the passenger’s frontal airbag and seat-mounted side impact airbag if the system detects a rear-facing child restraint, no system is fail-safe, and no one can guarantee that an airbag will not deploy under some unusual circumstance, even though it is turned off. We recommend that rear-facing child restraints be secured in the rear seat, even if the airbag is off.

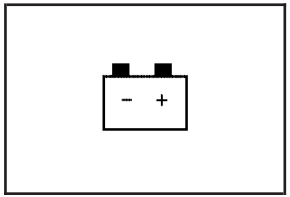
If the word OFF or the off symbol is lit on the airbag status indicator, it means that the passenger sensing system has turned off the right front passenger’s frontal airbag and seat-mounted side impact airbag. See *Passenger Sensing System on page 77* for more on this, including important safety information.

If, after several seconds, all status indicator lights remain on, or if there are no lights at all, there may be a problem with the lights or the passenger sensing system. See your dealer for service.

⚠ CAUTION:

If the off indicator and the airbag readiness light ever come on together, it means that something may be wrong with the airbag system. If this ever happens, have the vehicle serviced promptly, because an adult-size person sitting in the right front passenger seat may not have the protection of the airbags. See *Airbag Readiness Light on page 219*.

Charging System Light



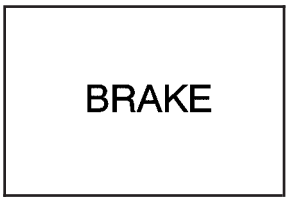
When you turn the engine on, this light will come on briefly to show that the generator and battery charging systems are working properly.

If this light stays on, your vehicle needs service. You should take your vehicle to the dealer at once. To save your battery until you get there, turn off all accessories. See *DIC Controls and Displays on page 233* for more information.

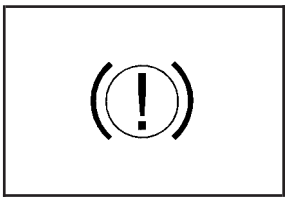
Brake System Warning Light

Your vehicle's hydraulic brake system is divided into two parts. If one part isn't working, the other part can still work and stop you. For good braking, though, you need both parts working well.

If the warning light comes on, there is a brake problem. Have your brake system inspected right away.



United States



Canada

This light should come on briefly when you turn the engine on. If it does not come on then, have it fixed so it will be ready to warn you if there is a problem.

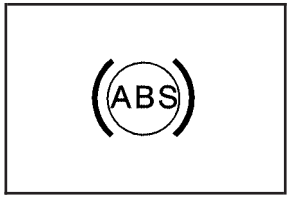
When the ignition is on, the brake system warning light will also come on when you set your parking brake. The light will stay on if your parking brake does not release fully. If it stays on after your parking brake is fully released, it means you have a brake problem.

If the light comes on while you are driving, pull off the road and stop carefully. You may notice that the pedal is harder to push, or the pedal may go closer to the floor. It may take longer to stop. If the light is still on, have the vehicle towed for service. See *Towing Your Vehicle on page 334*.

⚠ CAUTION:

Your brake system may not be working properly if the brake system warning light is on. Driving with the brake system warning light on can lead to an accident. If the light is still on after you have pulled off the road and stopped carefully, have the vehicle towed for service.

Anti-Lock Brake System Warning Light



With the anti-lock brake system, the light will come on when your engine is started and may stay on for several seconds. That is normal.

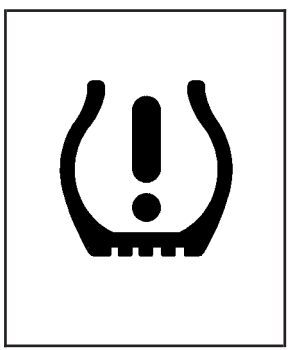
If the ABS warning light comes on and stays on, there may be a problem with the antilock portion of the brake system. If the red BRAKE light is not on, you still have brakes, but you do not have antilock brakes. See *Brake System Warning Light on page 222*.

If the light stays on, turn the ignition to OFF or ACCESSORY. If the light comes on when you are driving, stop as soon as possible and turn the ignition off. Then start the engine again to reset the system. If the light still stays on, or comes on again while you are driving, your vehicle needs service.

If the regular brake system warning light is not on, you still have brakes, but you do not have anti-lock brakes. If the regular brake system warning light is also on, you do not have anti-lock brakes and there is a problem with your regular brakes. See *Brake System Warning Light on page 222*.

The anti-lock brake system warning light should come on briefly when you turn the ignition key to RUN. If the light does not come on then, have it fixed so it will be ready to warn you if there is a problem.

Low Tire Pressure Warning Light



This light will come on briefly when you turn the ignition to RUN.

This light will also come on when one or more of your tires are significantly underinflated.

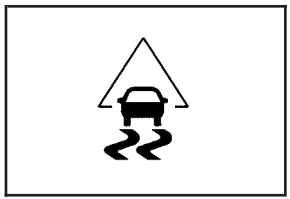
A CHECK TIRE PRESSURE DIC message will accompany the light, see *DIC Warnings and Messages on page 239*

Stop and check your tires as soon as it is safe to do so. If underinflated, inflate to the proper pressure. See *Tires on page 394* for more information.

This light will flash for approximately 60 seconds and then turn on solid if a problem is detected with the Tire Pressure Monitor system.

See *Tire Pressure Monitor System on page 406* for more information.

Traction Control System (TCS) Warning Light

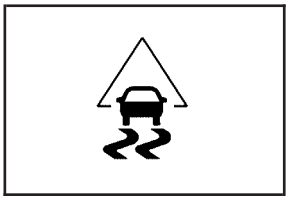


The traction control system warning light should come on briefly when the engine is started.

If the warning light does not come on then, have it fixed so it will be ready to warn you if there is a problem. If it stays on, or comes on when you are driving, there may be a problem with your traction control system and your vehicle may need service. When this warning light is on, the system will not limit wheel spin. Adjust your driving accordingly.

If the traction control system warning light comes on and stays on for an extended period of time when the system is turned on, your vehicle needs service. See *Traction Control System (TCS) on page 303* for more information.

StabiliTrak® Indicator Light

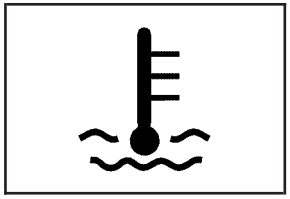


For vehicles that have the StabiliTrak® system, this warning light should come on briefly when the engine is started.

If the warning light does not come on then, have it fixed so it will be ready to warn you if there is a problem. If it stays on, or comes on when you are driving, there may be a problem with your StabiliTrak® system and your vehicle may need service. When this warning light is on, the system will not limit wheel spin. Adjust your driving accordingly.

If the StabiliTrak® system warning light comes on and stays on for an extended period of time when the system is turned on, your vehicle needs service. See *StabiliTrak® System on page 305* for more information.

Engine Coolant Temperature Warning Light

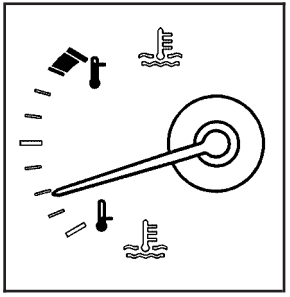


The engine coolant temperature warning light will come on when the engine is very hot.

This light will also come on briefly when the vehicle is started.

If the light does not go out or comes on and stays on while driving, there may be a problem with the cooling system. Driving with engine coolant temperature light on could cause your vehicle to overheat, see *Overheated Engine Protection Operating Mode on page 371*. See *Engine Overheating on page 369* and *DIC Warnings and Messages on page 239* for more information.

Engine Coolant Temperature Gage

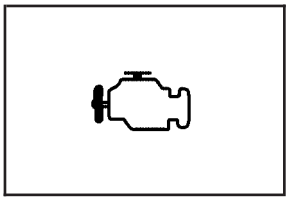


This gage shows the engine coolant temperature.

It can be used to see when your engine has warmed up and to make sure your cooling system is operating properly. If the gage pointer moves into the shaded area, the engine coolant is too hot and the engine coolant temperature warning light will come on. See *Engine Overheating on page 369* for more information.

Malfunction Indicator Lamp

Check Engine Light



Your vehicle has a computer which monitors operation of the fuel, ignition, and emission control systems.

This system is called OBD II (On-Board Diagnostics-Second Generation) and is intended to assure that emissions are at acceptable levels for the life of the vehicle, helping to produce a cleaner environment. The check engine light comes on to indicate that there is a problem and service is required. Malfunctions often will be indicated by the system before any problem is apparent. This may prevent more serious damage to your vehicle. This system is also designed to assist your service technician in correctly diagnosing any malfunction.

Notice: **If you keep driving your vehicle with this light on, after awhile, your emission controls may not work as well, your fuel economy may not be as good, and your engine may not run as smoothly. This could lead to costly repairs that may not be covered by your warranty.**

Notice: **Modifications made to the engine, transaxle, exhaust, intake, or fuel system of your vehicle or the replacement of the original tires with other than those of the same Tire Performance Criteria (TPC) can affect your vehicle's emission controls and may cause this light to come on. Modifications to these systems could lead to costly repairs not covered by your warranty. This may also result in a failure to pass a required Emission Inspection/Maintenance test. See *Accessories and Modifications on page 347*.**

This light should come on, as a check to show you it is working, when the ignition is on and the engine is not running. If the light does not come on, have it repaired.

This light will also come on during a malfunction in one of two ways:

- **Light Flashing** — A misfire condition has been detected. A misfire increases vehicle emissions and may damage the emission control system on your vehicle. Diagnosis and service may be required.
- **Light On Steady** — An emission control system malfunction has been detected on your vehicle. Diagnosis and service may be required.

If the Light Is Flashing

The following may prevent more serious damage to your vehicle:

- Reducing vehicle speed
- Avoiding hard accelerations
- Avoiding steep uphill grades
- If you are towing a trailer, reduce the amount of cargo being hauled as soon as it is possible

If the light stops flashing and remains on steady, see “If the Light Is On Steady” following.

If the light continues to flash, when it is safe to do so, stop the vehicle. Find a safe place to park your vehicle. Turn the key off, wait at least 10 seconds and restart the engine. If the light remains on steady, see “If the Light Is On Steady” following. If the light is still flashing, follow the previous steps, and see your dealer for service as soon as possible.

If the Light Is On Steady

You may be able to correct the emission system malfunction by considering the following:

Did you recently put fuel into your vehicle?

If so, reinstall the fuel cap, making sure to fully install the cap. See *Filling the Tank on page 352*. The diagnostic system can determine if the fuel cap has been left off or improperly installed. A loose or missing fuel cap will allow fuel to evaporate into the atmosphere. A few driving trips with the cap properly installed should turn the light off.

Did you just drive through a deep puddle of water?

If so, your electrical system may be wet. The condition will usually be corrected when the electrical system dries out. A few driving trips should turn the light off.

Have you recently changed brands of fuel?

If so, be sure to fuel your vehicle with quality fuel. See *Gasoline Octane on page 349*. Poor fuel quality will cause your engine not to run as efficiently as designed. You may notice this as stalling after start-up, stalling when you put the vehicle into gear, misfiring, hesitation on acceleration, or stumbling on acceleration. (These conditions may go away once the engine is warmed up.) This will be detected by the system and cause the light to turn on.

If you experience one or more of these conditions, change the fuel brand you use. It will require at least one full tank of the proper fuel to turn the light off.

If none of the above steps have made the light turn off, your dealer can check the vehicle. Your dealer has the proper test equipment and diagnostic tools to fix any mechanical or electrical problems that may have developed.

Emissions Inspection and Maintenance Programs

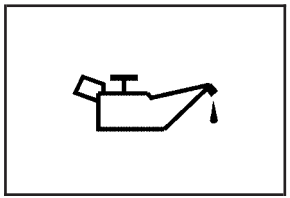
Some state/provincial and local governments have or may begin programs to inspect the emission control equipment on your vehicle. Failure to pass this inspection could prevent you from getting a vehicle registration.

Here are some things you need to know in order to help your vehicle pass an inspection:

Your vehicle will not pass this inspection if the check engine light is on or not working properly.

Your vehicle will not pass this inspection if the OBD (on-board diagnostic) system determines that critical emission control systems have not been completely diagnosed by the system. The vehicle would be considered not ready for inspection. This can happen if you have recently replaced your battery or if your battery has run down. The diagnostic system is designed to evaluate critical emission control systems during normal driving. This may take several days of routine driving. If you have done this and your vehicle still does not pass the inspection for lack of OBD system readiness, your dealer can prepare the vehicle for inspection.

Oil Pressure Light



This light will come on briefly when you start your engine.

⚠ CAUTION:

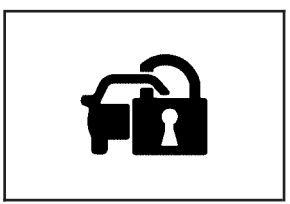
Do not keep driving if the oil pressure is low. If you do, your engine can become so hot that it catches fire. You or others could be burned. Check your oil as soon as possible and have your vehicle serviced.

Notice: **Lack of proper engine oil maintenance may damage the engine. The repairs would not be covered by your warranty. Always follow the maintenance schedule in this manual for changing engine oil.**

That is a check to be sure the light works. If it does not come on, be sure to have it fixed so it will be there to warn you if something goes wrong.

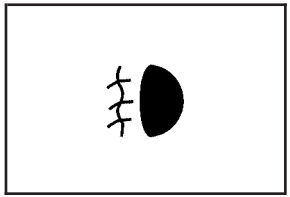
When the light comes on and stays on, it means that oil is not flowing through your engine properly. You could be low on oil and you might have some other system problem.

Security Light



For information regarding this light, see *Theft-Deterrent Systems on page 108*.

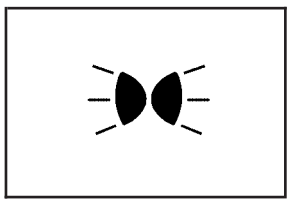
Fog Lamp Light



The fog lamp light will come on when the fog lamps are in use.

The light will go out when the fog lamps are turned off. See *Fog Lamps on page 191* for more information.

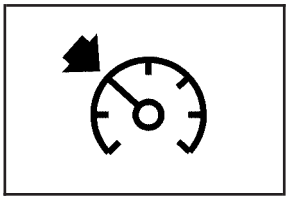
Lights On Reminder



This light comes on whenever the parking lamps are on.

See *Exterior Lamps on page 186* for more information.

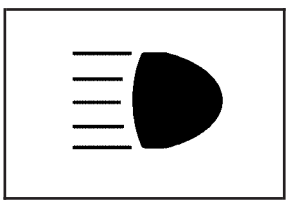
Cruise Control Light



This light comes on whenever you set your cruise control.

The light will go out when the cruise control is turned off. See *Cruise Control on page 169* and *Adaptive Cruise Control on page 173* for more information.

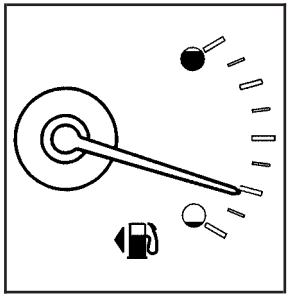
Highbeam On Light



This light comes on whenever the high-beam headlamps are on.

See *Headlamp High/Low-Beam Changer on page 161* for more information.

Fuel Gage



The fuel gage shows approximately how much fuel is in the tank. It works only when the engine is on.

If the fuel supply gets low, the FUEL LEVEL LOW message will appear in the Driver Information Center and a single chime will sound. See *DIC Warnings and Messages on page 239* for more information.

Here are a few concerns some owners have had about the fuel gage. All of these situations are normal and do not indicate that anything is wrong with the fuel gage:

- At the gas station the gas pump shuts off before the gage reads full.
- The gage may change when you turn, stop quickly or accelerate quickly.
- It takes a little more or less fuel to fill the tank than the gage indicated. For example, the gage may have indicated that the tank was half full, but it actually took a little more or less than half the tank's capacity to fill the tank.

Driver Information Center (DIC)

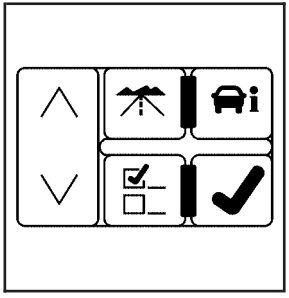
The Driver Information Center (DIC) gives you the status of many of your vehicle's systems. The DIC is also used to display warning/status messages. All messages will appear in the DIC display located at the bottom of the instrument panel cluster, below the tachometer and speedometer. The DIC buttons are located on the instrument panel, to the left of the steering wheel.

The DIC comes on when the ignition is on. After a short delay, the DIC will display the information that was last displayed before the engine was turned off.

The top line of the DIC display shows the vehicle system information and the warning/status messages. The bottom line of the DIC display shows the odometer on the left side. The bottom line of the DIC display also shows a digital speedometer on the right side.

If a problem is detected, a warning message will appear on the display. Be sure to take any message that appears on the display seriously and remember that clearing the message will only make the message disappear, not correct the problem.

DIC Controls and Displays



The Driver Information Center (DIC) has different displays which can be accessed by pressing the DIC buttons located on the instrument panel, to the left of the steering wheel.

Trip/Fuel: Press this button to scroll through the trip and fuel displays. See "Trip/Fuel Display Menu Items" following for more information on these displays.

Vehicle Information: Press this button to scroll through the vehicle information displays. See "Vehicle Information Display Menu Items" following for more information on these displays.

Customization: Press this button to scroll through each of the customization features. See *DIC Vehicle Customization on page 252* for more information on the customization features.

√ **Set/Reset:** Press this button to reset certain DIC features and to acknowledge DIC warning messages and clear them from the DIC display.

∧∨ **Menu Up/Down:** Press this button to scroll up and down the menu items.

Trip/Fuel Display Menu Items

(Trip/Fuel): The following display menu items can be displayed by pressing the trip/fuel button:

TRIP A or TRIP B

These displays show the current distance traveled since the last reset for each trip odometer in either miles (mi) or kilometers (km). Both odometers can be used at the same time. Each trip odometer can be reset to zero separately by pressing and holding the set/reset button for a few seconds while the desired trip odometer is displayed.

FUEL RANGE

This display shows the approximate number of remaining miles (mi) or kilometers (km) you can drive without refilling the fuel tank. This estimate is based on the current driving conditions and will change if the driving conditions change. For example, if you are driving in traffic and making frequent stops, the display may read one number, but if you enter the freeway, the number may change even though you still have the same amount of fuel in the fuel tank. This is because different driving conditions produce different fuel economies. Generally, freeway driving produces better fuel economy than city driving.

Once the range drops below an estimated 40 miles (64 km) remaining, the display will show FUEL RANGE LOW.

If your vehicle is low on fuel, the FUEL LEVEL LOW message will be displayed. See “FUEL LEVEL LOW” under *DIC Warnings and Messages on page 239* for more information.

AVERAGE ECONOMY (AFE)

This display shows the approximate average miles per gallon (mpg) or liters per 100 kilometers (L/100 km). This number is calculated based on the number of mpg (L/100 km) recorded since the last time this display was reset. To reset this display, press the set/reset button. The display will return to zero.

INST (Instantaneous) ECONOMY (IFE)

This display shows the current fuel economy in either miles per gallon (mpg) or liters per 100 kilometers (L/100 km). This number reflects only the fuel economy that the vehicle has right now and will change frequently as driving conditions change. Unlike average economy, this display cannot be reset.

FUEL USED

This display shows the number of gallons (gal) or liters (L) of fuel used since the last reset of this display. To reset this display, press the set/reset button. The display will return to zero.

TIMER ON/OFF

This display can be used like a stopwatch. You can record the time it takes to travel from one point to another. To access the timer, press the trip/fuel button until 00:00:00 TIMER OFF displays.

To turn on the timer, press the set/reset button until TIMER ON displays. The timer will then start.

To turn off the timer, press the set/reset button again until TIMER OFF displays. The timer will stop and display the end timing value.

To reset the timer, press and hold the set/reset button after the timer has been stopped. The display will return to zero.

AVERAGE SPEED

This display shows the average speed of the vehicle in either miles per hour (mph) or kilometers per hour (km/h). This average is calculated based on the various vehicle speeds recorded since the last reset of this display. To reset this display, press the set/reset button. The display will return to zero.

BATTERY VOLTAGE

This display shows the current battery voltage. If the voltage is in the normal range, the value will display. For example, the display may read BATTERY VOLTAGE 13.2 VOLTS. If the voltage is low, the display will show LOW. If the voltage is high, the display will show HIGH. Your vehicle's charging system regulates voltage based on the state of the battery. The battery voltage may fluctuate when viewing this information on the DIC. This is normal. See *Charging System Light on page 222* for more information.

If there is a problem with the battery charging system, the DIC will display a message. See *DIC Warnings and Messages on page 239* for more information.

Blank Display

This display shows no information.

Vehicle Information Display Menu Items

(Vehicle Information): The following display menu items can be displayed by pressing the vehicle information button:

OIL LIFE REMAINING

If the vehicle has this display, it shows the estimated oil life remaining. If you see 99% OIL LIFE REMAINING on the display, that means that 99% of the current oil life remains.

When the oil life is depleted, the CHANGE ENGINE OIL SOON message will appear on the display. You should change the oil as soon as possible. In addition to the engine oil life system monitoring the oil life, additional maintenance is recommended in the Maintenance Schedule in this manual. See *Scheduled Maintenance on page 457* and *Engine Oil on page 357*.

Remember, you must reset the OIL LIFE yourself after each oil change. It will not reset itself. Also, be careful not to reset the OIL LIFE accidentally at any time other than when the oil has just been changed. It cannot be reset accurately until the next oil change. To reset the engine oil life system, See *Engine Oil Life System on page 360*. The display will show 100% when the system is reset.

UNITS

This display allows you to select between English or Metric units of measurement. Once in this display, press the set/reset button to select between ENGLISH or METRIC units.

PARKING ASSIST

If your vehicle has the Ultrasonic Front and Rear Parking Assist (UFRPA) system, this display allows the system to be turned on or off. Once in this display, press the set/reset button to select between ON or OFF. If you choose ON, the system will be turned on. If you choose OFF, the system will be turned off. The UFRPA system automatically turns back on after each vehicle start. When the UFRPA system is turned off and the vehicle is shifted out of PARK (P), the DIC will display the PARKING ASSIST OFF message as a reminder that the system has been turned off. See *DIC Warnings and Messages on page 239* and *Ultrasonic Front and Rear Parking Assist (UFRPA) on page 196* for more information.

FRONT TIRES or REAR TIRES

The pressure for each tire can be viewed in the DIC. The tire pressure will be shown in either pounds per square inch (psi) or kilopascals (kPa). Press the vehicle information button until the DIC displays FRONT TIRES PSI (kPa) LEFT ## RIGHT ##. Press the vehicle information button again until the DIC displays REAR TIRES PSI (kPa) LEFT ## RIGHT ##.

If a low or high tire pressure condition is detected by the system while driving, a message advising you to check the pressure in a specific tire will appear in the display. See *Inflation - Tire Pressure on page 402* and *DIC Warnings and Messages on page 239* for more information.

If the tire pressure display shows dashes instead of a value, there may be a problem with your vehicle. If this consistently occurs, see your dealer for service.

RELEARN TIRE POSITIONS

After rotating the tires or after replacing a tire or sensor, the Tire Pressure Monitor (TPM) system must re-learn the tire positions. To re-learn the tire positions, see *Tire Pressure Monitor System on page 406*. See *Tire Inspection and Rotation on page 410* and *DIC Warnings and Messages on page 239* for more information.

RELEARN REMOTE KEY

This display allows you to match the Remote Keyless Entry (RKE) transmitter to your vehicle. To match an RKE transmitter to your vehicle, do the following:

1. Press the vehicle information button until RELEARN REMOTE KEY displays.
2. Press the set/reset button.

   The message REMOTE KEY LEARNING ACTIVE will display.
3. Press and hold the lock and unlock buttons on the first transmitter at the same time for about 15 seconds.

   A chime will sound indicating that the transmitter is matched.
4. To match additional transmitters at this time, repeat Step 3.

   Each vehicle can have a maximum of eight transmitters matched to it.
5. To exit the programming mode, you must cycle the key to OFF.

Blank Display

This display shows no information.

DIC Warnings and Messages

These messages appear if there is a problem detected in one of your vehicle's systems.

You must acknowledge a message to clear it from the screen for further use. To clear a message, press the set/reset button.

Be sure to take any message that appears on the screen seriously and remember that clearing the message will only make the message disappear, not the problem.

AUTOMATIC LIGHT CONTROL OFF

This message displays when the automatic headlamps are turned off. See *Exterior Lamps on page 186* for more information.

AUTOMATIC LIGHT CONTROL ON

This message displays when the automatic headlamps are turned on. See *Exterior Lamps on page 186* for more information.

BATTERY SAVER ACTIVE

This message displays when the system detects that the battery voltage is dropping beyond a reasonable level. The battery saver system starts reducing certain features of the vehicle that you may be able to notice. At the point that the features are disabled, this message is displayed. It means that the vehicle is trying to save the charge in the battery.

Turn off all unnecessary accessories to allow the battery to recharge.

The normal battery voltage range is 11.5 to 15.5 volts. You can monitor battery voltage on the Driver Information Center (DIC) by pressing the trip/fuel button until BATTERY VOLTAGE is displayed.

CHANGE ENGINE OIL SOON

This message displays when service is required for your vehicle. See your dealer. See *Engine Oil on page 357* and *Scheduled Maintenance on page 457* for more information.

When you reset the CHANGE ENGINE OIL SOON message by clearing it from the display, you still must reset the engine oil life system separately. For more information on resetting the engine oil life system, see *Engine Oil Life System on page 360*.

CHECK TIRE PRESSURE

This message displays when the tire pressure in one of the tires needs to be checked. This message also displays LEFT FRONT, RIGHT FRONT, LEFT REAR, or RIGHT REAR to indicate which tire needs to be checked. You can receive more than one tire pressure message at a time. To read the other messages that may have been sent at the same time, press the set/reset button. If a tire pressure message appears on the DIC, stop as soon as you can. Have the tire pressures checked and set to those shown on the Tire Loading Information Label. See *Tires on page 394*, *Loading Your Vehicle on page 327*, and *Inflation - Tire Pressure on page 402*. The DIC display also shows the tire pressure values for the front and rear tires by pressing the vehicle information button. See *DIC Controls and Displays on page 233*. If the tire pressure is low, the low tire pressure warning light comes on. See *Low Tire Pressure Warning Light on page 224*.

CLEAN RADAR

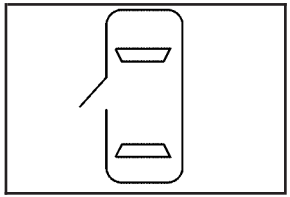
This message displays when the Adaptive Cruise Control (ACC) system and the Forward Collision Alert (FCA) system are disabled because the radar is blocked and cannot detect vehicles in your path. It may also activate during heavy rain or due to road spray. To clean the system, see “Cleaning the System” under *Adaptive Cruise Control on page 173*.

CRUISE SET TO XXX MPH (km/h)

This message displays whenever the cruise control is set. See *Cruise Control on page 169* and *Adaptive Cruise Control on page 173* for more information.

If your vehicle has Adaptive Cruise Control (ACC), after a few seconds, this message clears and the message “SET SPD XX” displays at the bottom of the DIC. See “SET SPD (Speed)” later in this section.

DRIVER DOOR OPEN



This symbol appears with this message.

This message displays when the driver's door is not closed completely. Make sure that the driver's door is closed completely.

ENGINE HOT – A/C (Air Conditioning) OFF

This message displays when the engine coolant becomes hotter than the normal operating temperature. See *Engine Coolant Temperature Gage on page 226*. To avoid added strain on a hot engine, the air conditioning compressor automatically turns off. When the coolant temperature returns to normal, the air conditioning compressor turns back on. You can continue to drive your vehicle.

If this message continues to appear, have the system repaired by your dealer as soon as possible to avoid damage to the engine.

ENGINE OVERHEATED IDLE ENGINE

Notice: **If you drive your vehicle while the engine is overheating, severe engine damage may occur. If an overheat warning appears on the instrument panel cluster and/or DIC, stop the vehicle as soon as possible. Do not increase the engine speed above normal idling speed. See *Engine Overheating on page 369* for more information.**

This message displays when the engine coolant temperature is too hot. Stop and allow the vehicle to idle until it cools down. See *Engine Coolant Temperature Warning Light on page 226*.

See *Overheated Engine Protection Operating Mode on page 371* for information on driving to a safe place in an emergency.

ENGINE OVERHEATED STOP ENGINE

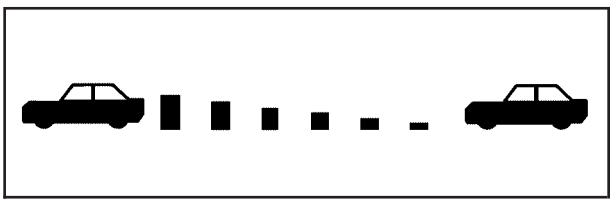
Notice: **If you drive your vehicle while the engine is overheating, severe engine damage may occur. If an overheat warning appears on the instrument panel cluster and/or DIC, stop the vehicle as soon as possible. See *Engine Overheating on page 369* for more information.**

This message displays when the engine has overheated. Immediately look for a safe place to pull your vehicle over and turn the engine off right away to avoid severe engine damage. See *Engine Overheating on page 369* and *Overheated Engine Protection Operating Mode on page 371*. A chime also sounds when this message is displayed.

ENGINE POWER REDUCED

This message displays when the engine power is being reduced to protect the engine from damage. There could be several malfunctions that might cause this message. Reduced engine power can affect the vehicle's ability to accelerate. If this message is on, but there is no reduction in performance, proceed to your destination. The performance may be reduced the next time the vehicle is driven. The vehicle may be driven at a reduced speed while this message is on, but acceleration and speed may be reduced. Anytime this message stays on, the vehicle should be taken to your dealer for service as soon as possible.

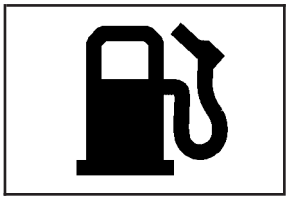
FOLLOWING GAP



This symbol appears with this message.

If your vehicle has Adaptive Cruise Control (ACC), this message displays to show the follow distance that has been set. There are six follow distances to choose from. Each follow distance is shown on the DIC by displaying from one to six bars between two car symbols. See *Adaptive Cruise Control on page 173* for more information.

FUEL LEVEL LOW



This symbol appears with this message.

This message displays when your vehicle is low on fuel. Refill the fuel tank as soon as possible. A single chime sounds when this message is displayed. See *Filling the Tank on page 352*.

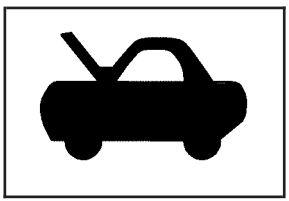
HEATED WASHER FLUID SYSTEM OFF

This message displays when you manually turn off the heated washer fluid system or when the system automatically turns off. See “Heated Washer Fluid” under *Windshield Washer on page 168* for more information.

HEATING WASH (Washer) FLUID WASH (Washer) WIPES PENDING

This message displays when you turn on the heated washer fluid system. See “Heated Washer Fluid” under *Windshield Washer on page 168* for more information.

HOOD OPEN



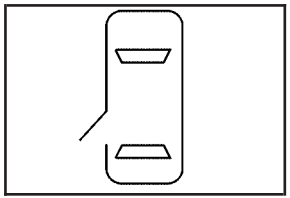
This symbol appears with this message.

This message displays when the hood is not closed completely. Make sure that the hood is completely closed.

ICE POSSIBLE DRIVE WITH CARE

This message displays when the outside temperature is cold enough to create icy road conditions.

LEFT REAR DOOR OPEN



This symbol appears with this message.

This message displays when the driver's side rear door is not closed completely. Make sure that the door is closed completely.

NO CRUISE BRAKING GAS PEDAL APPLIED

This message displays when the Adaptive Cruise Control (ACC) is engaged and you are pressing the accelerator pedal enough to disable ACC automatic braking. See *Adaptive Cruise Control on page 173* for more information.

OIL PRESSURE LOW STOP ENGINE

Notice: **If you drive your vehicle while the engine oil pressure is low, severe engine damage may occur. If a low oil pressure warning appears on the instrument panel cluster and/or DIC, stop the vehicle as soon as possible. Do not drive the vehicle until the cause of the low oil pressure is corrected. See *Engine Oil on page 357* for more information.**

This message displays when the vehicle's engine oil pressure is low. The oil pressure light also appears on the instrument panel cluster. See *Oil Pressure Light on page 230*.

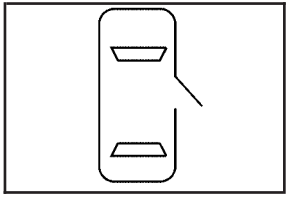
A multiple chime sounds when this message is displayed. See *Engine Oil on page 357* for more information.

Stop the vehicle immediately, as engine damage can result from driving a vehicle with low oil pressure. Have the vehicle serviced by your dealer as soon as possible when this message is displayed.

PARKING ASSIST OFF

If your vehicle has the Ultrasonic Front and Rear Parking Assist (UFRPA) system, after the vehicle is shifted out of PARK (P), this message displays to remind the driver that the UFRPA system has been turned off. Press the set/reset button to acknowledge this message and clear it from the DIC display. To turn the UFRPA system back on, see “PARKING ASSIST” under *DIC Controls and Displays on page 233*. See *Ultrasonic Front and Rear Parking Assist (UFRPA) on page 196* for more information.

PASSENGER DOOR OPEN



This symbol appears with this message.

This message displays when the passenger’s side front door is not closed completely. Make sure that the door is closed completely.

RADAR CRUISE NOT READY

This message displays when the Adaptive Cruise Control (ACC) system will not activate due to a temporary condition. Your vehicle does not require service. If this message appears when you attempt to activate the system, continue driving for several minutes and then try activating the system again. See *Adaptive Cruise Control on page 173* for more information.

RAINSENSE WIPERS ACTIVE

If your vehicle has Rainsense™ II wipers, this message displays while this feature is active. See *Rainsense™ II Wipers on page 167* for more information.

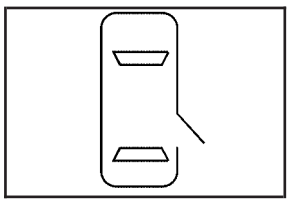
REMOTE KEY LEARNING ACTIVE

This message displays while you are matching a Remote Keyless Entry (RKE) transmitter to your vehicle. See “Matching Transmitter(s) to Your Vehicle” under *Remote Keyless Entry (RKE) System Operation on page 92* and *DIC Controls and Displays on page 233* for more information.

REPLACE BATTERY IN REMOTE KEY

This message displays when the battery in the Remote Keyless Entry (RKE) transmitter needs to be replaced. To replace the battery, see “Battery Replacement” under *Remote Keyless Entry (RKE) System Operation on page 92*.

RIGHT REAR DOOR OPEN



This symbol appears with this message.

This message displays when the passenger’s side rear door is not closed completely. Make sure that the door is closed completely.

SERVICE AIR BAG

This message displays when there is a problem with the airbag system. Have your vehicle serviced by your dealer immediately. See *Airbag Readiness Light on page 219* for more information.

SERVICE A/C SYSTEM

This message displays when the air delivery mode door or the electronic sensors that control the air conditioning and heating systems are no longer working. Have the climate control system serviced by your dealer if you notice a drop in heating and air conditioning efficiency.

SERVICE BATTERY CHARGING SYSTEM

This message displays when a problem with the charging system has been detected. The charging system light also displays on the instrument panel cluster. See *Charging System Light on page 222* for more information. Have your vehicle serviced by your dealer.

SERVICE BRAKE ASSIST

This message displays if there is a problem with the brake system. The brake system warning light and the anti-lock brake system warning light may also be displayed on the instrument panel cluster. See *Brake System Warning Light on page 222* and *Anti-Lock Brake System Warning Light on page 223* for more information. If this happens, stop as soon as possible and turn off the vehicle. Restart the vehicle and check for the message on the DIC display. If the message is displayed or appears again when you begin driving, the brake system needs service. See your dealer as soon as possible. See *Brakes on page 379* for more information.

SERVICE BRAKE SYSTEM

This message displays if the ignition is on to inform the driver that the brake fluid level is low. Have the brake system serviced by your dealer as soon as possible.

SERVICE PARKING ASSIST

If your vehicle has the Ultrasonic Front and Rear Parking Assist (UFRPA) system, this message displays if there is a problem with the UFRPA system. Do not use this system to help you park. See *Ultrasonic Front and Rear Parking Assist (UFRPA) on page 196* for more information. See your dealer for service.

SERVICE POWER STEERING

Your vehicle may have a speed variable assist steering system. See *Steering on page 306*.

This message displays if a problem is detected with the speed variable assist steering system. When this message is displayed, you may notice that the effort required to steer the vehicle decreases or feels lighter, but you will still be able to steer the vehicle.

SERVICE RADAR CRUISE

This message displays when the Adaptive Cruise Control (ACC) system and the Forward Collision Alert (FCA) system are disabled and need service. See your dealer.

SERVICE STABILITRAK

Your vehicle may have a vehicle stability enhancement system called StabiliTrak®. See *StabiliTrak® System on page 305*.

This message displays if there has been a problem detected with the StabiliTrak® system.

If this message comes on while you are driving, pull off the road as soon as possible and stop carefully. Try resetting the system by turning the ignition off then back on. If this message still stays on or comes back on again while you are driving, your vehicle needs service. Have the StabiliTrak® system inspected by your dealer as soon as possible.

SERVICE SUSPENSION SYS (System)

This message displays when the magnetic ride control or automatic leveling control system is not operating properly. Have your vehicle serviced by your dealer.

SERVICE THEFT DETERRENT SYSTEM

This message displays when there is a problem with the theft-deterrent system programmed in the key. A fault has been detected in the system which means that the system is disabled and it is not protecting the vehicle. The vehicle usually restarts; however, you may want to take the vehicle to your dealer before turning off the engine. See *PASS-Key® III+ Operation on page 112* for more information.

SERVICE TIRE MONITOR SYSTEM

This message displays if a part on the Tire Pressure Monitor (TPM) system is not working properly. If you drive your vehicle while any of the four sensors are missing or inoperable, the warning comes on in about 20 minutes. A sensor would be missing, for example, if you put different wheels on your vehicle without transferring the sensors. If the warning comes on and stays on, there may be a problem with the TPM. See your dealer.

SERVICE TRACTION CONTROL

This message displays when there is a problem with the Traction Control System (TCS). When this message is displayed, the system will not limit wheel spin. Adjust your driving accordingly. See your dealer for service. See *Traction Control System (TCS) on page 303* for more information.

SERVICE TRANSMISSION

This message displays when there is a problem with the vehicle's transaxle. Have your vehicle serviced by your dealer.

SERVICE VEHICLE SOON

This message displays when a non-emissions related malfunction occurs. Have your vehicle serviced by your dealer as soon as possible.

SET SPD (Speed)

If your vehicle has Adaptive Cruise Control (ACC), this message displays whenever the cruise control is set. First, the "CRUISE SET TO XXX MPH (km/h)" message appears. After a few seconds, the "CRUISE SET TO XXX MPH (km/h)" message clears and the message "SET SPD XX" displays at the bottom of the DIC. See "CRUISE SET TO XXX MPH (km/h)" earlier in this section and *Adaptive Cruise Control on page 173* for more information.

SPEED LIMITED TO XXX MPH (km/h)

This message displays when your vehicle speed is limited to 80 mph (128 km/h) because the vehicle detects a problem in the speed variable assist steering, magnetic ride control, or automatic leveling control systems. Have your vehicle serviced by your dealer.

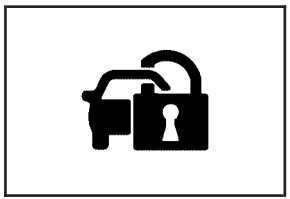
STABILITRAK NOT READY

If your vehicle has StabiliTrak®, this message may display and the Traction Control System and StabiliTrak® Warning Light on the instrument panel cluster may be on after first driving the vehicle and exceeding 19 mph (30 km/h) for 30 seconds. The StabiliTrak® system is not functional until the light has turned off. See *StabiliTrak® System on page 305* for more information.

STARTING DISABLED SERVICE THROTTLE

This message displays when your vehicle's throttle system is not functioning properly. Have your vehicle serviced by your dealer.

THEFT ATTEMPTED



This symbol appears with this message.

This message displays if the content theft-deterrent system has detected a break-in attempt while you were away from your vehicle. See *Content Theft-Deterrent on page 109* for more information.

TIGHTEN GAS CAP

This message displays when the fuel cap has not been fully tightened. Recheck the fuel cap to ensure that it is on and tightened properly.

TIRE LEARNING ACTIVE

This message displays when the Tire Pressure Monitor (TPM) system is re-learning the tire positions on your vehicle. See *Tire Pressure Monitor System on page 406*. The tire positions must be re-learned after rotating the tires or after replacing a tire or sensor. See *Tire Inspection and Rotation on page 410* and *Inflation - Tire Pressure on page 402* for more information.

TRACTION CONTROL OFF

This message displays when the Traction Control System (TCS) is turned off. Adjust your driving accordingly. See *Traction Control System (TCS) on page 303* for more information.

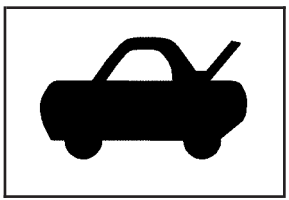
TRACTION CONTROL ON

This message displays when the Traction Control System (TCS) is turned on. See *Traction Control System (TCS) on page 303* for more information.

TRANSMISSION HOT IDLE ENGINE

This message displays when the transaxle fluid in your vehicle is too hot. Stop the vehicle and allow it to idle until the transaxle cools down or until this message is removed.

TRUNK OPEN



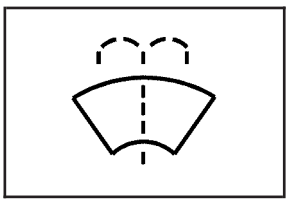
This symbol appears with this message.

This message displays when the trunk is not closed completely. Make sure that the trunk is closed completely.

TURN SIGNAL ON

This message displays as a reminder to turn off the turn signal if you drive your vehicle for more than about 1 mile (1.6 km) with a turn signal on. A multiple chime sounds when this message is displayed.

WASHER FLUID LOW ADD FLUID



This symbol appears with this message.

This message displays when your vehicle is low on windshield washer fluid. Refill the windshield washer fluid reservoir as soon as possible. See *Windshield Washer Fluid on page 378* for more information.

DIC Vehicle Customization

Your vehicle has customization capabilities that allow you to program certain features to one preferred setting. Customization features can only be programmed to one setting on the vehicle and cannot be programmed to a preferred setting for two different drivers.

All of the customization options may not be available on your vehicle. Only the options available will be displayed on your DIC.

The customization features were set to the default settings when your vehicle left the factory, but they may have been changed from their default state since that time.

The customization preferences are automatically recalled.

To change customization preferences, use the following procedure.

Entering the Feature Settings Menu

1. Turn the ignition on and place the vehicle in PARK (P).

   To avoid excessive drain on the battery, it is recommended that the headlamps are turned off.

2. Press the customization button to enter the feature settings menu.

   If the menu is not available, FEATURE SETTINGS AVAILABLE IN PARK will display. Before entering the menu, make sure the vehicle is in PARK (P).

Feature Settings Menu Items

The following are customization features that allow you to program settings to the vehicle:

DISPLAY IN ENGLISH

This feature will only display if a language other than English has been set. This feature allows you to change the language in which the DIC messages appear back to English.

Press the customization button until the DISPLAY IN ENGLISH screen appears on the DIC display. Press the set/reset button to select English as the language in which all DIC messages will appear.

DISPLAY LANGUAGE

This feature allows you to select the language in which the DIC messages will appear.

Press the customization button until the DISPLAY LANGUAGE screen appears on the DIC display. Press the set/reset button to access the settings for this feature. Then press the menu up/down button to scroll through the following settings:

ENGLISH (default): All messages will appear in English.

DEUTSCH (German): All messages will appear in German.

FRANCAIS (French): All messages will appear in French.

ESPANOL (Spanish): All messages will appear in Spanish.

JAPANESE: All messages will appear in Japanese.

ARABIC: All messages will appear in Arabic.

NO CHANGE: No change will be made to this feature. The current setting will remain.

Choose one of the available settings and press the set/reset button while it is displayed on the DIC to select it.

AUTO DOOR LOCK

This feature allows you to select when the vehicle's doors will automatically lock. See *Programmable Automatic Door Locks on page 100* for more information.

Press the customization button until AUTO DOOR LOCK appears on the DIC display. Press the set/reset button to access the settings for this feature. Then press the menu up/down button to scroll through the following settings:

SHIFT OUT OF PARK (default): The vehicle's doors automatically lock when the doors are closed and the vehicle is shifted out of PARK (P).

AT VEHICLE SPEED: The vehicle's doors automatically lock when the vehicle speed is above 5 mph (8 km/h) for three seconds.

NO CHANGE: No change will be made to this feature. The current setting will remain.

Choose one of the available settings and press the set/reset button while it is displayed on the DIC to select it.

AUTO DOOR UNLOCK

This feature allows you to select whether or not the door(s) will automatically unlock. It also allows you to select which doors and when they will automatically unlock. See *Programmable Automatic Door Locks on page 100* for more information.

Press the customization button until AUTO DOOR UNLOCK appears on the DIC display. Press the set/reset button to access the settings for this feature. Then press the menu up/down button to scroll through the following settings:

OFF: None of the doors will automatically unlock.

DRIVER AT KEY OUT: Only the driver's door will unlock when the key is taken out of the ignition.

DRIVER IN PARK: Only the driver's door will unlock when the vehicle is shifted into PARK (P).

ALL AT KEY OUT: All of the doors will unlock when the key is taken out of the ignition.

ALL IN PARK (default): All of the doors will unlock when the vehicle is shifted into PARK (P).

NO CHANGE: No change will be made to this feature. The current setting will remain.

Choose one of the available settings and press the set/reset button while it is displayed on the DIC to select it.

REMOTE DOOR LOCK

This feature allows you to select the type of feedback you will receive when locking the vehicle with the Remote Keyless Entry (RKE) transmitter. You will not receive feedback when locking the vehicle with the RKE transmitter if the doors are open. See *Remote Keyless Entry (RKE) System Operation on page 92* for more information.

Press the customization button until REMOTE DOOR LOCK appears on the DIC display. Press the set/reset button to access the settings for this feature. Then press the menu up/down button to scroll through the following settings:

OFF: There will be no feedback when you press the lock button on the RKE transmitter.

LIGHTS ONLY: The exterior lamps will flash when you press the lock button on the RKE transmitter.

HORN ONLY: The horn will sound on the second press of the lock button on the RKE transmitter.

HORN & LIGHTS (default): The exterior lamps will flash when you press the lock button on the RKE transmitter, and the horn will sound when the lock button is pressed again within five seconds of the previous command.

NO CHANGE: No change will be made to this feature. The current setting will remain.

Choose one of the available settings and press the set/reset button while it is displayed on the DIC to select it.

REMOTE DOOR UNLOCK

This feature allows you to select the type of feedback you will receive when unlocking the vehicle with the Remote Keyless Entry (RKE) transmitter. You will not receive feedback when unlocking the vehicle with the RKE transmitter if the doors are open. See *Remote Keyless Entry (RKE) System Operation on page 92* for more information.

Press the customization button until REMOTE DOOR UNLOCK appears on the DIC display. Press the set/reset button to access the settings for this feature. Then press the menu up/down button to scroll through the following settings:

LIGHTS OFF: The exterior lamps will not flash when you press the unlock button on the RKE transmitter.

LIGHTS ON (default): The exterior lamps will flash when you press the unlock button on the RKE transmitter.

NO CHANGE: No change will be made to this feature. The current setting will remain.

Choose one of the available settings and press the set/reset button while it is displayed on the DIC to select it.

DELAY DOOR LOCK

This feature allows you to select whether or not the locking of the vehicle's doors will be delayed. The locking of the vehicle's doors is delayed for up to 10 seconds after a power door lock switch is pressed when a door is open, or after the lock button on the Remote Keyless Entry (RKE) transmitter is pressed while a door is open. The key must be out of the ignition for this feature to work.

Press the customization button until DELAY DOOR LOCK appears on the DIC display. Press the set/reset button to access the settings for this feature. Then press the menu up/down button to scroll through the following settings:

OFF: There will be no delayed locking of the vehicle's doors.

ON (default): The locking of the vehicle's doors will be delayed by 10 seconds after a power door lock switch is pressed when a door is open, or the lock button on the RKE transmitter is pressed while a door is open.

NO CHANGE: No change will be made to this feature. The current setting will remain.

Choose one of the available settings and press the set/reset button while it is displayed on the DIC to select it.

EXIT LIGHTING

If it is dark enough outside, this feature allows you to select the amount of time you want the exterior lamps to remain on. This happens after the key is turned from RUN to OFF.

Press the customization button until EXIT LIGHTING appears on the DIC display. Press the set/reset button to access the settings for this feature. Then press the menu up/down button to scroll through the following settings:

OFF: The exterior lamps will not turn on.

30 SECONDS (default): The exterior lamps will stay on for 30 seconds.

1 MINUTE: The exterior lamps will stay on for one minute.

2 MINUTES: The exterior lamps will stay on for two minutes.

NO CHANGE: No change will be made to this feature. The current setting will remain.

Choose one of the available settings and press the set/reset button while it is displayed on the DIC to select it.

APPROACH LIGHTING

This feature allows you to select whether or not to have the exterior lights turn on briefly during low light periods after unlocking the vehicle using the Remote Keyless Entry (RKE) transmitter.

Press the customization button until APPROACH LIGHTING appears on the DIC display. Press the set/reset button to access the settings for this feature. Then press the menu up/down button to scroll through the following settings:

OFF: The exterior lights will not turn on when you unlock the vehicle with the RKE transmitter.

ON (default): If it is dark enough outside, the exterior lights will turn on briefly when you unlock the vehicle with the RKE transmitter.

The lights will remain on for 20 seconds or until the lock button on the RKE transmitter is pressed, or the vehicle is no longer off. See *Remote Keyless Entry (RKE) System Operation on page 92* for more information.

NO CHANGE: No change will be made to this feature. The current setting will remain.

Choose one of the available settings and press the set/reset button while it is displayed on the DIC to select it.

CHIME VOLUME

This feature allows you to select the volume level of the chime.

Press the customization button until CHIME VOLUME appears on the DIC display. Press the set/reset button to access the settings for this feature. Then press the menu up/down button to scroll through the following settings:

NORMAL (default): The chime volume will be set to a normal level.

LOUD: The chime volume will be set to a loud level.

NO CHANGE: No change will be made to this feature. The current setting will remain.

Choose one of the available settings and press the set/reset button while it is displayed on the DIC to select it.

PARK TILT MIRRORS

If your vehicle has this feature, it allows you to select whether or not the outside mirror(s) will automatically tilt down when the vehicle is shifted into REVERSE (R). See *Outside Curb View Assist Mirror on page 134* for more information.

Press the customization button until PARK TILT MIRRORS appears on the DIC display. Press the set/reset button to access the settings for this feature. Then press the menu up/down button to scroll through the following settings:

OFF (default): Neither outside mirror will be tilted down when the vehicle is shifted into REVERSE (R).

DRIVER MIRROR: The driver's outside mirror will be tilted down when the vehicle is shifted into REVERSE (R).

PASSENGER MIRROR: The passenger's outside mirror will be tilted down when the vehicle is shifted into REVERSE (R).

BOTH MIRRORS: The driver's and passenger's outside mirrors will be tilted down when the vehicle is shifted into REVERSE (R).

NO CHANGE: No change will be made to this feature. The current setting will remain.

Choose one of the available settings and press the set/reset button while it is displayed on the DIC to select it.

EASY EXIT SEAT

If the vehicle has this feature, it allows you to select your preference for the easy exit seat feature. See *Memory Seat, Mirrors and Steering Wheel on page 11* for more information.

Press the customization button until EASY EXIT SEAT appears in the display. Press the set/reset button to access the settings for this feature. Then press the menu up/down button to scroll through the following settings:

OFF (default): No seat exit recall will occur.

ON: The driver's seat will move back, and if the vehicle has the power tilt wheel and telescopic steering feature, the power steering column will move up and forward when the key is removed from the ignition.

The automatic easy exit seat movement will only occur one time after the key is removed from the ignition. If the automatic movement has already occurred, and you put the key back in the ignition and remove it again, the seat and steering column will stay in the original exit position, unless a memory recall took place prior to removing the key again.

NO CHANGE: No change will be made to this feature. The current setting will remain.

Choose one of the available settings and press the set/reset button while it is displayed on the DIC to select it.

MEMORY SEAT RECALL

If the vehicle has this feature, it allows you to select your preference for the memory seat recall feature. See *Memory Seat, Mirrors and Steering Wheel on page 11* for more information.

Press the customization button until MEMORY SEAT RECALL appears in the display. Press the set/reset button to access the settings for this feature. Then press the menu up/down button to scroll through the following settings:

OFF (default): No memory seat recall will occur.

ON: The driver's seat will automatically move to the stored driving position when the unlock button on the Remote Keyless Entry (RKE) transmitter is pressed.

NO CHANGE: No change will be made to this feature. The current setting will remain.

Choose one of the available settings and press the set/reset button while it is displayed on the DIC to select it.

REMOTE START

If the vehicle has this feature, it allows you to turn the remote start feature off or on. The remote start feature allows you to start the engine from outside of the vehicle using your Remote Keyless Entry (RKE) transmitter. See “Remote Vehicle Start” under *Remote Keyless Entry (RKE) System Operation on page 92* for more information.

Press the customization button until REMOTE START appears on the DIC display. Press the set/reset button to access the settings for this feature. Then press the menu up/down button to scroll through the following settings:

OFF: The remote start feature will be disabled.

ON (default): The remote start feature will be enabled.

NO CHANGE: No change will be made to this feature. The current setting will remain.

Choose one of the available settings and press the set/reset button while it is displayed on the DIC to select it.

FACTORY SETTINGS

This feature allows you to set all of the customization features back to their factory default settings.

Press the customization button until FACTORY SETTINGS appears on the DIC display. Press the set/reset button to access the settings for this feature. Then press the menu up/down button to scroll through the following settings:

RESTORE ALL (default): The customization features will be set to their factory default settings.

DO NOT RESTORE: The customization features will not be set to their factory default settings.

Choose one of the available settings and press the set/reset button while it is displayed on the DIC to select it.

Exiting the Feature Settings Menu

The feature settings menu will be exited when any of the following occurs:

- The vehicle is shifted out of PARK (P).
- The ignition is no longer in RUN.
- The trip/fuel or vehicle information DIC buttons are pressed.
- The end of the feature settings menu is reached.
- A 40 second time period has elapsed with no selection made.

Audio System(s)

Determine which radio your vehicle has and then read the pages following to familiarize yourself with its features.

Driving without distraction is a necessity for a safer driving experience. See *Defensive Driving on page 296*. By taking a few moments to read this manual and get familiar with your vehicle's audio system, you can use it with less effort, as well as take advantage of its features. While your vehicle is parked, set up your audio system by presetting your favorite radio stations, setting the tone and adjusting the speakers. Then, when driving conditions permit, you can tune to your favorite stations using the presets and steering wheel controls if the vehicle has them.

⚠ CAUTION:

This system provides you with a far greater access to audio stations and song listings. Giving extended attention to entertainment tasks while driving can cause a crash and you or others can be injured or killed. Always keep your eyes on the road and your mind on the drive — avoid engaging in extended searching while driving.

Keeping your mind on the drive is important for safe driving. For more information, see *Defensive Driving on page 296*.

Here are some ways in which you can help avoid distraction while driving.

While your vehicle is parked:

- Familiarize yourself with all of its controls.
- Familiarize yourself with its operation.
- Set up your audio system by presetting your favorite radio stations, setting the tone, and adjusting the speakers. Then, when driving conditions permit, you can tune to your favorite radio stations using the presets and steering wheel controls if the vehicle has them.

Notice: **Before adding any sound equipment to your vehicle, such as an audio system, CD player, CB radio, mobile telephone, or two-way radio, make sure that it can be added by checking with your dealer. Also, check federal rules covering mobile radio and telephone units. If sound equipment can be added, it is very important to do it properly. Added sound equipment may interfere with the operation of your vehicle's engine, radio, or other systems, and even damage them. Your vehicle's systems may interfere with the operation of sound equipment that has been added.**

Your vehicle has a feature called Retained Accessory Power (RAP). With RAP, the audio system can be played even after the ignition is turned off. See *Retained Accessory Power (RAP) on page 115* for more information.

Setting the Time (Radio with Single CD Player)

Enabling/Disabling the Digital Radio Clock

Your vehicle has an analog clock as well as the digital radio clock. At the time of new vehicle delivery, the digital radio clock display should be disabled. If you decide to use the digital radio clock as well as the analog clock, you can change the setting to enable the radio clock display.

Turn the radio clock display on or off by following these steps:

1. Turn the radio on.
2. Press the clock button until the clock and date setting menus appear.
3. Press the pushbutton located under the forward arrow label until the menu for default clock and date settings appear.

4. Press the pushbutton located under the currently displayed status of either ON or OFF. The ON display indicates the radio clock display is disabled and the OFF display indicates the radio clock display is enabled. Press this pushbutton to toggle the radio clock display on or off.

   If the radio clock display is turned on, the screen displays Radio Clock ON for 10 seconds, then returns to the original clock display menu.

   If the radio clock display is turned off, the screen displays Radio Clock OFF for 10 seconds. The menus for clock and date settings are removed, and ON displays as a current status indicating that the clock display can be turned on, if desired.

The radio clock and analog clock are not synchronized. Occasionally you may need to set the digital radio clock using the procedure below to synchronize both clocks.

Setting the Time and Date on the Digital Radio Clock

If your vehicle has a radio with a single CD player, it has a clock button for setting the time and date. To set the time and date, do the following:

1. Turn the radio on.
2. Press the clock button and HR, MIN, MM, DD, YYYY (hour, minute, month, day, and year) displays.
3. Press the pushbutton located under each one of the labels that you want to change. Every time the pushbutton is pressed again, the time or the date if selected, increases by one.
   - Another way to increase the time or date, is to press the right SEEK arrow or the FWD (forward) button.
4. To decrease the time or date, press the left SEEK arrow or the REV (reverse) button. You can also turn the tune knob, located on the upper right side of the radio faceplate, to adjust the selected setting.

Changing the Time and Date Default Setting

To change the time and date default setting, do the following:

1. Change the time default setting from 12 hour to 24 hour or the date default setting from month/day/year to day/month/year, by pressing the clock button.
2. Once the clock and date settings are displayed along with the forward arrow, press the pushbutton located under the forward arrow until the time 12H and 24H, and the date MM/DD/YYYY (month, day, and year) and DD/MM/YYYY (day, month, and year) displays.
3. Press the pushbutton located under the desired option, then press the clock button again to apply the selected default, or let the screen time out.

Setting the Time (Radio with Six-Disc CD Player)

Enabling/Disabling the Digital Radio Clock

Your vehicle has an analog clock as well as the digital radio clock. At the time of new vehicle delivery, the digital radio clock display should be disabled. If you decide to use the digital radio clock as well as the analog clock, you can change the setting to enable the radio clock display.

Turn the radio clock display on or off by following these steps:

1. Turn the radio on.
2. Press the MENU button until the clock label display appears.
3. Press the pushbutton located under the clock label until the clock and date settings appear.

4. Press the pushbutton located under the forward arrow label until the menu for default clock and date settings appear.
5. Press the pushbutton located under the currently displayed status of either ON or OFF. The ON display indicates the radio clock display is disabled and the OFF display indicates the radio clock display is enabled. Press this pushbutton to toggle the radio clock display on or off.

   If the radio clock display is turned on, the screen displays Radio Clock ON for 10 seconds, then returns to the original clock display menu.

   If the radio clock display is turned off, the screen displays Radio Clock OFF for 10 seconds. The menus for clock and date settings are removed, and ON displays as a current status indicating that the clock display can be turned on, if desired.

The radio clock and analog clock are not synchronized. Occasionally you may need to set the digital radio clock using the procedure below to synchronize both clocks.

Setting the Time and Date on the Digital Radio Clock

If your vehicle has a radio with a six-disc CD player, it has a MENU button for setting the time and date. To set the time and date, do the following:

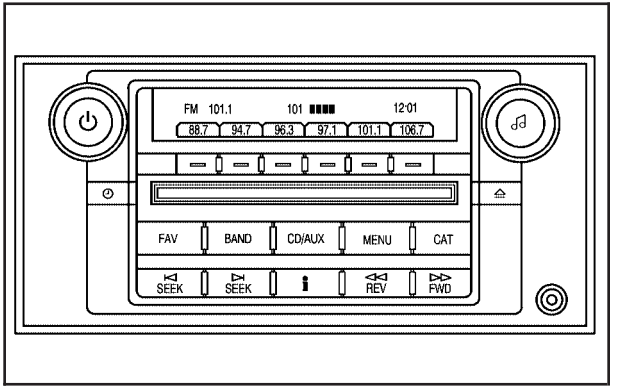
1. Turn the radio on.
2. Press the MENU button until the clock option is displayed.
3. Press the pushbutton located under the clock label and the HR, MIN, MM, DD, YYYY (hour, minute, month, day, and year) displays.
4. Press the pushbutton located under each one of the labels that you want to change. Every time the pushbutton is pressed again, the time or the date if selected, increases by one.
   - Another way to increase the time or date, is to press the right SEEK arrow or the FWD (forward) button.
5. To decrease the time or date, press the left SEEK arrow or the REV (reverse) button. You can also turn the tune knob, located on the upper right side of the radio faceplate, to adjust the selected setting.

Changing the Time and Date Default Setting

To change the time and date default setting, do the following:

1. Change the time default setting from 12 hour to 24 hour or the date default setting from month/day/year to day/month/year, by pressing the MENU button.
2. Once the clock symbol displays, press the pushbutton located under that symbol until the time and date settings are displayed along with a forward arrow.
3. Press the pushbutton located under the forward arrow until the time 12H and 24H, and the date MM/DD/YYYY (month, day, and year) and DD/MM/YYYY (day, month, and year) displays.
4. Press the pushbutton located under the desired option, then press the MENU button again to apply the selected default, or let the screen time out.

Radio with CD (MP3)



Radio with CD shown, Radio with Six-Disc CD (MP3) similar

Radio Data System (RDS)

The audio system has a Radio Data System (RDS). The RDS feature is available for use only on FM stations that broadcast RDS information. This system relies upon receiving specific information from these stations and only works when the information is available. While the radio is tuned to an FM-RDS station, the station name or call letters display. In rare cases, a radio station can broadcast incorrect information that causes the radio features to work improperly. If this happens, contact the radio station.

XM™ Satellite Radio Service

XM™ is a satellite radio service that is based in the 48 contiguous United States and Canada. XM™ offers a large variety of coast-to-coast channels including music, news, sports, talk, traffic/weather (U.S. subscribers), and children's programming. XM™ provides digital quality audio and text information that includes song title and artist name. A service fee is required in order to receive the XM™ service. For more information, contact XM™; in the U.S. at www.xmradio.com or call 1-800-852-XMXM (9696) or in Canada at www.xmradio.ca or call 1-877-GET-XMSR (438-9677).

Playing the Radio

⏻ **(Power/Volume):** Press this knob to turn the system on and off.

Turn this knob clockwise or counterclockwise to increase or decrease the volume.

Speed Compensated Volume (SCV): The radio has with Speed Compensated Volume (SCV). When SCV is on, the radio volume automatically adjusts to compensate for road and wind noise as you speed up or slow down while driving. That way, the volume level should sound about the same as you drive. To activate SCV:

1. Set the radio volume to the desired level.
2. Press the MENU button to display the radio setup menu.
3. Press the pushbutton under the AUTO VOLUM (automatic volume) label on the radio display.
4. Press the pushbutton under the desired Speed Compensated Volume setting (OFF, Low, Med (medium), or High) to select the level of radio volume compensation. The display times out after approximately 10 seconds. Each higher setting allows for more radio volume compensation at faster vehicle speeds.

AudioPilot®: If your vehicle has the Bose® Premium audio, the system has AudioPilot® noise compensation technology.

To use AudioPilot® press the Automatic Volume Control screen button to access the AudioPilot® menu and then press the ON screen button. AudioPilot® automatically adjusts the volume level of the audio so that it always sounds the same. The feature is most effective at lower volume settings where background noise can be louder than the audio. At high volume settings there might be little or no change in the audio level. In some cases where the noise level changes quickly, you can hear the audio level changing. This is normal. For more information on AudioPilot®, visit www.bose.com.

To activate AudioPilot®, do the following steps:

1. Set the radio volume to the desired level.
2. Press the MENU button to display the radio setup menu.
3. Press the pushbutton located under the AUTO VOLUM label on the radio display.
4. Press the ON or OFF button to turn this feature on or off.

Finding a Station

BAND: Press this button to switch between AM, FM, or XM™ (if equipped). The selection displays.

♫ **(Tune):** Turn this knob to select radio stations.

⏮ **SEEK** ⏭ **:** Press the right or left SEEK arrow to go to the next or to the previous station and stay there.

To scan stations, press and hold either SEEK arrow for three seconds until a beep sounds. The radio goes to a station, plays for a few seconds, then goes to the next station. Press either SEEK arrow again to stop scanning.

The radio only seeks and scans stations with a strong signal that are in the selected band.

i (Information) (XM™ Satellite Radio Service, MP3, and RDS Features): Press the information button to display additional text information related to the current FM-RDS or XM™ station, or MP3 song. A choice of additional information such as: Channel, Song, Artist, CAT (category) can appear. Continue pressing the information button to highlight the desired label, or press the pushbutton positioned under any one of the labels and the information about that label displays.

When information is not available,
No Info displays.

Storing a Radio Station as a Favorite

Drivers are encouraged to set up their radio station favorites while the vehicle is in PARK (P). Tune to your favorite stations using the presets, favorites button, and steering wheel controls, if the vehicle has this feature. See *Defensive Driving on page 296*.

FAV (Favorites): A maximum of 36 stations can be programmed as favorites using the six pushbuttons positioned below the radio station frequency labels and by using the radio favorites page button (FAV button). Press the FAV button to go through up to six pages of favorites, each having six favorite stations available per page. Each page of favorites can contain any combination of AM, FM, or XM™ (if equipped) stations. To store a station as a favorite, perform the following steps:

1. Tune to the desired radio station.
2. Press the FAV button to display the page where you want the station stored.
3. Press and hold one of the six pushbuttons until a beep sounds. When that pushbutton is pressed and released, the station that was set, returns.
4. Repeat the steps for each pushbutton radio station you want stored as a favorite.

The number of favorites pages can be setup using the MENU button. To setup the number of favorites pages, perform the following steps:

1. Press the MENU button to display the radio setup menu.
2. Press the pushbutton located below the FAV 1-6 label.
3. Select the desired number of favorites pages by pressing the pushbutton located below the displayed page numbers.
4. Press the FAV button, or let the menu time out, to return to the original main radio screen showing the radio station frequency labels and to begin the process of programming your favorites for the chosen amount of numbered pages.

Setting the Tone (Bass/Midrange/Treble)

BASS/MID/TREB (Bass, Midrange, or Treble): To adjust bass, midrange, or treble, press the tune knob until the tone control labels display. Continue pressing to highlight the desired label, or press the pushbutton positioned under the desired label. Turn the tune knob clockwise or counterclockwise to adjust the highlighted setting. The highlighted setting can also be adjusted by pressing either the SEEK, FWD (forward), or REV (reverse) button until the desired levels are obtained. If a station's frequency is weak or has static, decrease the treble.

To quickly adjust bass, midrange, or treble to the middle position, press the pushbutton positioned under the BASS, MID, or TREB label for more than two seconds. A beep sounds and the level adjusts to the middle position.

To quickly adjust all tone and speaker controls to the middle position, press the tune knob for more than two seconds until a beep sounds.

EQ (Equalization): For the non-Bose® amplified radio, perform the following steps to setup the equalization settings:

1. Press the Tune knob until the equalization label displays.
2. Press the pushbutton located under the equalization label to get choices of POP, ROCK, CTRY (country), TALK, JAZZ, and CLAS (classical), to display.
3. Press the pushbutton located under the desired setting.

For the Bose® amplified radio, perform the following steps to setup the equalization settings:

1. Press the Tune knob until the DSP (Digital Signal Processing) label displays.
2. Press the pushbutton located under the DSP label to get choices of Norm, Driv, Rear, and Surround, to display.
3. Press the pushbutton located under the desired setting.

   To select Surround, press either the fourth or fifth pushbutton located under the displayed Surround until Centerpoint displays.

To return to the manual mode, press the tune knob. Select either BASS, MID, or TREB and start to manually adjust the settings by turning the tune knob.

Adjusting the Speakers (Balance/Fade)

BAL/FADE (Balance/Fade): To adjust balance or fade, press the tune knob until the speaker control labels display. Continue pressing to highlight the desired label, or press the pushbutton positioned under the desired label. Turn the tune knob clockwise or counterclockwise to adjust the highlighted setting. The highlighted setting can be adjusted by pressing either the SEEK, FWD (forward) or REV (reverse) buttons until the desired levels are obtained.

To quickly adjust balance or fade to the middle position, press the pushbutton positioned under the BAL or FADE label for more than two seconds. A beep sounds and the level adjusts to the middle position.

To quickly adjust all speaker and tone controls to the middle position, press the tune knob for more than two seconds until a beep sounds.

Digital Signal Processing (DSP)

This feature is used to provide a choice of four different listening experiences. DSP can be used while listening to the audio system or a CD. To change the DSP mode, press the tune knob until the DSP control label displays. Press the pushbutton located under the DSP label until the control labels display. Continue by pressing the desired button below the control labels on the display.

For more information on the control label displays, see the following:

- **Norm (Normal)**: Select this screen button to adjust the audio for normal mode. This provides the best sound quality for all seating positions.
- **Driv (Driver)**: Select this screen button to adjust the audio for the driver to receive the best possible sound quality.
- **Rear**: Select this screen button to adjust the audio for the rear seat passengers to receive the best possible sound quality.
- **Surround (Centerpoint®)**: Select this screen button to enable Bose Centerpoint® signal processing circuitry. Centerpoint® produces a full vehicle surround sound listening experience from a CD, MP3/WMA, or XM stereo digital audio source and delivers five independent audio channels from conventional two channel stereo recordings. (Not available for AM, FM, or auxiliary sources.)

Digital Signal Processing (DSP) is only available on vehicles that have the Bose® Premium audio system.

Finding a Category (CAT) Station

CAT (Category): The CAT button is used to find XM™ stations while the radio is in the XM™ mode. To find XM™ channels within a desired category, perform the following:

1. Press the BAND button until the XM™ frequency displays. Press the CAT button to display the category labels. Continue pressing the CAT button until the desired category name displays. Another way to select a category is to press the REV (reverse) or FWD (forward) button until the desired category is selected.
2. Press either of the two pushbuttons below the desired category label to immediately tune to the first XM™ station associated with that category.
3. Turn the tune knob, press the pushbuttons below the displayed right or left arrows, or press the right or left SEEK buttons to go to the next or previous XM™ station within the selected category.
4. To exit the category search mode, press the FAV button or BAND button to display your favorites again.

Undesired XM™ categories can be removed through the setup menu. To remove an undesired category, perform the following:

1. Press the MENU button to display the radio setup menu.
2. Press the pushbutton located below the XM CAT label.
3. Turn the tune knob to display the category you want removed.
4. Press the pushbutton located under the Remove label until the category name along with the word Removed displays.
5. Repeat the steps to remove more categories.

Removed categories can be restored by pressing the pushbutton under the Add label when a removed category is displayed or by pressing the pushbutton under the Restore All label.

The radio does not let you remove or add categories while the vehicle is moving faster than 5 mph (8 km/h).

The CAT button also toggles between compressed and uncompressed audio when a mixed disc is present. See “Compressed Audio” later in this section.

Radio Messages

Locked: This message displays when the THEFTLOCK system has locked up the radio. Take the vehicle to your dealer for service.

If any error occurs repeatedly or if an error cannot be corrected, contact your dealer.

Radio Messages for XM™ Only

See *XM Radio Messages on page 287* later in this section for further detail.

Playing a CD (Single CD Player)

Insert a CD partway into the slot, label side up. The player pulls it in and the CD should begin playing.

If the ignition or radio is turned off with a CD in the player, it stays in the player. When the ignition or radio is turned on, the CD starts playing where it stopped, if it was the last selected audio source.

When a CD is inserted, the CD symbol displays. As each new track starts to play the track number displays.

If playing a CD-R, the sound quality can be reduced due to CD-R quality, the method of recording, the quality of the music that has been recorded, and the way the CD-R has been handled. There can be an increase in skipping, difficulty in finding tracks, and/or difficulty in loading and ejecting. If these problems occur, check the bottom surface of the CD. If the surface of the CD is damaged, such as cracked, broken, or scratched, the CD will not play properly. If the surface of the CD is soiled, see *Care of Your CDs on page 292* for more information.

If there is no apparent damage, try a known good CD.

Do not add any label to a CD, it could get caught in the CD player. If a CD is recorded on a personal computer and a description label is needed, try labeling the top of the recorded CD with a marking pen.

Notice: **If you add any label to a CD, insert more than one CD into the slot at a time, or attempt to play scratched or damaged CDs, you could damage the CD player. When using the CD player, use only CDs in good condition without any label, load one CD at a time, and keep the CD player and the loading slot free of foreign materials, liquids, and debris.**

If an error displays, see “CD Messages” later in this section.

⏏ **(Eject):** Press the CD eject button to eject the CD. If the CD is not removed, after several seconds, the CD automatically pulls back into the player.

♫ **(Tune):** Turn this knob to select tracks on the CD currently playing.

⏮ **SEEK** ⏭ **:** Press the left SEEK arrow to go to the start of the current track, if more than ten seconds have played. Press the right SEEK arrow to go to the next track. If either SEEK arrow is held or pressed multiple times, the player continues moving backward or forward through the CD.

◁◁ **REV (Reverse):** Press and hold this button to reverse playback quickly within a track. You will hear sound at a reduced volume. Release this button to resume playing the track. The elapsed time of the track displays.

▷▷ **FWD (Fast Forward):** Press and hold this button to advance playback quickly within a track. You will hear sound at a reduced volume. Release this button to resume playing the track. The elapsed time of the track displays.

RDM (Random): With the random setting, CD tracks can be played in random, rather than sequential order. This feature is not available in playlist mode. To use random, do the following:

1. To play tracks in random order from the CD that is currently playing, press the pushbutton positioned under the RDM label. The random icon displays.
2. Press the same pushbutton again to turn off random play. The random icon is no longer highlighted.

i (Information): Press this button to switch the display between the track number, elapsed time of the track, and the time. When the ignition is off, press this button to display the time (if the clock display is enabled). See “Enabling/Disabling the Digital Radio Clock” under, *Setting the Time (Radio with Single CD Player) on page 262* or *Setting the Time (Radio with Six-Disc CD Player) on page 264* (Radio with Single CD Player) or *Setting the Time (Radio with Single CD Player) on page 262* or *Setting the Time (Radio with Six-Disc CD Player) on page 264* (Radio with Six-Disc CD Player) for more information.

BAND: Press this button to listen to the radio when a CD is playing. The CD remains inside the radio for future listening.

CD/AUX (CD/Auxiliary): Press this button to play a CD when listening to the radio. The CD icon and track number displays when a CD is in the player. Press this button again and the system automatically searches for an auxiliary input device, such as a portable audio player. If a portable audio player is not connected, “No Aux Input Device Found” displays.

Playing a CD(s) (Six-Disc CD Player)

LOAD ▽: Press this button to load CDs into the CD player. This CD player holds up to six CDs.

To insert one CD, do the following:

1. Press and release the load button.
2. Wait for the message to insert the disc.
3. Load a CD. Insert the CD partway into the slot, label side up. The player pulls the CD in.

To insert multiple CDs, do the following:

1. Press and hold the load button for five seconds. A beep sounds and Load All Discs displays.
2. Follow the displayed instruction on when to insert the discs. The CD player takes up to six CDs.
3. Press the Load button again to cancel loading more CDs.

If the ignition or radio is turned off, with a CD in the player, it stays in the player. When the ignition or radio is turned on, the CD starts playing where it stopped, if it was the last selected audio source.

When a CD is inserted, the CD symbol displays on the CD. As each new track starts to play, the track number also displays.

If playing a CD-R, the sound quality can be reduced due to CD-R quality, the method of recording, the quality of the music that has been recorded, and the way the CD-R has been handled. There can be an increase in skipping, difficulty in finding tracks, and/or difficulty in loading and ejecting. If these problems occur, check the bottom surface of the CD. If the surface of the CD is damaged, such as cracked, broken, or scratched, the CD will not play properly. If the surface of the CD is soiled, see *Care of Your CDs on page 292* for more information.

If there is no apparent damage, try a known good CD.

Do not add any label to a CD, it could get caught in the CD player. If a CD is recorded on a personal computer and a description label is needed, try labeling the top of the recorded CD with a marking pen.

Notice: **If you add any label to a CD, insert more than one CD into the slot at a time, or attempt to play scratched or damaged CDs, you could damage the CD player. When using the CD player, use only CDs in good condition without any label, load one CD at a time, and keep the CD player and the loading slot free of foreign materials, liquids, and debris.**

If an error displays, see “CD Messages” later in this section.

⏏ **(Eject):** Press the CD eject button to eject CD(s). To eject the CD that is currently playing, press and release this button. A beep sounds and Ejecting Disc displays. Once the disc is ejected, Remove Disc displays. The CD can be removed. If the CD is not removed, after several seconds, the CD automatically pulls back into the player and begins playing.

For the Six-Disc CD player, press and hold the eject button for two seconds to eject all discs.

♫ **(Tune):** Turn this knob to select tracks on the CD currently playing.

⏮ **SEEK** ⏭ **:** Press the left SEEK arrow to go to the start of the current track, if more than ten seconds have played. Press the right SEEK arrow to go to the next track. If either SEEK arrow is held, or pressed multiple times, the player continues moving backward or forward through the tracks on the CD.

◁◁ **REV (Reverse):** Press and hold this button to reverse playback quickly within a track. You will hear sound at a reduced volume. Release this button to resume playing the track. The elapsed time of the track displays.

▷▷ **FWD (Fast Forward):** Press and hold this button to advance playback quickly within a track. You will hear sound at a reduced volume. Release this button to resume playing the track. The elapsed time of the track displays.

RDM (Random): With the random setting, the tracks can be played in random, rather than sequential order, on one CD or all CDs in a six-disc CD player. To use random, do one of the following:

- To play the tracks in random order from the CD that is currently playing, press the pushbutton positioned under the RDM label until Randomize Current Disc displays. Press the pushbutton again to turn off random play.
- To play tracks from all CDs loaded in a six-disc CD player in random order, press the pushbutton positioned under the RDM label until Randomize All Discs displays. Press the same pushbutton again to turn off random play.

BAND: Press this button to listen to the radio when a CD is playing. The CD remains inside the radio for future listening.

CD/AUX (CD/Auxiliary): Press this button to play a CD when listening to the radio. The CD icon and a message showing disc and/or track number displays when a CD is in the player. Press this button again and the system automatically searches for an auxiliary input device, such as a portable audio player. If a portable audio player is not connected, “No Aux Input Device Found” displays.

Playing an MP3/WMA CD-R or CD-RW Disc

Your vehicle's radio system may have the MP3 feature. If it has this feature, it is capable of playing an MP3/WMA CD-R or CD-RW disc. For more information on how to play an MP3/WMA CD-R or CD-RW disc, see *Using an MP3 on page 280* later in this section.

CD Messages

DISC ERROR: If this message displays and/or the CD ejects, it could be for one of the following reasons:

- The radio system does not support the playlist format, the compressed audio format, or the data file format.
- It is very hot. When the temperature returns to normal, the CD should play.
- You are driving on a very rough road. When the road becomes smoother, the CD should play.
- The CD is dirty, scratched, wet, or upside down.
- The air is very humid. If so, wait about an hour and try again.
- There could have been a problem while burning the CD.
- The label could be caught in the CD player.

If the CD is not playing correctly, for any other reason, try a known good CD.

If any error occurs repeatedly or if an error cannot be corrected, contact your dealer. If the radio displays an error message, write it down and provide it to your dealer when reporting the problem.

Using the Auxiliary Input Jack

Your radio system has an auxiliary input jack located on the lower right side of the faceplate. This is not an audio output; do not plug the headphone set into the front auxiliary input jack. You can however, connect an external audio device such as an iPod, laptop computer, MP3 player, CD changer, or cassette tape player, etc. to the auxiliary input jack for use as another source for audio listening.

Drivers are encouraged to set up any auxiliary device while the vehicle is in PARK (P). See *Defensive Driving on page 296* for more information on driver distraction.

To use a portable audio player, connect a 3.5 mm (1/8 inch) cable to the radio's front auxiliary input jack. When connecting an auxiliary device, the radio automatically detects the device and "Aux Input Device" displays. The device begins playing audio over the vehicle speakers. If an auxiliary device has already been connected, the device does not begin playing audio until the radio's CD/AUX button is pressed.

⏻ **(Power/Volume):** Turn this knob clockwise or counterclockwise to increase or decrease the volume of the portable player. You might need to do additional volume adjustments from the portable device.

BAND: Press this button to listen to the radio when a portable audio device is playing. The portable audio device continues playing, so you might want to stop it or power it off.

CD/AUX (CD/Auxiliary): Press this button to play a CD when a portable audio device is playing. Press this button again and the system begins playing audio from the connected portable audio player. If a portable audio player is not connected, "No Aux Input Device Found" displays.

Using an MP3

MP3/WMA CD-R or CD-RW Disc

The radio plays MP3 and WMA files that were recorded on a CD-R or CD-RW disc. The files can be recorded with the following fixed bit rates: 32 kbps, 40 kbps, 56 kbps, 64 kbps, 80 kbps, 96 kbps, 112 kbps, 128 kbps, 160 kbps, 192 kbps, 224 kbps, 256 kbps, and 320 kbps or a variable bit rate. Song title, artist name, and album can display when files are recorded using ID3 tags version 1 and 2.

Compressed Audio

The radio also plays discs that contain both uncompressed CD audio (.CDA files) and MP3/WMA files. By default the radio reads only the uncompressed audio and ignores the MP3/WMA files. Pressing the CAT (category) button toggles between compressed and uncompressed audio format.

MP3/WMA Format

If you burn your own MP3/WMA disc on a personal computer:

- Make sure the MP3 files are recorded on a CD-R or CD-RW disc.
- Do not mix standard audio and MP3 files on one disc.
- Make sure the CD does not have more than a maximum of 50 folders, 50 playlists, and 255 files to read and play.
- Create a folder structure that makes it easy to find songs while driving. Organize songs by albums using one folder for each album. Each folder or album should contain 18 songs or less.
- Avoid subfolders. The system can support up to 8 subfolders deep, however, keep the total number of folders to a minimum in order to reduce the complexity and confusion in trying to locate a particular folder during playback.
- Make sure playlists have a .mp3 or .wpl extension (other file extensions may not work).
- Minimize the length of the file, folder or playlist names. Long file, folder, or playlist names, or a combination of a large number of files and folders, or playlists can cause the player to be unable to play up to the maximum number of files, folders, playlists, or sessions. If you wish to play a large number of files, folders, playlists, or sessions, minimize the length of the file, folder, or playlist name. Long names also take up more space on the display, potentially getting cut off.
- Finalize the audio disc before you burn it. Trying to add music to an existing disc can cause the disc not to function in the player.

Change playlists by using the previous and next folder buttons, the tuner knob, or the seek buttons. An MP3 CD-R that was recorded using no file folders can also be played. If a CD-R contains more than the maximum of 50 folders, 50 playlists, and 255 files, the player lets you access and navigate up to the maximum, but all items over the maximum cannot be accessed.

Root Directory

The root directory of the CD-R is treated as a folder. If the root directory has compressed audio files, the directory displays as F1 ROOT. All files contained directly under the root directory are accessed prior to any root directory folders. However, playlists (Px) are always accessed before root folders or files.

Empty Directory or Folder

If a root directory or a folder exists somewhere in the file structure that contains only folders/subfolders and no compressed files directly beneath them, the player advances to the next folder in the file structure that contains compressed audio files. The empty folder does not display.

No Folder

When the CD-R contains only compressed files, the files are located under the root folder. The next and previous folder functions do not display on a CD-R that was recorded without folders or playlists. When displaying the name of the folder the radio displays ROOT.

When the CD-R contains only playlists and compressed audio files, but no folders, all files are located under the root folder. The folder down and the folder up buttons search playlists (Px) first and then goes to the root folder. When the radio displays the name of the folder the radio displays ROOT.

Order of Play

Tracks recorded to the CD-R play in the following order:

- Play begins from the first track in the first playlist and continues sequentially through all tracks in each playlist. When the last track of the last playlist has played, play continues from the first track of the first playlist.
  - Playlists can be changed by pressing the next and previous folder button, the seek buttons, or turning the tuner knob.
- Play begins from the first track in the first folder and continues sequentially through all tracks in each folder. When the last track of the last folder has played, play continues from the first track of the first folder.

When play enters a new folder, the display does not automatically show the new folder name unless the folder mode has been chosen as the default display. The new track name displays.

File System and Naming

The song name that displays is the song name that is contained in the ID3 tag. If the song name is not present in the ID3 tag, then the radio displays the file name without the extension (such as .mp3) as the track name.

Track names longer than 22 characters or four pages are shortened. Parts of words on the last page of text and the extension of the filename is not displayed.

Preprogrammed Playlists

Preprogrammed playlists that were created using WinAmp™, MusicMatch™, or Real Jukebox™ software can be accessed, however, they cannot be edited using the radio. These playlists are treated as special folders containing compressed audio song files. Playlists must have a file extension of PLS, M3U, or WPL.

Playlists can be changed by using the previous and next folder buttons, the seek buttons, or turning the tuner knob. Tracks cannot be changed. Songs are played sequentially; press the REV or FWD to reverse or advance through the currently playing song.

Playing an MP3

Insert a CD-R partway into the slot (Single CD Player), or press the load button and wait for the message to insert disc (Six-Disc CD Player), label side up. The player pulls it in, and the CD-R should begin playing.

If the ignition or radio is turned off while a CD-R is in the player, it stays in the player. When the ignition or radio is turned on, the CD-R starts to play where it stopped, if it was the last selected audio source.

As each new track starts to play, the track number and song title displays.

If playing a CD-R, the sound quality can be reduced due to CD-R quality, the method of recording, the quality of the music that has been recorded, and the way the CD-R has been handled. There can be an increase in skipping, difficulty in finding tracks, and/or difficulty in loading and ejecting. If these problems occur, check the bottom surface of the CD. If the surface of the CD is damaged, such as cracked, broken, or scratched, the CD will not play properly. If the surface of the CD is soiled, see *Care of Your CDs on page 292* for more information.

If there is no apparent damage, try a known good CD.

Do not add any label to a CD, it could get caught in the CD player. If a CD is recorded on a personal computer and a description label is needed, try labeling the top of the recorded CD with a marking pen.

Notice: **If you add any label to a CD, insert more than one CD into the slot at a time, or attempt to play scratched or damaged CDs, you could damage the CD player. When using the CD player, use only CDs in good condition without any label, load one CD at a time, and keep the CD player and the loading slot free of foreign materials, liquids, and debris.**

If an error displays, see “CD Messages” later in this section.

⏏ **(Eject):** Press the CD eject button to eject CD-R(s). To eject the CD-R that is currently playing, press and release this button. A beep sounds and Ejecting Disc displays. Once the disc is ejected, Remove Disc displays. The CD-R can be removed. If the CD-R is not removed, after several seconds, the CD-R automatically pulls back into the player and begins playing.

For the Six-Disc CD player, press and hold the eject button for two seconds to eject all discs.

♫ **(Tune):** Turn this knob to select MP3 files on the CD-R currently playing.

⏮ **SEEK** ⏭ **:** Press the left SEEK arrow to go to the start of the current MP3 file, if more than ten seconds have played. Press the right SEEK arrow to go to the next MP3 file. If either SEEK arrow is held or pressed multiple times, the player continues moving backward or forward through MP3 files on the CD.

< 🗀 **(Previous Folder):** Press the pushbutton positioned under the Folder label to go to the first track in the previous folder.

🗀 > **(Next Folder):** Press the pushbutton positioned under the Folder label to go to the first track in the next folder.

◁◁ **REV (Reverse):** Press and hold this button to reverse playback quickly within an MP3 file. You will hear sound at a reduced volume.

Release this button to resume playing the file. The elapsed time of the file displays.

▷▷ **FWD (Fast Forward):** Press and hold this button to advance playback quickly within an MP3 file. You will hear sound at a reduced volume.

Release this button to resume playing the file. The elapsed time of the file displays.

RDM (Random): With the random setting, MP3 files on the CD-R can be played in random, rather than sequential order, on one CD-R or all discs in a six-disc CD player. To use random, do one of the following:

1. To play MP3 files from the CD-R in random order, press the pushbutton positioned under the RDM label until Random Current Disc displays. Press the same pushbutton again to turn off random play.
2. To play songs from all CDs loaded in a six-disc CD player in random order, press the pushbutton positioned under the RDM label until Randomize All Discs displays. Press the same pushbutton again to turn off random play.

(Music Navigator): Use the music navigator feature to play MP3 files on the CD-R in order by artist or album. Press the pushbutton located below the music navigator label. The player scans the disc to sort the files by artist and album ID3 tag information. It may take several minutes to scan the disc depending on the number of MP3 files recorded to the CD-R. The radio might begin playing while it is scanning the disc in the background. When the scan is finished, the CD-R begins playing again.

Once the disc has scanned, the player defaults to playing MP3 files in order by artist. The current artist playing is shown on the second line of the display between the arrows. Once all songs by that artist have played, the player moves to the next artist in alphabetical order on the CD-R and begins playing MP3 files by that artist. If you want to listen to MP3 files by another artist, press the pushbutton located below either arrow button. The CD goes to the next or previous artist in alphabetical order. Continue pressing either button until the desired artist displays.

To change from playback by artist to playback by album, press the pushbutton located below the Sort By label. From the sort screen, push one of the buttons below the album button. Press the pushbutton below the Back label to return to the main music navigator screen. Now the album name displays on the second line between the arrows and songs from the current album begins to play. Once all songs from that album have played, the player moves to the next album in alphabetical order on the CD-R and begins playing MP3 files from that album.

To exit music navigator mode, press the button below the Back label to return to normal MP3 playback.

BAND: Press this button to listen to the radio when a CD is playing. The CD remains inside the radio for future listening.

CD/AUX (CD/Auxiliary): Press this button to play a CD when listening to the radio. The CD icon and a message showing disc and/or track number displays when a CD is in the player. Press this button again and the system automatically searches for an auxiliary input device such as a portable audio player. If a portable audio player is not connected, “No Aux Input Device Found” displays.

XM Radio Messages

Radio Display Message	Condition	Action Required
XL (Explicit Language Channels)	XL on the radio display, after the channel name, indicates content with explicit language.	These channels, or any others, can be blocked at a customer's request, by calling 1-800-852-XMXM (9696).
XM Updating	Updating encryption code	The encryption code in the receiver is being updated, and no action is required. This process should take no longer than 30 seconds.
XM Not Available	Loss of signal	The system is functioning correctly, but the vehicle is in a location that is blocking the XM™ signal. When you move into an open area, the signal should return.
Loading XM	Acquiring channel audio (after 4 second delay)	The audio system is acquiring and processing audio and text data. No action is needed. This message should disappear shortly.
Channel Off Air	Channel not in service	This channel is not currently in service. Tune to another channel.
Channel Unavail	Channel no longer available	This previously assigned channel is no longer assigned. Tune to another station. If this station was one of the presets, choose another station for that preset button.
No Artist Info	Artist Name/Feature not available	No artist information is available at this time on this channel. The system is working properly.
No Title Info	Song/Program Title not available	No song title information is available at this time on this channel. The system is working properly.

Radio Display Message	Condition	Action Required
No CAT Info	Category Name not available	No category information is available at this time on this channel. The system is working properly.
No Info	No Text/Informational message available	No text or informational messages are available at this time on this channel. The system is working properly.
CAT Not Found	No channel available for the chosen category	There are no channels available for the selected category. The system is working properly.
XM Theft Locked	Theft lock active	The XM™ receiver in the vehicle may have previously been in another vehicle. For security purposes, XM™ receivers cannot be swapped between vehicles. If this message appears after having your vehicle serviced, check with your dealer.
XM Radio ID	Radio ID label (channel 0)	If tuned to channel 0, this message alternates with the XM™ Radio eight digit radio ID label. This label is needed to activate the service.
Unknown	Radio ID not known (should only be if hardware failure)	If this message is received when tuned to channel 0, there could be a receiver fault. Consult with your dealer.
Check XM Receivr	Hardware failure	If this message does not clear within a short period of time, the receiver could have a fault. Consult with your dealer.
XM Not Available	XM Not Available	If this message does not clear within a short period of time, the receiver could have a fault. Consult with your dealer.

Navigation/Radio System

Your vehicle may have a navigation radio system.

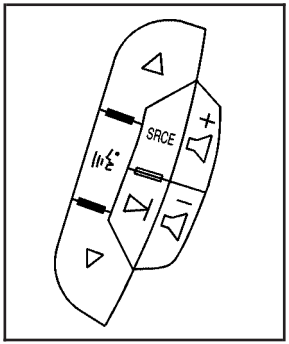
The navigation system has built-in features intended to minimize driver distraction. Technology alone, no matter how advanced, can never replace your own judgment. See the Navigation System manual for some tips to help you reduce distractions while driving.

Theft-Deterrent Feature

THEFTLOCK® is designed to discourage theft of your vehicle's radio. The feature works automatically by learning a portion of the Vehicle Identification Number (VIN). If the radio is moved to a different vehicle, it will not operate. If the radio is removed from your vehicle, the original VIN in the radio can be used to trace the radio back to your vehicle.

With THEFTLOCK® activated, the radio will not operate if stolen.

Audio Steering Wheel Controls



The audio steering wheel controls could be different depending on your vehicles options. Some audio controls can be adjusted at the steering wheel. They include the following:

▽ △ **(Next/Previous):** Press the up or the down arrow to go to the next or to the previous preset radio station.

When a CD is playing, press the up or the down arrow to go to the next or previous track.

(Mute/Voice Recognition): Press and hold this button to interact with the OnStar® system. If your vehicle is also equipped with the navigation system, push this button to initiate voice recognition and say, “OnStar” to enter OnStar® mode, see the *OnStar® System on page 135* in this manual for more information.

If your vehicle does not have OnStar®, press this button to silence the system. Press this button again or turn the volume knob to turn the sound on.

If your vehicle has the navigation system, press this button to initiate voice recognition. See “Voice Recognition” in the index of your vehicle’s navigation system manual for more information.

SRCE (Source): Press this button to switch between AM, FM, or XM (if equipped), radio, or CD.

+ – (Volume): Press the plus or minus button to increase or to decrease the volume.

(Seek): Press the seek arrow to go to the next radio station and stay there. The system only seeks radio stations with strong frequencies.

When the seek arrow is pressed and held for two seconds, the system scans the radio stations that are in the selected band. If listening to a CD, the system advances to the next CD when multiple discs are inserted.

If you have the navigation system, some of the audio steering wheel controls work when a DVD is playing in the navigation radio. See the Navigation System manual for more information.

Radio Reception

You may experience frequency interference and static during normal radio reception if items such as cellphone chargers, vehicle convenience accessories, and external electronic devices are plugged into the accessory power outlet. If there is interference or static, unplug the item from the accessory power outlet.

AM

The range for most AM stations is greater than for FM, especially at night. The longer range can cause station frequencies to interfere with each other. For better radio reception, most AM radio stations will boost the power levels during the day, and then reduce these levels during the night. Static can also occur when things like storms and power lines interfere with radio reception. When this happens, try reducing the treble on your radio.

FM Stereo

FM stereo will give the best sound, but FM signals will reach only about 10 to 40 miles (16 to 65 km). Tall buildings or hills can interfere with FM signals, causing the sound to fade in and out.

XM™ Satellite Radio Service

XM™ Satellite Radio Service gives digital radio reception from coast-to-coast in the 48 contiguous United States, and in Canada. Just as with FM, tall buildings or hills can interfere with satellite radio signals, causing the sound to fade in and out. In addition, traveling or standing under heavy foliage, bridges, garages, or tunnels may cause loss of XM signal for a period of time. The radio may display NO XM SIGNAL to indicate interference.

Cellular Phone Usage

Cellular phone usage may cause interference with your vehicle's radio. This interference may occur when making or receiving phone calls, charging the phone's battery, or simply having the phone on. This interference is an increased level of static while listening to the radio. If static is received while listening to the radio, unplug the cellular phone and turn it off.

Care of Your CDs

Handle CDs carefully. Store them in their original cases or other protective cases and away from direct sunlight and dust. The CD player scans the bottom surface of the disc. If the surface of a CD is damaged, such as cracked, broken, or scratched, the CD will not play properly or not at all. If the surface of a CD is soiled, take a soft, lint free cloth or dampen a clean, soft cloth in a mild, neutral detergent solution mixed with water, and clean it. Make sure the wiping process starts from the center to the edge.

Do not touch the bottom side of a CD while handling it; this could damage the surface. Pick up CDs by grasping the outer edges or the edge of the hole and the outer edge.

Care of the CD Player

Do not use CD lens cleaners for CD players because the lens of the CD optics can become contaminated by lubricants.

Backglass Antenna

The AM-FM antenna is located in the rear window. Make sure that the inside surface of the rear window is not scratched and that the grid lines on the glass are not damaged. If the inside surface is damaged, it could interfere with radio reception.

Notice: **Do not apply aftermarket glass tinting with metallic film. The metallic film in some tinting materials will interfere with or distort the incoming radio reception. Any damage caused to your antenna due to metallic tinting materials will not be covered by your warranty.**

Notice: **Using a razor blade or sharp object to clear the inside rear window may damage the rear window antenna and/or the rear window defogger. Repairs would not be covered by your warranty. Do not clear the inside rear window with sharp objects.**

If static is heard on the radio, when the rear window defogger is turned on, it could mean that a defogger grid line has been damaged. If this is true, the grid line must be repaired.

If you choose to add a cellular telephone to your vehicle, and the antenna needs to be attached to the glass, make sure that the grid lines for the AM-FM antenna are not damaged. Make sure the cellular telephone antenna does not touch a grid line.

XM™ Satellite Radio Antenna System

The XM™ Satellite Radio antenna is located on the roof of your vehicle. Keep this antenna clear of snow and ice build up for clear radio reception.

If your vehicle has a sunroof, the performance of the XM™ system may be affected if the sunroof is open.

Loading items onto the roof of your vehicle can interfere with the performance of the XM™ system. Make sure the XM™ Satellite Radio antenna is not obstructed.

NOTES

Section 4 Driving Your Vehicle

Your Driving, the Road, and Your Vehicle 296
Defensive Driving 296
Drunken Driving 297
Control of a Vehicle 300
Braking 300
Anti-Lock Brake System (ABS) 301
Braking in Emergencies 303
Traction Control System (TCS) 303
Magnetic Ride Control 304
StabiliTrak® System 305
Panic Brake Assist 306
Steering 306
Off-Road Recovery 309
Passing 309
Loss of Control 311
Driving at Night 312
Driving in Rain and on Wet Roads 314
City Driving 316
Freeway Driving 317
Before Leaving on a Long Trip 318
Highway Hypnosis 319
Hill and Mountain Roads 320
Winter Driving 322
If Your Vehicle is Stuck in Sand, Mud, Ice, or Snow 326
Rocking Your Vehicle to Get It Out 327
Loading Your Vehicle 327

Towing 334
Towing Your Vehicle 334
Recreational Vehicle Towing 334
Towing a Trailer 336

Your Driving, the Road, and Your Vehicle

Defensive Driving

The best advice anyone can give about driving is: Drive defensively.

Please start with a very important safety device in your vehicle: Buckle up. See *Safety Belts: They Are for Everyone on page 18*.

⚠ CAUTION:

Defensive driving really means "Be ready for anything." On city streets, rural roads, or expressways, it means "Always expect the unexpected." Assume that pedestrians or other drivers are going to be careless and make mistakes. Anticipate what they might do and be ready. Rear-end collisions are about the most preventable of accidents. Yet they are common. Allow enough following distance. Defensive driving requires that a driver concentrate on the driving task. Anything that distracts from the driving task makes proper defensive driving more difficult and can even cause a collision, with resulting injury. Ask a passenger to help do these things, or pull off the road in a safe place to do them. These simple defensive driving techniques could save your life.

Drunken Driving

Death and injury associated with drinking and driving is a national tragedy. It is the number one contributor to the highway death toll, claiming thousands of victims every year.

Alcohol affects four things that anyone needs to drive a vehicle:

- Judgment
- Muscular Coordination
- Vision
- Attentiveness

Police records show that almost half of all motor vehicle-related deaths involve alcohol. In most cases, these deaths are the result of someone who was drinking and driving. In recent years, more than 16,000 annual motor vehicle-related deaths have been associated with the use of alcohol, with more than 300,000 people injured.

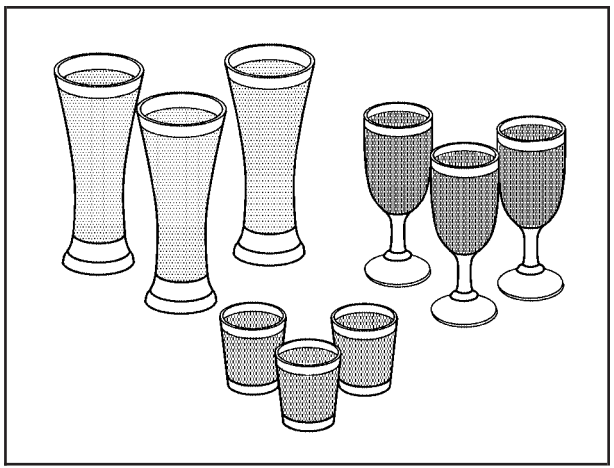
Many adults — by some estimates, nearly half the adult population — choose never to drink alcohol, so they never drive after drinking. For persons under 21, it is against the law in every U.S. state to drink alcohol. There are good medical, psychological, and developmental reasons for these laws.

The obvious way to eliminate the leading highway safety problem is for people never to drink alcohol and then drive. But what if people do? How much is “too much” if someone plans to drive? It is a lot less than many might think. Although it depends on each person and situation, here is some general information on the problem.

The Blood Alcohol Concentration (BAC) of someone who is drinking depends upon four things:

- The amount of alcohol consumed
- The drinker’s body weight
- The amount of food that is consumed before and during drinking
- The length of time it has taken the drinker to consume the alcohol

According to the American Medical Association, a 180 lb (82 kg) person who drinks three 12 ounce (355 ml) bottles of beer in an hour will end up with a BAC of about 0.06 percent. The person would reach the same BAC by drinking three 4 ounce (120 ml) glasses of wine or three mixed drinks if each had 1-1/2 ounces (45 ml) of liquors like whiskey, gin, or vodka.



It is the amount of alcohol that counts. For example, if the same person drank three double martinis (3 ounces or 90 ml of liquor each) within an hour, the person's BAC would be close to 0.12 percent. A person who consumes food just before or during drinking will have a somewhat lower BAC level.

There is a gender difference, too. Women generally have a lower relative percentage of body water than men. Since alcohol is carried in body water, this means that a woman generally will reach a higher BAC level than a man of her same body weight will when each has the same number of drinks.

The law in most U.S. states, and throughout Canada, sets the legal limit at 0.08 percent. In some other countries, the limit is even lower. For example, it is 0.05 percent in both France and Germany. The BAC limit for all commercial drivers in the United States is 0.04 percent.

The BAC will be over 0.10 percent after three to six drinks (in one hour). Of course, as we have seen, it depends on how much alcohol is in the drinks, and how quickly the person drinks them.

But the ability to drive is affected well below a BAC of 0.10 percent. Research shows that the driving skills of many people are impaired at a BAC approaching 0.05 percent, and that the effects are worse at night. All drivers are impaired at BAC levels above 0.05 percent. Statistics show that the chance of being in a collision increases sharply for drivers who have a BAC of 0.05 percent or above. A driver with a BAC level of 0.06 percent has doubled his or her chance of having a collision. At a BAC level of 0.10 percent, the chance of this driver having a collision is 12 times greater; at a level of 0.15 percent, the chance is 25 times greater!

The body takes about an hour to rid itself of the alcohol in one drink. No amount of coffee or number of cold showers will speed that up. "I will be careful" is not the right answer. What if there is an emergency, a need to take sudden action, as when a child darts into the street? A person with even a moderate BAC might not be able to react quickly enough to avoid the collision.

There is something else about drinking and driving that many people do not know. Medical research shows that alcohol in a person's system can make crash injuries worse, especially injuries to the brain, spinal cord, or heart. This means that when anyone who has been drinking — driver or passenger — is in a crash, that person's chance of being killed or permanently disabled is higher than if the person had not been drinking.

⚠ CAUTION:

Drinking and then driving is very dangerous. Your reflexes, perceptions, attentiveness, and judgment can be affected by even a small amount of alcohol. You can have a serious — or even fatal — collision if you drive after drinking. Please do not drink and drive or ride with a driver who has been drinking. Ride home in a cab; or if you are with a group, designate a driver who will not drink.

Control of a Vehicle

You have three systems that make your vehicle go where you want it to go. They are the brakes, the steering, and the accelerator. All three systems have to do their work at the places where the tires meet the road.

Sometimes, as when you are driving on snow or ice, it is easy to ask more of those control systems than the tires and road can provide. That means you can lose control of your vehicle. See *Traction Control System (TCS) on page 303*.

Adding non-GM accessories can affect your vehicle's performance. See *Accessories and Modifications on page 347*.

Braking

See *Brake System Warning Light on page 222*.

Braking action involves perception time and reaction time.

First, you have to decide to push on the brake pedal. That is perception time. Then you have to bring up your foot and do it. That is reaction time.

Average reaction time is about three-fourths of a second. But that is only an average. It might be less with one driver and as long as two or three seconds or more with another. Age, physical condition, alertness, coordination, and eyesight all play a part. So do alcohol, drugs, and frustration. But even in three-fourths of a second, a vehicle moving at 60 mph (100 km/h) travels 66 feet (20 m). That could be a lot of distance in an emergency, so keeping enough space between your vehicle and others is important.

And, of course, actual stopping distances vary greatly with the surface of the road, whether it is pavement or gravel; the condition of the road, whether it is wet, dry, or icy; tire tread; the condition of the brakes; the weight of the vehicle; and the amount of brake force applied.

Avoid needless heavy braking. Some people drive in spurts — heavy acceleration followed by heavy braking — rather than keeping pace with traffic. This is a mistake. The brakes may not have time to cool between hard stops. The brakes will wear out much faster if you do a lot of heavy braking. If you keep pace with the traffic and allow realistic following distances, you will eliminate a lot of unnecessary braking. That means better braking and longer brake life.

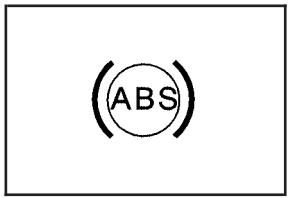
If your vehicle's engine ever stops while you are driving, brake normally but do not pump the brakes. If you do, the pedal may get harder to push down. If the engine stops, you will still have some power brake assist. But you will use it when you brake. Once the power assist is used up, it may take longer to stop and the brake pedal will be harder to push.

Adding non-GM accessories can affect your vehicle's performance. See *Accessories and Modifications on page 347*.

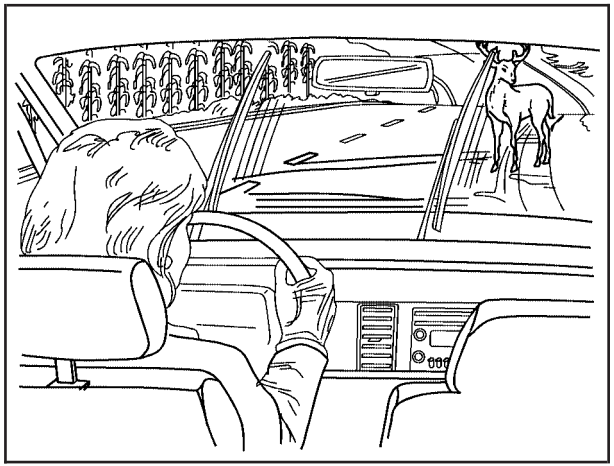
Anti-Lock Brake System (ABS)

Your vehicle has the Anti-Lock Brake System (ABS), an advanced electronic braking system that will help prevent a braking skid.

When you start your engine and begin to drive away, ABS will check itself. You may hear a momentary motor or clicking noise while this test is going on, and you may even notice that your brake pedal moves a little. This is normal.



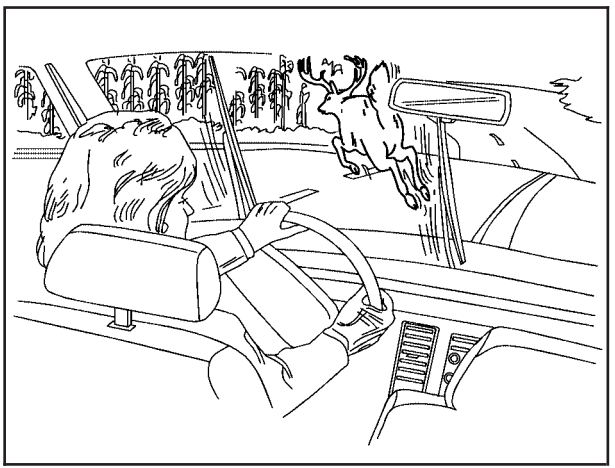
If there is a problem with ABS, this warning light will stay on. See *Anti-Lock Brake System Warning Light on page 223*.



Let us say the road is wet and you are driving safely. Suddenly, an animal jumps out in front of you. You slam on the brakes and continue braking. Here is what happens with ABS:

A computer senses that wheels are slowing down. If one of the wheels is about to stop rolling, the computer will separately work the brakes at each front wheel and at both rear wheels.

ABS can change the brake pressure faster than any driver could. The computer is programmed to make the most of available tire and road conditions. This can help you steer around the obstacle while braking hard.



As you brake, your computer keeps receiving updates on wheel speed and controls braking pressure accordingly.

Remember: ABS does not change the time you need to get your foot up to the brake pedal or always decrease stopping distance. If you get too close to the vehicle in front of you, you will not have time to apply your brakes if that vehicle suddenly slows or stops. Always leave enough room up ahead to stop, even though you have ABS.

Using ABS

Do not pump the brakes. Just hold the brake pedal down firmly and let anti-lock work for you. You may hear the anti-lock pump or motor operate, and feel the brake pedal pulsate, but this is normal.

Braking in Emergencies

With ABS, you can steer and brake at the same time. In many emergencies, steering can help you more than even the very best braking.

Traction Control System (TCS)

Your vehicle has a traction control system that limits wheel spin. This is especially useful in slippery road conditions. The system operates only if it senses that the front wheels are spinning too much or beginning to lose traction. When this happens, the system works the front brakes and reduces engine power (by closing the throttle and managing engine spark) to limit wheel spin.

The traction control system and StabiliTrak® warning light will flash when the traction control system is limiting wheel spin. See *Traction Control System (TCS) Warning Light on page 225* and *StabiliTrak® Indicator Light on page 225* for more information. You may feel or hear the system working, but this is normal.

If your vehicle is in cruise control when the traction control system begins to limit wheel spin, the cruise control will automatically disengage. When road conditions allow you to safely use it again, you may re-engage the cruise control. See *Cruise Control on page 169* or *Adaptive Cruise Control on page 173* for more information.

The SERVICE TRACTION CONTROL message, the traction control system warning light and the StabiliTrak® warning light will come on to let you know if there is a problem with the traction control system. See *DIC Warnings and Messages on page 239*.

When this light and the SERVICE TRACTION CONTROL message are on, the system will not limit wheel spin. Adjust your driving accordingly.

The traction control system automatically comes on whenever you start your vehicle. To limit wheel spin, especially in slippery road conditions, you should always leave the system on. But you can turn the traction control system off if you ever need to.

You can turn the system on or off at any time by pressing the traction control system button located on the console or on the end of the column shifter. The DIC will display TRACTION CONTROL OFF when you press the button.

Adding non-GM accessories can affect your vehicle's performance. See *Accessories and Modifications on page 347* for more information.

Magnetic Ride Control

Your vehicle may have a feature called Magnetic Ride Control that automatically adjusts the ride of your vehicle. Automatic ride control is achieved through a computer used to control and monitor the suspension system. The controller receives input from various sensors to determine the proper system response. If the controller detects a problem within the system, the DIC will display a SERVICE SUSPENSION SYS message. See *DIC Warnings and Messages on page 239* for more information. If this message appears, have your vehicle serviced at your dealership.

Electronically Controlled Air Ride Suspension

If you have a Cadillac Professional Vehicle, you may have a feature called Electronically Controlled Air Suspension. Air ride control is achieved through a computer used to control and monitor the system.

The controller receives input from two height sensors to determine the proper system response. If the controller detects a problem with the system, the Driver Information Center (DIC) will display a SERVICE SUSPENSION SYS message. If this message appears, have your vehicle serviced at your dealership.

StabiliTrak® System

Your vehicle may have this feature. The StabiliTrak® system is an advanced computer controlled system that helps the driver maintain directional control of the vehicle in difficult driving conditions. This is accomplished by selectively applying any one of the vehicle's brakes and reducing engine power.

The StabiliTrak® system comes on automatically whenever you start your vehicle. The system cannot be turned off.

The STABILITRAK NOT READY message may be displayed in the DIC and the traction control system and StabiliTrak® warning light on the instrument panel cluster will be on after first driving the vehicle and exceeding 19 mph (30 km/h) for 30 seconds. The StabiliTrak® system is off until the light has turned off. This could take up to 15 minutes.

The traction control system and StabiliTrak® warning light on the instrument panel cluster will flash when the system is operating. See *Traction Control System (TCS) Warning Light on page 225* and *StabiliTrak® Indicator Light on page 225* for more information. You may also feel or hear the system working. This is normal.

The SERVICE STABILITRAK message will be displayed and the traction control system and StabiliTrak® warning light on the instrument panel cluster will come on if there is a problem with the system. When this light and the SERVICE STABILITRAK message are on, the system is not operational. Adjust your driving accordingly.

Panic Brake Assist

Your vehicle may have a panic brake assist system that monitors the intention of the driver while braking. If the system senses that the driver has applied hard/fast pressure to the brake pedal, the system will generate additional pressure, making it easier for the driver to maintain brake application. When this happens the brake pedal will feel easier to push. Just hold the brake pedal down firmly and let the system work for you. You may feel the brakes vibrate, or you may notice some noise but this is normal. The brakes will return to normal operation after the brake pedal has been released.

Steering

Power Steering

If you lose power steering assist because the engine stops or the system is not functioning, you can steer but it will take much more effort.

Magnetic Speed Variable Assist Steering System

This system continuously adjusts the effort you feel when steering at all vehicle speeds. It provides ease when parking, yet a firm, solid feel at highway speeds.

Steering Tips

It is important to take curves at a reasonable speed.

A lot of the “driver lost control” accidents mentioned on the news happen on curves. Here is why:

Experienced driver or beginner, each of us is subject to the same laws of physics when driving on curves. The traction of the tires against the road surface makes it possible for the vehicle to change its path when you turn the front wheels. If there is no traction, inertia will keep the vehicle going in the same direction. If you have ever tried to steer a vehicle on wet ice, you will understand this.

The traction you can get in a curve depends on the condition of your tires and the road surface, the angle at which the curve is banked, and your speed. While you are in a curve, speed is the one factor you can control.

Suppose you are steering through a sharp curve. Then you suddenly accelerate. Both control systems — steering and acceleration — have to do their work where the tires meet the road. Adding the sudden acceleration can demand too much of those places. You can lose control. See *Traction Control System (TCS) on page 303*.

What should you do if this ever happens? Ease up on the accelerator pedal, steer the vehicle the way you want it to go, and slow down.

If you have StabiliTrak®, the system may be active. See *StabiliTrak® System on page 305*.

Speed limit signs near curves warn that you should adjust your speed. Of course, the posted speeds are based on good weather and road conditions. Under less favorable conditions you will want to go slower.

If you need to reduce your speed as you approach a curve, do it before you enter the curve, while your front wheels are straight ahead.

Try to adjust your speed so you can “drive” through the curve. Maintain a reasonable, steady speed. Wait to accelerate until you are out of the curve, and then accelerate gently into the straightaway.

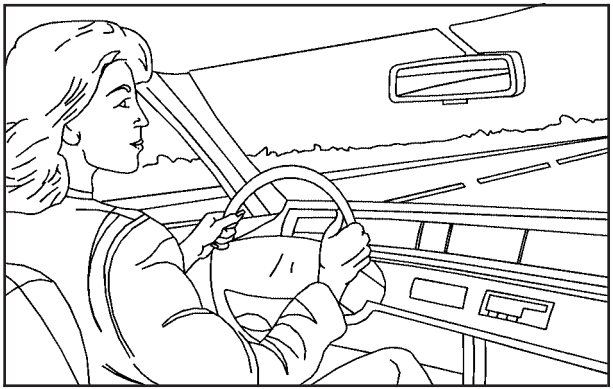
Adding non-GM accessories can affect your vehicle’s performance. See *Accessories and Modifications on page 347*.

Steering in Emergencies

There are times when steering can be more effective than braking. For example, you come over a hill and find a truck stopped in your lane, or a car suddenly pulls out from nowhere, or a child darts out from between parked cars and stops right in front of you. You can avoid these problems by braking — if you can stop in time. But sometimes you cannot; there is not room. That is the time for evasive action — steering around the problem.

Your vehicle can perform very well in emergencies like these. First apply your brakes.

See *Braking on page 300*. It is better to remove as much speed as you can from a possible collision. Then steer around the problem, to the left or right depending on the space available.

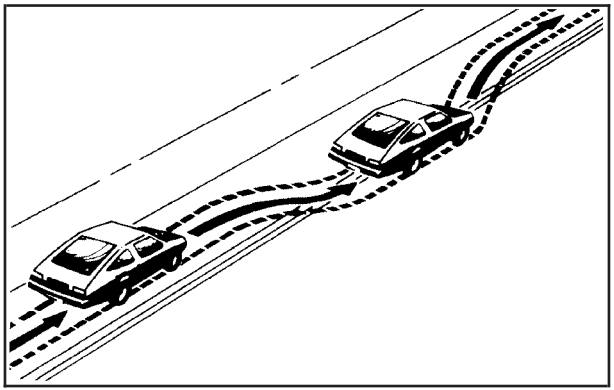


An emergency like this requires close attention and a quick decision. If you are holding the steering wheel at the recommended 9 and 3 o'clock positions, you can turn it a full 180 degrees very quickly without removing either hand. But you have to act fast, steer quickly, and just as quickly straighten the wheel once you have avoided the object.

The fact that such emergency situations are always possible is a good reason to practice defensive driving at all times and wear safety belts properly.

Off-Road Recovery

You may find that your right wheels have dropped off the edge of a road onto the shoulder while you are driving.



If the level of the shoulder is only slightly below the pavement, recovery should be fairly easy. Ease off the accelerator and then, if there is nothing in the way, steer so that your vehicle straddles the edge of the pavement.

You can turn the steering wheel up to one-quarter turn until the right front tire contacts the pavement edge. Then turn your steering wheel to go straight down the roadway.

Passing

The driver of a vehicle about to pass another on a two-lane highway waits for just the right moment, accelerates, moves around the vehicle ahead, then goes back into the right lane again. A simple maneuver?

Not necessarily! Passing another vehicle on a two-lane highway is a potentially dangerous move, since the passing vehicle occupies the same lane as oncoming traffic for several seconds. A miscalculation, an error in judgment, or a brief surrender to frustration or anger can suddenly put the passing driver face to face with the worst of all traffic accidents — the head-on collision.

So here are some tips for passing:

- Drive ahead. Look down the road, to the sides, and to crossroads for situations that might affect your passing patterns. If you have any doubt whatsoever about making a successful pass, wait for a better time.
- Watch for traffic signs, pavement markings, and lines. If you can see a sign up ahead that might indicate a turn or an intersection, delay your pass. A broken center line usually indicates it is all right to pass, providing the road ahead is clear. Never cross a solid line on your side of the lane or a double solid line, even if the road seems empty of approaching traffic.
- Do not get too close to the vehicle you want to pass while you are awaiting an opportunity. For one thing, following too closely reduces your area of vision, especially if you are following a larger vehicle. Also, you will not have adequate space if the vehicle ahead suddenly slows or stops. Keep back a reasonable distance.
- When it looks like a chance to pass is coming up, start to accelerate but stay in the right lane and do not get too close. Time your move so you will be increasing speed as the time comes to move into the other lane. If the way is clear to pass, you will have a running start that more than makes up for the distance you would lose by dropping back. And if something happens to cause you to cancel your pass, you need only slow down and drop back again and wait for another opportunity.
- If other vehicles are lined up to pass a slow vehicle, wait your turn. But take care that someone is not trying to pass you as you pull out to pass the slow vehicle. Remember to glance over your shoulder and check the blind spot.
- Check your vehicle's mirrors, glance over your shoulder, and start your left lane change signal before moving out of the right lane to pass. When you are far enough ahead of the passed vehicle to see its front in your vehicle's inside mirror, activate the right lane change signal and move back into the right lane.

Remember that your vehicle's passenger side outside mirror is convex. The vehicle you just passed may seem to be farther away from you than it really is.

- Try not to pass more than one vehicle at a time on two-lane roads. Reconsider before passing the next vehicle.
- Do not overtake a slowly moving vehicle too rapidly. Even though the brake lamps are not flashing, it may be slowing down or starting to turn.
- If you are being passed, make it easy for the following driver to get ahead of you. Perhaps you can ease a little to the right.

Loss of Control

Let us review what driving experts say about what happens when the three control systems — brakes, steering, and acceleration — do not have enough friction where the tires meet the road to do what the driver has asked.

In any emergency, do not give up. Keep trying to steer and constantly seek an escape route or area of less danger.

Skidding

In a skid, a driver can lose control of the vehicle. Defensive drivers avoid most skids by taking reasonable care suited to existing conditions, and by not overdriving those conditions. But skids are always possible.

The three types of skids correspond to your vehicle's three control systems. In the braking skid, your wheels are not rolling. In the steering or cornering skid, too much speed or steering in a curve causes tires to slip and lose cornering force. And in the acceleration skid, too much throttle causes the driving wheels to spin.

A cornering skid is best handled by easing your foot off the accelerator pedal.

Remember: Any traction control system helps avoid only the acceleration skid. If your traction control system is off, then an acceleration skid is also best handled by easing your foot off the accelerator pedal.

If your vehicle starts to slide, ease your foot off the accelerator pedal and quickly steer the way you want the vehicle to go. If you start steering quickly enough, your vehicle may straighten out. Always be ready for a second skid if it occurs.

If you have StabiliTrak®, the system may be active. See *StabiliTrak® System on page 305*.

Of course, traction is reduced when water, snow, ice, gravel, or other material is on the road. For safety, you will want to slow down and adjust your driving to these conditions. It is important to slow down on slippery surfaces because stopping distance will be longer and vehicle control more limited.

While driving on a surface with reduced traction, try your best to avoid sudden steering, acceleration, or braking, including reducing vehicle speed by shifting to a lower gear. Any sudden changes could cause the tires to slide. You may not realize the surface is slippery until your vehicle is skidding. Learn to recognize warning clues — such as enough water, ice, or packed snow on the road to make a mirrored surface — and slow down when you have any doubt.

Remember: Any Anti-Lock Brake System (ABS) helps avoid only the braking skid.

Driving at Night

Night driving is more dangerous than day driving. One reason is that some drivers are likely to be impaired — by alcohol or drugs, with night vision problems, or by fatigue.

Here are some tips on night driving.

- Drive defensively.
- Do not drink and drive.
- Adjust the inside rearview mirror to reduce the glare from headlamps behind you.
- Since you cannot see as well, you may need to slow down and keep more space between you and other vehicles.
- Slow down, especially on higher speed roads. Your vehicle's headlamps can light up only so much road ahead.
- In remote areas, watch for animals.
- If you are tired, pull off the road in a safe place and rest.

No one can see as well at night as in the daytime. But as we get older these differences increase. A 50-year-old driver may require at least twice as much light to see the same thing at night as a 20-year-old.

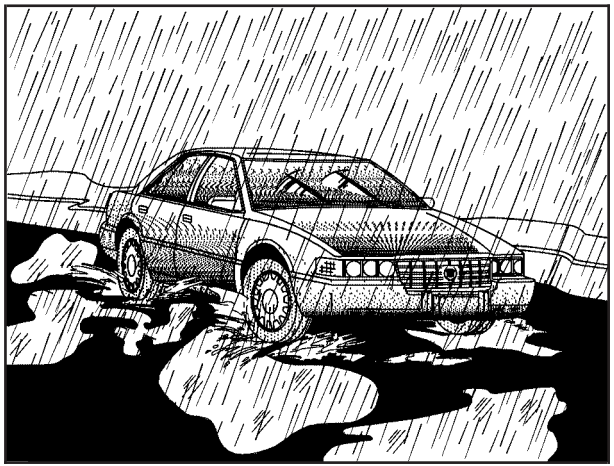
What you do in the daytime can also affect your night vision. For example, if you spend the day in bright sunshine you are wise to wear sunglasses. Your eyes will have less trouble adjusting to night. But if you are driving, do not wear sunglasses at night. They may cut down on glare from headlamps, but they also make a lot of things invisible.

You can be temporarily blinded by approaching headlamps. It can take a second or two, or even several seconds, for your eyes to re-adjust to the dark. When you are faced with severe glare, as from a driver who does not lower the high beams, or a vehicle with misaimed headlamps, slow down a little. Avoid staring directly into the approaching headlamps.

Keep the windshield and all the glass on your vehicle clean — inside and out. Glare at night is made much worse by dirt on the glass. Even the inside of the glass can build up a film caused by dust. Dirty glass makes lights dazzle and flash more than clean glass would, making the pupils of your eyes contract repeatedly.

Remember that the headlamps light up far less of a roadway when you are in a turn or curve. Keep your eyes moving; that way, it is easier to pick out dimly lighted objects. Just as the headlamps should be checked regularly for proper aim, so should your eyes be examined regularly. Some drivers suffer from night blindness — the inability to see in dim light — and are not even aware of it.

Driving in Rain and on Wet Roads



Rain and wet roads can mean driving trouble. On a wet road, you cannot stop, accelerate, or turn as well because your tire-to-road traction is not as good as on dry roads. And, if your tires do not have much tread left, you will get even less traction.
It is always wise to go slower and be cautious if rain starts to fall while you are driving. The surface may get wet suddenly when your reflexes are tuned for driving on dry pavement.

The heavier the rain, the harder it is to see. Even if your windshield wiper blades are in good shape, a heavy rain can make it harder to see road signs and traffic signals, pavement markings, the edge of the road, and even people walking.

It is wise to keep your windshield wiping equipment in good shape and keep your windshield washer fluid reservoir filled with washer fluid. Replace your windshield wiper inserts when they show signs of streaking or missing areas on the windshield, or when strips of rubber start to separate from the inserts.

⚠ CAUTION:

Wet brakes can cause accidents. They may not work as well in a quick stop and may cause pulling to one side. You could lose control of the vehicle.

After driving through a large puddle of water or a car wash, apply your brake pedal lightly until your brakes work normally.

Driving too fast through large water puddles or even going through some car washes can cause problems, too. The water may affect your brakes. Try to avoid puddles. But if you cannot, try to slow down before you hit them.

Hydroplaning

Hydroplaning is dangerous. So much water can build up under your tires that they can actually ride on the water. This can happen if the road is wet enough and you are going fast enough. When your vehicle is hydroplaning, it has little or no contact with the road.

Hydroplaning does not happen often. But it can if your tires do not have much tread or if the pressure in one or more is low. It can happen if a lot of water is standing on the road. If you can see reflections from trees, telephone poles, or other vehicles, and raindrops dimple the water's surface, there could be hydroplaning.

Hydroplaning usually happens at higher speeds. There just is not a hard and fast rule about hydroplaning. The best advice is to slow down when it is raining.

Driving Through Deep Standing Water

Notice: **If you drive too quickly through deep puddles or standing water, water can come in through your engine's air intake and badly damage your engine. Never drive through water that is slightly lower than the underbody of your vehicle. If you cannot avoid deep puddles or standing water, drive through them very slowly.**

Driving Through Flowing Water

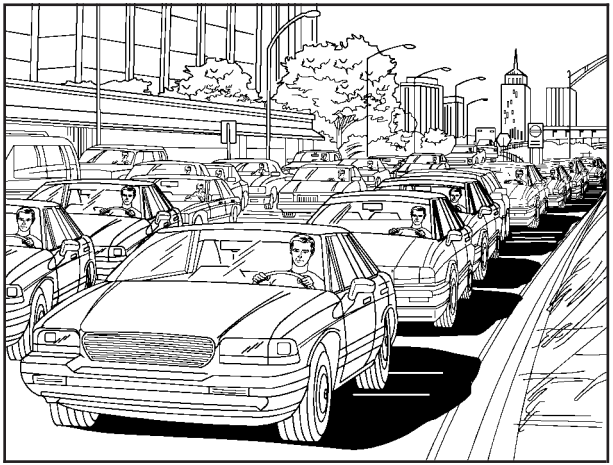
⚠ CAUTION:

Flowing or rushing water creates strong forces. If you try to drive through flowing water, as you might at a low water crossing, your vehicle can be carried away. As little as six inches of flowing water can carry away a smaller vehicle. If this happens, you and other vehicle occupants could drown. Do not ignore police warning signs, and otherwise be very cautious about trying to drive through flowing water.

Some Other Rainy Weather Tips

- Besides slowing down, allow some extra following distance. And be especially careful when you pass another vehicle. Allow yourself more clear room ahead, and be prepared to have your view restricted by road spray.
- Have good tires with proper tread depth. See *Tires on page 394*.

City Driving



One of the biggest problems with city streets is the amount of traffic on them. You will want to watch out for what the other drivers are doing and pay attention to traffic signals.

Here are ways to increase your safety in city driving:

- Know the best way to get to where you are going. Get a city map and plan your trip into an unknown part of the city just as you would for a cross-country trip.
- Try to use the freeways that rim and crisscross most large cities. You will save time and energy. See *Freeway Driving on page 317*.
- Treat a green light as a warning signal. A traffic light is there because the corner is busy enough to need it. When a light turns green, and just before you start to move, check both ways for vehicles that have not cleared the intersection or may be running the red light.

Freeway Driving

Mile for mile, freeways — also called thruways, parkways, expressways, turnpikes, or superhighways — are the safest of all roads. But they have their own special rules.

The most important advice on freeway driving is: Keep up with traffic and keep to the right. Drive at the same speed most of the other drivers are driving. Too-fast or too-slow driving breaks a smooth traffic flow. Treat the left lane on a freeway as a passing lane.

At the entrance, there is usually a ramp that leads to the freeway. If you have a clear view of the freeway as you drive along the entrance ramp, you should begin to check traffic. Try to determine where you expect to blend with the flow. Try to merge into the gap at close to the prevailing speed. Switch on your turn signal, check your mirrors, and glance over your shoulder as often as necessary. Try to blend smoothly with the traffic flow.

Once you are on the freeway, adjust your speed to the posted limit or to the prevailing rate if it is slower. Stay in the right lane unless you want to pass.

Before changing lanes, check your mirrors. Then use your turn signal.

Just before you leave the lane, glance quickly over your shoulder to make sure there is not another vehicle in your blind spot.

Once you are moving on the freeway, make certain you allow a reasonable following distance.

Expect to move slightly slower at night.

When you want to leave the freeway, move to the proper lane well in advance. If you miss your exit, do not, under any circumstances, stop and back up. Drive on to the next exit.

The exit ramp can be curved, sometimes quite sharply. The exit speed is usually posted. Reduce your speed according to your speedometer, not to your sense of motion. After driving for any distance at higher speeds, you may tend to think you are going slower than you actually are.

Before Leaving on a Long Trip

Make sure you are ready. Try to be well rested. If you must start when you are not fresh — such as after a day's work — do not plan to make too many miles that first part of the journey. Wear comfortable clothing and shoes you can easily drive in.

Is your vehicle ready for a long trip? If you keep it serviced and maintained, it is ready to go. If it needs service, have it done before starting out.

Of course, you will find experienced and able service experts in GM dealerships all across North America. They will be ready and willing to help if you need it.

Here are some things you can check before a trip:

- *Windshield Washer Fluid:* Is the reservoir full? Are all windows clean inside and outside?
- *Wiper Blades:* Are they in good shape?
- *Fuel, Engine Oil, Other Fluids:* Have you checked all levels?
- *Lamps:* Are they all working? Are the lenses clean?
- *Tires:* They are vitally important to a safe, trouble-free trip. Is the tread good enough for long-distance driving? Are the tires all inflated to the recommended pressure?
- *Weather Forecasts:* What is the weather outlook along your route? Should you delay your trip a short time to avoid a major storm system?
- *Maps:* Do you have up-to-date maps?

Highway Hypnosis

Is there actually such a condition as highway hypnosis? Or is it just plain falling asleep at the wheel? Call it highway hypnosis, lack of awareness, or whatever.

There is something about an easy stretch of road with the same scenery, along with the hum of the tires on the road, the drone of the engine, and the rush of the wind against the vehicle that can make you sleepy. Do not let it happen to you! If it does, your vehicle can leave the road in less than a second, and you could crash and be injured.

What can you do about highway hypnosis? First, be aware that it can happen.

Then here are some tips:

- Make sure your vehicle is well ventilated, with a comfortably cool interior.
- Keep your eyes moving. Scan the road ahead and to the sides. Check your rearview mirrors and your instruments frequently.
- If you get sleepy, pull off the road into a rest, service, or parking area and take a nap, get some exercise, or both. For safety, treat drowsiness on the highway as an emergency.

Hill and Mountain Roads

Driving on steep hills or mountains is different from driving in flat or rolling terrain.

If you drive regularly in steep country, or if you are planning to visit there, here are some tips that can make your trips safer and more enjoyable.

- Keep your vehicle in good shape. Check all fluid levels and also the brakes, tires, cooling system, and transaxle. These parts can work hard on mountain roads.

⚠ CAUTION:

If you do not shift down, your brakes could get so hot that they would not work well. You would then have poor braking or even none going down a hill. You could crash. Shift down to let your engine assist your brakes on a steep downhill slope.

⚠ CAUTION:

Coasting downhill in NEUTRAL (N) or with the ignition off is dangerous. Your brakes will have to do all the work of slowing down. They could get so hot that they would not work well. You would then have poor braking or even none going down a hill. You could crash. Always have your engine running and your vehicle in gear when you go downhill.

- Know how to go down hills. The most important thing to know is this: let your engine do some of the slowing down. Shift to a lower gear when you go down a steep or long hill.
- Know how to go uphill. You may want to shift down to a lower gear. The lower gears help cool your engine and transaxle, and you can climb the hill better.
- Stay in your own lane when driving on two-lane roads in hills or mountains. Do not swing wide or cut across the center of the road. Drive at speeds that let you stay in your own lane.
- As you go over the top of a hill, be alert. There could be something in your lane, like a stalled car or an accident.
- You may see highway signs on mountains that warn of special problems. Examples are long grades, passing or no-passing zones, a falling rocks area, or winding roads. Be alert to these and take appropriate action.

Winter Driving

Here are some tips for winter driving:

- Have your vehicle in good shape for winter.
- You may want to put winter emergency supplies in your trunk.

Also see *Tires on page 394*.

Include an ice scraper, a small brush or broom, a supply of windshield washer fluid, a rag, some winter outer clothing, a small shovel, a flashlight, a red cloth, and a couple of reflective warning triangles. And, if you will be driving under severe conditions, include a small bag of sand, a piece of old carpet, or a couple of burlap bags to help provide traction. Be sure you properly secure these items in your vehicle.

Driving on Snow or Ice

Most of the time, those places where the tires meet the road probably have good traction.

However, if there is snow or ice between the tires and the road, you can have a very slippery situation. You will have a lot less traction, or grip, and will need to be very careful.

What is the worst time for this? Wet ice. Very cold snow or ice can be slick and hard to drive on. But wet ice can be even more trouble because it may offer the least traction of all. You can get wet ice when it is about freezing, 32°F (0°C), and freezing rain begins to fall. Try to avoid driving on wet ice until salt and sand crews can get there.

Whatever the condition — smooth ice, packed, blowing, or loose snow — drive with caution.

Traction control improves your ability to accelerate when driving on a slippery road. Even though your vehicle has the Traction Control System (TCS), you will want to slow down and adjust your driving to the road conditions. Under certain conditions, you may want to turn the TCS off, such as when driving through deep snow and loose gravel, to help maintain vehicle motion at lower speeds. See *Traction Control System (TCS) on page 303*.

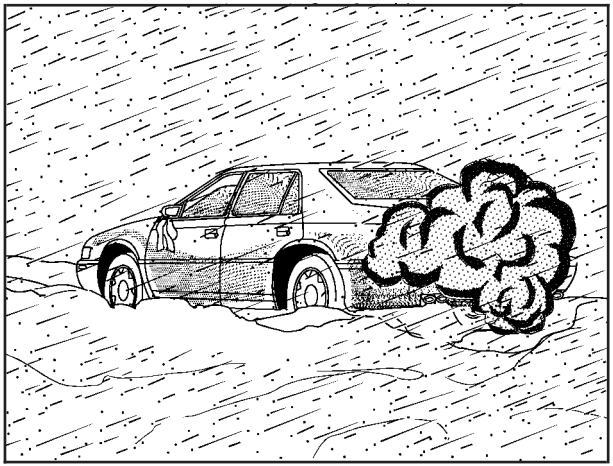
The Anti-Lock Brake System (ABS) improves your vehicle's stability when you make a hard stop on a slippery road. Even though you have ABS, you will want to begin stopping sooner than you would on dry pavement. See *Anti-Lock Brake System (ABS) on page 301*.

- Allow greater following distance on any slippery road.
- Watch for slippery spots. The road might be fine until you hit a spot that is covered with ice. On an otherwise clear road, ice patches may appear in shaded areas where the sun cannot reach, such as around clumps of trees, behind buildings, or under bridges. Sometimes the surface of a curve or an overpass may remain icy when the surrounding roads are clear. If you see a patch of ice ahead of you, brake before you are on it. Try not to brake while you are actually on the ice, and avoid sudden steering maneuvers.

If You Are Caught in a Blizzard

If you are stopped by heavy snow, you could be in a serious situation. You should probably stay with your vehicle unless you know for sure that you are near help and you can hike through the snow. Here are some things to do to summon help and keep yourself and your passengers safe:

- Turn on your hazard flashers.
- Tie a red cloth to your vehicle to alert police that you have been stopped by the snow.
- Put on extra clothing or wrap a blanket around you. If you do not have blankets or extra clothing, make body insulators from newspapers, burlap bags, rags, floor mats — anything you can wrap around yourself or tuck under your clothing to keep warm.



You can run the engine to keep warm, but be careful.

⚠ CAUTION:

Snow can trap exhaust gases under your vehicle. This can cause deadly CO (carbon monoxide) gas to get inside. CO could overcome you and kill you. You cannot see it or smell it, so you might not know it is in your vehicle. Clear away snow from around the base of your vehicle, especially any that is blocking your exhaust pipe. And check around again from time to time to be sure snow does not collect there.

Open a window just a little on the side of the vehicle that is away from the wind. This will help keep CO out.

Run your engine only as long as you must. This saves fuel. When you run the engine, make it go a little faster than just idle. That is, push the accelerator slightly. This uses less fuel for the heat that you get and it keeps the battery charged.

You will need a well-charged battery to restart the vehicle, and possibly for signaling later on with your headlamps. Let the heater run for a while.

Then, shut the engine off and close the window almost all the way to preserve the heat. Start the engine again and repeat this only when you feel really uncomfortable from the cold. But do it as little as possible. Preserve the fuel as long as you can. To help keep warm, you can get out of the vehicle and do some fairly vigorous exercises every half hour or so until help comes.

If Your Vehicle is Stuck in Sand, Mud, Ice, or Snow

In order to free your vehicle when it is stuck, you will need to spin the wheels, but you do not want to spin your wheels too fast. The method known as rocking can help you get out when you are stuck, but you must use caution.

⚠ CAUTION:

If you let your vehicle's tires spin at high speed, they can explode, and you or others could be injured. And, the transaxle or other parts of the vehicle can overheat. That could cause an engine compartment fire or other damage. When you are stuck, spin the wheels as little as possible. Do not spin the wheels above 35 mph (55 km/h) as shown on the speedometer.

Notice: **Spinning the wheels can destroy parts of your vehicle as well as the tires. If you spin the wheels too fast while shifting the transaxle back and forth, you can destroy the transaxle. See *Rocking Your Vehicle to Get It Out on page 327*.**

For information about using tire chains on your vehicle, see *Tire Chains on page 418*.

Rocking Your Vehicle to Get It Out

First, turn the steering wheel left and right. That will clear the area around the front wheels. You should turn the traction control system off. See *Traction Control System (TCS) on page 303*. Then shift back and forth between REVERSE (R) and a forward gear, spinning the wheels as little as possible. Release the accelerator pedal while you shift, and press lightly on the accelerator pedal when the transaxle is in gear. By slowly spinning the wheels in the forward and reverse directions, you will cause a rocking motion that may free your vehicle. If that does not get your vehicle out after a few tries, it may need to be towed out. If your vehicle does need to be towed out, see *Towing Your Vehicle on page 334*.

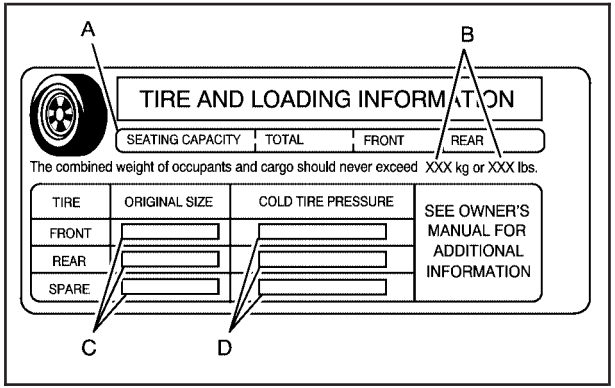
Loading Your Vehicle

It is very important to know how much weight your vehicle can carry. This weight is called the vehicle capacity weight and includes the weight of all occupants, cargo, and all nonfactory-installed options. Two labels on your vehicle show how much weight it may properly carry, the Tire and Loading Information label and the Certification label.

⚠ CAUTION:

Do not load your vehicle any heavier than the Gross Vehicle Weight Rating (GVWR), or either the maximum front or rear Gross Axle Weight Rating (GAWR). If you do, parts on your vehicle can break, and it can change the way your vehicle handles. These could cause you to lose control and crash. Also, overloading can shorten the life of your vehicle.

Tire and Loading Information Label



Label Example

A vehicle specific Tire and Loading Information label is attached to the vehicle's center pillar (B-pillar). With the driver's door open, you will find the label attached below the door lock post (striker). The Tire and Loading Information label shows the number of occupant seating positions (A), and the maximum vehicle capacity weight (B) in kilograms and pounds.

The Tire and Loading Information label also shows the tire size of the original equipment tires (C) and the recommended cold tire inflation pressures (D). For more information on tires and inflation see *Tires on page 394* and *Inflation - Tire Pressure on page 402*.

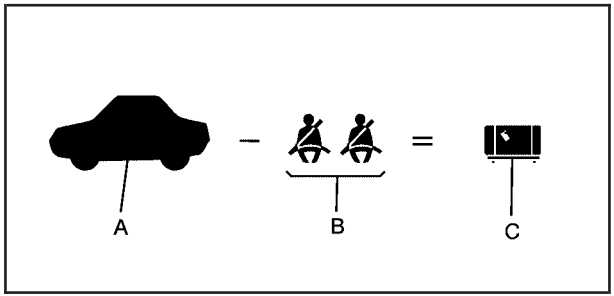
There is also important loading information on the Certification label. It tells you the Gross Vehicle Weight Rating (GVWR) and the Gross Axle Weight Rating (GAWR) for the front and rear axle; see "Certification Label" later in this section.

If you have a Professional Vehicle, a Tire and Loading Information label specific to your vehicle will be provided and installed by the final body manufacturer. The Tire and Loading Information label, should be attached to the B-pillar of your vehicle. See the final stage manufacturer's manual or contact them directly. The label shows the original tires installed on your professional vehicle and the recommended cold tire inflation pressures for those tires. The label also tells you the professional vehicle's capacity weight.

Steps for Determining Correct Load Limit

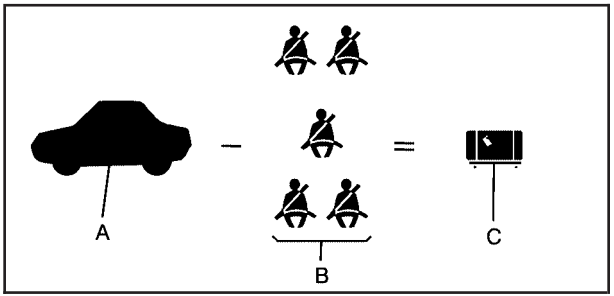
1. Locate the statement “The combined weight of occupants and cargo should never exceed XXX kg or XXX lbs” on your vehicle’s placard.
2. Determine the combined weight of the driver and passengers that will be riding in your vehicle.
3. Subtract the combined weight of the driver and passengers from XXX kg or XXX lbs.
4. The resulting figure equals the available amount of cargo and luggage load capacity. For example, if the “XXX” amount equals 1400 lbs and there will be five 150 lb passengers in your vehicle, the amount of available cargo and luggage load capacity is 650 lbs (1400 – 750 (5 x 150) = 650 lbs).
5. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity calculated in Step 4.
6. If your vehicle will be towing a trailer, the load from your trailer will be transferred to your vehicle. Consult this manual to determine how this reduces the available cargo and luggage load capacity of your vehicle.

If your vehicle can tow a trailer, see “Towing a Trailer” for important information on towing a trailer, towing safety rules, and trailering tips.



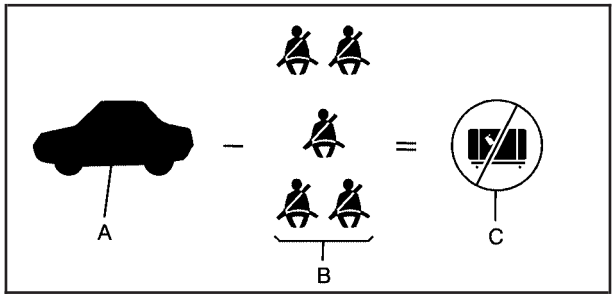
Example 1

Item	Description	Total
A	Vehicle Capacity Weight for Example 1 =	1,000 lbs (453 kg)
B	Subtract Occupant Weight 150 lbs (68 kg) × 2 =	300 lbs (136 kg)
C	Available Occupant and Cargo Weight =	700 lbs (317 kg)



Example 2

Item	Description	Total
A	Vehicle Capacity Weight for Example 2 =	1,000 lbs (453 kg)
B	Subtract Occupant Weight 150 lbs (68 kg) × 5 =	750 lbs (340 kg)
C	Available Cargo Weight =	250 lbs (113 kg)

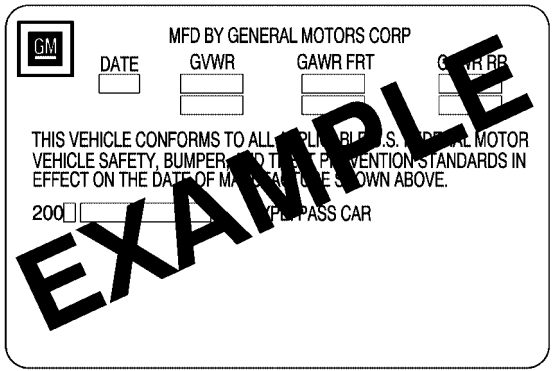


Example 3

Item	Description	Total
A	Vehicle Capacity Weight for Example 3 =	1,000 lbs (453 kg)
B	Subtract Occupant Weight 200 lbs (91 kg) × 5 =	1,000 lbs (453 kg)
C	Available Cargo Weight =	0 lbs (0 kg)

Refer to your vehicle's Tire and Loading Information label for specific information about your vehicle's capacity weight and seating positions. The combined weight of the driver, passengers, and cargo should never exceed your vehicle's capacity weight.

Certification Label



A vehicle specific Certification label is attached to the rear edge of the driver's door. This label shows the gross weight capacity of your vehicle, called the Gross Vehicle Weight Rating (GVWR). The GVWR includes the weight of the vehicle, all occupants, fuel, and cargo. Never exceed the GVWR for your vehicle, or the Gross Axle Weight Rating (GAWR) for either the front or rear axle.

If your vehicle is a Professional Vehicle, the vehicle specific Certification label is provided by the final stage manufacturer. The coach-builder should be consulted if the final stage manufacturer's label is not present. The Gross Vehicle Weight Rating GVWR label should be on the driver's door edge.

If you do have a heavy load, you should spread it out. See "Steps for Determining Correct Load Limit" earlier in this section.

⚠ CAUTION:

Do not load your vehicle any heavier than the Gross Vehicle Weight Rating (GVWR), or either the maximum front or rear Gross Axle Weight Rating (GAWR). If you do, parts on your vehicle can break, and it can change the way your vehicle handles. These could cause you to lose control and crash. Also, overloading can shorten the life of your vehicle.

Notice: **Overloading your vehicle may cause damage. Repairs would not be covered by your warranty. Do not overload your vehicle.**

If you put things inside your vehicle, like suitcases, tools, packages, or anything else, they will go as fast as the vehicle goes. If you have to stop or turn quickly, or if there is a crash, they will keep going.

⚠ CAUTION:

Things you put inside your vehicle can strike and injure people in a sudden stop or turn, or in a crash.

- **Put things in the trunk of your vehicle. In a trunk, put them as far forward as you can. Try to spread the weight evenly.**
- **Never stack heavier things, like suitcases, inside the vehicle so that some of them are above the tops of the seats.**
- **Do not leave an unsecured child restraint in your vehicle.**
- **When you carry something inside the vehicle, secure it whenever you can.**

Automatic Level Control

This feature keeps the rear of your vehicle level as the load changes. It is automatic, you do not need to adjust anything.

This type of level control is fully automatic and will provide a better leveled riding position as well as better handling under a variety of passenger and loading conditions. An air compressor connected to the rear shocks will raise or lower the rear of the vehicle to maintain proper vehicle height. The system is activated when the ignition key is turned to RUN and will automatically adjust vehicle height thereafter. The system may exhaust (lower vehicle height) for up to ten minutes after the ignition key has been turned to OFF. You may hear the air compressor operating when the height is being adjusted.

Towing

Towing Your Vehicle

Consult your dealer or a professional towing service if you need to have your disabled vehicle towed. See *Roadside Service on page 480*.

If you want to tow your vehicle behind another vehicle for recreational purposes (such as behind a motorhome), see Recreational Vehicle Towing following.

Recreational Vehicle Towing

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

With the proper preparation and equipment, many vehicles can be towed in these ways. See “Dinghy Towing” and “Dolly Towing,” following.

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

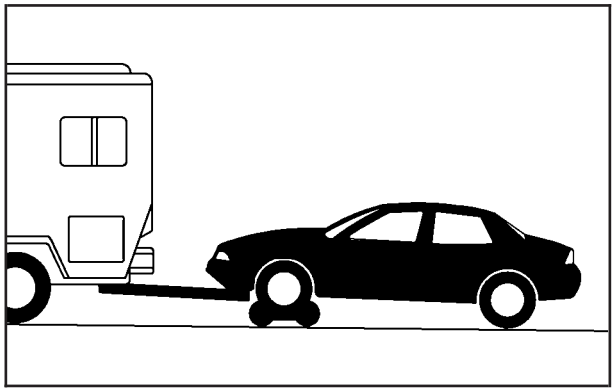
- What is the towing capacity of the towing vehicle? Be sure you read the tow vehicle manufacturer’s recommendations.
- How far will you tow? Some vehicles have restrictions on how far and how long they can tow.
- Do you have the proper towing equipment? See your dealer or trailering professional for additional advice and equipment recommendations.
- Is your vehicle ready to be towed? Just as you would prepare your vehicle for a long trip, you will want to make sure your vehicle is prepared to be towed. See *Before Leaving on a Long Trip on page 318*.

Dinghy Towing

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

Your vehicle was not designed to be towed with all four wheels on the ground. If your vehicle must be towed, you should use a dolly. See “Dolly Towing” later in this section for more information.

Dolly Towing



Your vehicle can be towed using a dolly. To tow your vehicle using a dolly, follow these steps:

1. Put the front wheels on the dolly.
2. Put the vehicle in PARK (P).
3. Set the parking brake and then remove the key.
4. Clamp the steering wheel in a straight-ahead position.
5. Release the parking brake.

Towing a Trailer

The Cadillac Professional Vehicle cannot tow a trailer.

⚠ CAUTION:

If you do not use the correct equipment and drive properly, you can lose control when you pull a trailer. For example, if the trailer is too heavy, the brakes may not work well — or even at all. You and your passengers could be seriously injured. You may also damage your vehicle; the resulting repairs would not be covered by your warranty. Pull a trailer only if you have followed all the steps in this section. Ask your dealer for advice and information about towing a trailer with your vehicle.

Your vehicle can tow a trailer if it is equipped with the proper trailer towing equipment. To identify the trailering capacity of your vehicle, you should read the information in “Weight of the Trailer” that appears later in this section. Trailering is different than just driving your vehicle by itself. Trailering means changes in handling, durability and fuel economy. Successful, safe trailering takes correct equipment, and it has to be used properly.

That is the reason for this part. In it are many time-tested, important trailering tips and safety rules. Many of these are important for your safety and that of your passengers. So please read this section carefully before you pull a trailer.

Load-pulling components such as the engine, transaxle, wheel assemblies and tires are forced to work harder against the drag of the added weight. The engine is required to operate at relatively higher speeds and under greater loads, generating extra heat. What is more, the trailer adds considerably to wind resistance, increasing the pulling requirements.

If You Do Decide To Pull a Trailer

If you do, here are some important points:

- There are many different laws, including speed limit restrictions, having to do with trailering. Make sure your rig will be legal, not only where you live but also where you will be driving. A good source for this information can be state or provincial police.
- Consider using a sway control. You can ask a hitch dealer about sway controls.
- Do not tow a trailer at all during the first 1,000 miles (1 600 km) your new vehicle is driven. Your engine, axle or other parts could be damaged.
- Then, during the first 500 miles (800 km) that you tow a trailer, do not drive over 50 mph (80 km/h) and do not make starts at full throttle. This helps your engine and other parts of your vehicle wear in at the heavier loads.
- Obey speed limit restrictions when towing a trailer. Do not drive faster than the maximum posted speed for trailers, or no more than 55 mph (90 km/h), to save wear on your vehicle's parts.

Three important considerations have to do with weight:

- The weight of the trailer
- The weight of the trailer tongue
- The total weight on your vehicle's tires

Weight of the Trailer

How heavy can a trailer safely be?

It should never weigh more than 1,000 lbs (454 kg). These are total maximum weights including the load. But even that can be too heavy.

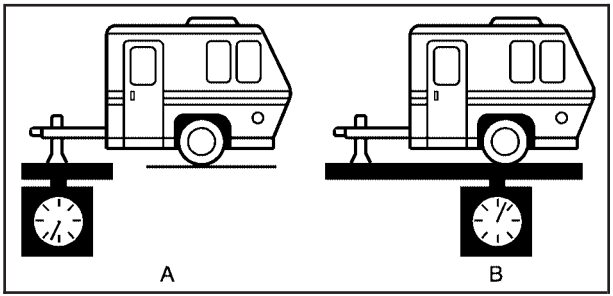
It depends on how you plan to use your rig. For example, speed, altitude, road grades, outside temperature and how much your vehicle is used to pull a trailer are all important. It can also depend on any special equipment that you have on your vehicle, and the amount of tongue weight the vehicle can carry. See "Weight of the Trailer Tongue" later in this section for more information.

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.

You can ask your dealer for our trailering information or advice, or you can write us at our Customer Assistance Offices. See *Customer Assistance Offices on page 478* for more information.

Weight of the Trailer Tongue

The tongue load (A) of any trailer is an important weight to measure because it affects the total or gross weight of your vehicle. The Gross Vehicle Weight (GVW) includes the curb weight of the vehicle, any cargo you may carry in it, and the people who will be riding in the vehicle. And if you tow a trailer, you must add the tongue load to the GVW because your vehicle will be carrying that weight, too. See *Loading Your Vehicle on page 327* for more information about your vehicle's maximum load capacity.



If you are using a weight-carrying hitch or a weight-distributing hitch, the trailer tongue (A) should weigh 10 to 15 percent of the total loaded trailer weight (B).

After you have loaded your trailer, weigh the trailer and then the tongue, separately, to see if the weights are proper. If they are not, you may be able to get them right simply by moving some items around in the trailer.

Total Weight on Your Vehicle's Tires

Be sure your vehicle's tires are inflated to the upper limit for cold tires. You will find these numbers on the Tire and Loading Information Label. See *Loading Your Vehicle on page 327*. Then be sure you do not go over the GVW limit for your vehicle, including the weight of the trailer tongue.

Hitches

It is important to have the correct hitch equipment. Crosswinds, large trucks going by and rough roads are a few reasons why you will need the right hitch. Here are some rules to follow:

- The rear bumper on your vehicle is not intended for hitches. Do not attach rental hitches or other bumper-type hitches to it. Use only a frame-mounted hitch that does not attach to the bumper.
- Will you have to make any holes in the body of your vehicle when you install a trailer hitch? If you do, then be sure to seal the holes later when you remove the hitch. If you do not seal them, deadly carbon monoxide (CO) from your exhaust can get into your vehicle. See *Engine Exhaust on page 126*. Dirt and water can, too.

Safety Chains

You should always attach chains between your vehicle and your trailer. Cross the safety chains under the tongue of the trailer so that the tongue will not drop to the road if it becomes separated from the hitch. Instructions about safety chains may be provided by the hitch manufacturer or by the trailer manufacturer. Follow the manufacturer's recommendation for attaching safety chains and do not attach them to the bumper. Always leave just enough slack so you can turn with your rig. And, never allow safety chains to drag on the ground.

Trailer Brakes

Because your vehicle has anti-lock brakes, do not try to tap into your vehicle's hydraulic brake system. If you do, both brake systems will not work well, or at all.

Be sure to read and follow the instructions for the trailer brakes so you will be able to maintain them properly.

Driving with a Trailer

Towing a trailer requires a certain amount of experience. Before setting out for the open road, you will want to get to know your rig. Acquaint yourself with the feel of handling and braking with the added weight of the trailer. And always keep in mind that the vehicle you are driving is now a good deal longer and not nearly as responsive as your vehicle is by itself.

Before you start, check the trailer hitch and platform, parts and attachments, safety chains, electrical connector, lamps, tires and mirror adjustment. If the trailer has electric brakes, start your vehicle and trailer moving and then apply the trailer brake controller by hand to be sure the brakes are working. This lets you check your electrical connection at the same time.

During your trip, check occasionally to be sure that the load is secure, and that the lamps and any trailer brakes are still working.

Following Distance

Stay at least twice as far behind the vehicle ahead as you would when driving your vehicle without a trailer. This can help you avoid situations that require heavy braking and sudden turns.

Passing

You will need more passing distance up ahead when you are towing a trailer. And, because the vehicle is a good deal longer, you will need to go much farther beyond the passed vehicle before you can return to your lane.

Backing Up

Hold the bottom of the steering wheel with one hand. Then, to move the trailer to the left, just move that hand to the left. To move the trailer to the right, move your hand to the right. Always back up slowly and, if possible, have someone guide you.

Making Turns

Notice: **Making very sharp turns while trailering could cause the trailer to come in contact with the vehicle. Your vehicle could be damaged. Avoid making very sharp turns while trailering.**

When you are turning with a trailer, make wider turns than normal. Do this so your trailer will not strike soft shoulders, curbs, road signs, trees or other objects. Avoid jerky or sudden maneuvers. Signal well in advance.

Turn Signals When Towing a Trailer

When you tow a trailer, your vehicle may need a different turn signal flasher and/or extra wiring. Check with your dealer. The arrows on your instrument panel will flash whenever you signal a turn or lane change. Properly hooked up, the trailer lamps will also flash, telling other drivers you are about to turn, change lanes or stop.

When towing a trailer, the arrows on your instrument panel will flash for turns even if the bulbs on the trailer are burned out. Thus, you may think drivers behind you are seeing your signal when they are not. It is important to check occasionally to be sure the trailer bulbs are still working.

Driving on Grades

Reduce speed and shift to a lower gear *before* you start down a long or steep downgrade. If you do not shift down, you might have to use your brakes so much that they would get hot and no longer work well.

On a long uphill grade, shift down and reduce your speed to around 45 mph (70 km/h) to reduce the possibility of the engine and the transmission overheating.

Parking on Hills

⚠ CAUTION:

You really should not park your vehicle, with a trailer attached, on a hill. If something goes wrong, your rig could start to move. People can be injured, and both your vehicle and the trailer can be damaged.

But if you ever have to park your rig on a hill, here is how to do it:

1. Apply your regular brakes, but do not shift into PARK (P).
2. Have someone place chocks behind the trailer wheels.
3. When the wheel chocks are in place, release the regular brakes until the chocks absorb the load.
4. Reapply the regular brakes. Then shift into PARK (P) firmly and apply your parking brake.
5. Release the regular brakes.

When You Are Ready to Leave After Parking on a Hill

1. Apply your regular brakes and hold the pedal down while you:
   - Start your engine,
   - Shift into a gear, and
   - Make sure the parking brake has released.
2. Let up on the brake pedal.
3. Drive slowly until the trailer is clear of the chocks.
4. Stop and have someone pick up and store the chocks.

Maintenance When Trailer Towing

Your vehicle will need service more often when you are pulling a trailer. See the Maintenance Schedule for more on this. Things that are especially important in trailer operation are automatic transaxle fluid (do not overfill), engine oil, drive belt, cooling system and brake system. Each of these is covered in this manual, and the Index will help you find them quickly. If you are trailering, it is a good idea to review this information before you start your trip.

Check periodically to see that all hitch nuts and bolts are tight.

Engine Cooling When Trailer Towing

Your cooling system may temporarily overheat during severe operating conditions. See *Engine Overheating on page 369*.

NOTES

Section 5 Service and Appearance Care

Service 347
Accessories and Modifications 347
California Proposition 65 Warning 348
Doing Your Own Service Work 348
Adding Equipment to the Outside of Your Vehicle 349

Fuel 349
Gasoline Octane 349
Gasoline Specifications 349
California Fuel 350
Additives 350
Fuels in Foreign Countries 351
Filling the Tank 352
Filling a Portable Fuel Container 354

Checking Things Under the Hood 354
Hood Release 355
Engine Compartment Overview 356
Engine Oil 357
Engine Oil Life System 360
Engine Air Cleaner/Filter 362
Automatic Transaxle Fluid 364
Engine Coolant 366
Coolant Surge Tank Pressure Cap 369
Engine Overheating 369
Overheated Engine Protection Operating Mode 371
Cooling System 372
Power Steering Fluid 377
Windshield Washer Fluid 378
Brakes 379
Battery 382
Jump Starting 384

Headlamp Aiming 389

Bulb Replacement 392
High Intensity Discharge (HID) Lighting 392

Windshield Wiper Blade Replacement 392

Tires 394
Tire Sidewall Labeling 395
Tire Terminology and Definitions 400
Inflation - Tire Pressure 402
High-Speed Operation 405
Tire Pressure Monitor System 406
Tire Inspection and Rotation 410
When It Is Time for New Tires 411
Buying New Tires 412
Different Size Tires and Wheels 414
Uniform Tire Quality Grading 414

Section 5 Service and Appearance Care

Wheel Alignment and Tire Balance 416
Wheel Replacement 416
Tire Chains 418
If a Tire Goes Flat 419
Changing a Flat Tire 420
Removing the Spare Tire and Tools 421
Removing the Flat Tire and Installing the Spare Tire 423
Storing a Flat or Spare Tire and Tools 429
Spare Tire 430

Appearance Care 431
Cleaning the Inside of Your Vehicle 431
Fabric/Carpet 433
Leather 434
Instrument Panel, Vinyl, and Other Plastic Surfaces 434
Wood Panels 435
Speaker Covers 435
Care of Safety Belts 435
Weatherstrips 435
Washing Your Vehicle 435
Cleaning Exterior Lamps/Lenses 436
Finish Care 436
Windshield and Wiper Blades 437
Aluminum or Chrome-Plated Wheels 438
Tires 439
Sheet Metal Damage 439
Finish Damage 439
Underbody Maintenance 439
Chemical Paint Spotting 440
Vehicle Care/Appearance Materials 440

Vehicle Identification 441
Vehicle Identification Number (VIN) 441
Service Parts Identification Label 442

Electrical System 442
Add-On Electrical Equipment 442
Headlamp Wiring 443
Windshield Wiper Fuses 443
Power Windows and Other Power Options 443
Fuses and Circuit Breakers 443
Underhood Fuse Block 444
Rear Underseat Fuse Block 447

Capacities and Specifications 452

Service

Your dealer knows your vehicle best and wants you to be happy with it. We hope you will go to your dealer for all your service needs. You will get genuine GM parts and GM-trained and supported service people.

We hope you will want to keep your GM vehicle all GM. Genuine GM parts have one of these marks:

Accessories and Modifications

When you add non-GM accessories to your vehicle they can affect your vehicle's performance and safety, including such things as, airbags, braking, stability, ride and handling, emissions systems, aerodynamics, durability, and electronic systems like anti-lock brakes, traction control and stability control. Some of these accessories may even cause malfunction or damage not covered by warranty.

GM Accessories are designed to complement and function with other systems on your vehicle. Your GM dealer can accessorize your vehicle using genuine GM Accessories. When you go to your GM dealer and ask for GM Accessories, you will know that GM-trained and supported service technicians will perform the work using genuine GM Accessories.

California Proposition 65 Warning

Most motor vehicles, including this one, contain and/or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Engine exhaust, many parts and systems (including some inside the vehicle), many fluids, and some component wear by-products contain and/or emit these chemicals.

Doing Your Own Service Work

⚠ CAUTION:

You can be injured and your vehicle could be damaged if you try to do service work on a vehicle without knowing enough about it.

- **Be sure you have sufficient knowledge, experience, the proper replacement parts, and tools before you attempt any vehicle maintenance task.**

CAUTION: (Continued)

CAUTION: (Continued)

- **Be sure to use the proper nuts, bolts, and other fasteners. English and metric fasteners can be easily confused. If you use the wrong fasteners, parts can later break or fall off. You could be hurt.**

If you want to do some of your own service work, you will want to use the proper service manual. It tells you much more about how to service your vehicle than this manual can. To order the proper service manual, see *Service Publications Ordering Information on page 490*.

Your vehicle has an airbag system. Before attempting to do your own service work, see *Servicing Your Airbag-Equipped Vehicle on page 82*.

You should keep a record with all parts receipts and list the mileage and the date of any service work you perform. See *Maintenance Record on page 470*.

Adding Equipment to the Outside of Your Vehicle

Things you might add to the outside of your vehicle can affect the airflow around it. This may cause wind noise and affect windshield washer performance. Check with your dealer before adding equipment to the outside of your vehicle.

Fuel

Use of the recommended fuel is an important part of the proper maintenance of your vehicle. To help keep your engine clean and maintain optimum vehicle performance, GM recommends the use of gasoline advertised as TOP TIER Detergent Gasoline.

Gasoline Octane

Use premium unleaded gasoline with a posted octane rating of 91 or higher. You may also use regular unleaded gasoline rated at 87 octane or higher, but your vehicle's acceleration may be slightly reduced, and you may notice a slight audible knocking noise, commonly referred to as spark knock. If the octane is less than 87, you may notice a heavy knocking noise when you drive. If this occurs, use a gasoline rated at 87 octane or higher as soon as possible. Otherwise, you might damage your engine. If you are using gasoline rated at 87 octane or higher and you hear heavy knocking, your engine needs service.

Gasoline Specifications

At a minimum, gasoline should meet ASTM specification D 4814 in the United States or CAN/CGSB-3.5 in Canada. Some gasolines may contain an octane-enhancing additive called methylcyclopentadienyl manganese tricarbonyl (MMT). General Motors recommends against the use of gasolines containing MMT. See *Additives on page 350* for additional information.

California Fuel

If your vehicle is certified to meet California Emissions Standards, it is designed to operate on fuels that meet California specifications. See the underhood emission control label. If this fuel is not available in states adopting California emissions standards, your vehicle will operate satisfactorily on fuels meeting federal specifications, but emission control system performance may be affected. The malfunction indicator lamp may turn on and your vehicle may fail a smog-check test. See *Malfunction Indicator Lamp on page 227*. If this occurs, return to your authorized GM dealer for diagnosis. If it is determined that the condition is caused by the type of fuel used, repairs may not be covered by your warranty.

Additives

To provide cleaner air, all gasolines in the United States are now required to contain additives that will help prevent engine and fuel system deposits from forming, allowing your emission control system to work properly. In most cases, you should not have to add anything to your fuel. However, some gasolines contain only the minimum amount of additive required to meet U.S. Environmental Protection Agency regulations. To help keep fuel injectors and intake valves clean, or if your vehicle experiences problems due to dirty injectors or valves, look for gasoline that is advertised as TOP TIER Detergent Gasoline. Also, your dealer has additives that will help correct and prevent most deposit-related problems.

Gasolines containing oxygenates, such as ethers and ethanol, and reformulated gasolines may be available in your area. General Motors recommends that you use these gasolines if they comply with the specifications described earlier.

However, E85 (85% ethanol) and other fuels containing more than 10% ethanol must not be used in vehicles that were not designed for those fuels.

Notice: **Your vehicle was not designed for fuel that contains methanol. Do not use fuel containing methanol. It can corrode metal parts in your fuel system and also damage the plastic and rubber parts. That damage would not be covered under your warranty.**

Some gasolines that are not reformulated for low emissions may contain an octane-enhancing additive called methylcyclopentadienyl manganese tricarbonyl (MMT); ask the attendant where you buy gasoline whether the fuel contains MMT. General Motors recommends against the use of such gasolines. Fuels containing MMT can reduce the life of spark plugs and the performance of the emission control system may be affected. The malfunction indicator lamp may turn on. If this occurs, return to your dealer for service.

Fuels in Foreign Countries

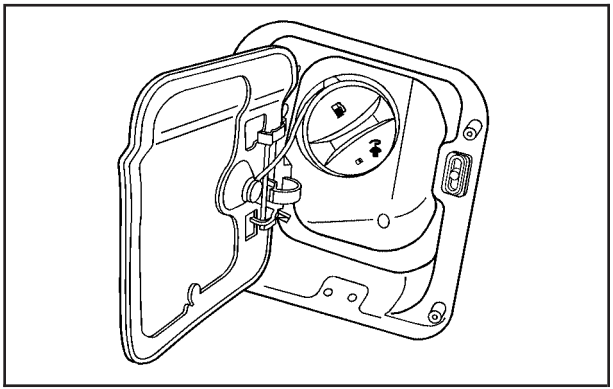
If you plan on driving in another country outside the United States or Canada, the proper fuel may be hard to find. Never use leaded gasoline or any other fuel not recommended in the previous text on fuel. Costly repairs caused by use of improper fuel would not be covered by your warranty.

To check the fuel availability, ask an auto club, or contact a major oil company that does business in the country where you will be driving.

Filling the Tank

⚠ CAUTION:

Fuel vapor burns violently and a fuel fire can cause bad injuries. To help avoid injuries to you and others, read and follow all the instructions on the pump island. Turn off your engine when you are refueling. Do not smoke if you are near fuel or refueling your vehicle. Keep sparks, flames, and smoking materials away from fuel. Do not leave the fuel pump unattended when refueling your vehicle. This is against the law in some places. Keep children away from the fuel pump; never let children pump fuel.



The tethered fuel cap is located behind a hinged fuel door on the driver's side of the vehicle.

To open the fuel door, apply pressure in the center of the rear edge of the fuel door and it will pop open.

To remove the fuel cap, turn it slowly counterclockwise. The fuel cap has a spring in it; if the cap is released too soon, it will spring back to the right.

While refueling, hang the tethered fuel cap from the hook on the fuel door.

⚠ CAUTION:

If you spill fuel and then something ignites it, you could be badly burned. Fuel can spray out on you if you open the fuel cap too quickly. This spray can happen if your tank is nearly full, and is more likely in hot weather. Open the fuel cap slowly and wait for any hiss noise to stop. Then unscrew the cap all the way.

Be careful not to spill fuel. Do not top off or overfill the tank and wait a few seconds after you have finished pumping before removing the nozzle. Clean fuel from painted surfaces as soon as possible. See *Washing Your Vehicle on page 435*.

When replacing the fuel cap, turn it clockwise until it clicks. Make sure the cap is fully installed. The diagnostic system can determine if the fuel cap has been left off or improperly installed. This would allow fuel to evaporate into the atmosphere. See *Malfunction Indicator Lamp on page 227*.

The TIGHTEN GAS CAP message will be displayed on the Driver Information Center (DIC) if the fuel cap is not properly installed. See *DIC Warnings and Messages on page 239* for more information.

⚠ CAUTION:

If a fire starts while you are refueling, do not remove the nozzle. Shut off the flow of fuel by shutting off the pump or by notifying the station attendant. Leave the area immediately.

Notice: **If you need a new fuel cap, be sure to get the right type. Your dealer can get one for you. If you get the wrong type, it may not fit properly. This may cause your malfunction indicator lamp to light and may damage your fuel tank and emissions system. See *Malfunction Indicator Lamp on page 227*.**

Filling a Portable Fuel Container

⚠ CAUTION:

Never fill a portable fuel container while it is in your vehicle. Static electricity discharge from the container can ignite the gasoline vapor. You can be badly burned and your vehicle damaged if this occurs. To help avoid injury to you and others:

- **Dispense gasoline only into approved containers.**
- **Do not fill a container while it is inside a vehicle, in a vehicle's trunk, pickup bed, or on any surface other than the ground.**
- **Bring the fill nozzle in contact with the inside of the fill opening before operating the nozzle. Contact should be maintained until the filling is complete.**
- **Do not smoke while pumping gasoline.**

Checking Things Under the Hood

⚠ CAUTION:

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

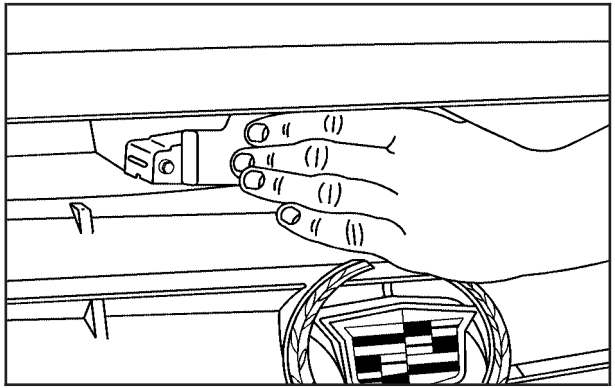
⚠ CAUTION:

Things that burn can get on hot engine parts and start a fire. These include liquids like fuel, oil, coolant, brake fluid, windshield washer and other fluids, and plastic or rubber. You or others could be burned. Be careful not to drop or spill things that will burn onto a hot engine.

Hood Release

To lift the hood, use the following steps:

1. Pull the hood release lever with this symbol on it. It is located on the lower left side of the instrument panel.

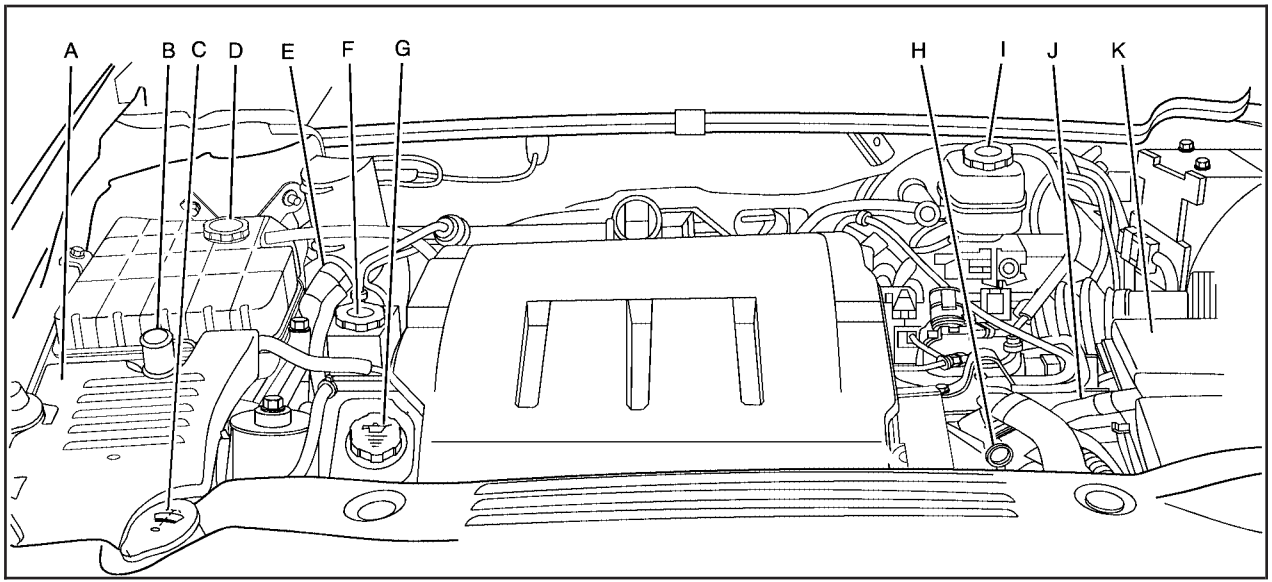


2. Then go to the front of the vehicle and find the secondary hood release lever, located near the center of the hood. Move the release lever up and to the right to raise the hood.

Before closing the hood, be sure all filler caps are on properly. Then pull the hood down and close it firmly.

Engine Compartment Overview

When you open the hood, here is what you will see:



4.6L L37 Engine shown, 4.6L LD8 Engine similar

A. Underhood Fuse Block. See *Underhood Fuse Block on page 444*.
B. Remote Positive (+) Terminal. See *Jump Starting on page 384*.
C. Windshield Washer Fluid Reservoir. See “Adding Washer Fluid” under *Windshield Washer Fluid on page 378*.
D. Engine Coolant Surge Tank and Pressure Cap. See *Coolant Surge Tank Pressure Cap on page 369* and *Cooling System on page 372*.
E. Remote Negative (–) Terminal. See *Jump Starting on page 384* Jump Starting.
F. Power Steering Fluid. See *Power Steering Fluid on page 377*.
G. Engine Oil Fill Cap. See “When to Add Engine Oil” under *Engine Oil on page 357*.
H. Engine Oil Dipstick. See “Checking Engine Oil” under *Engine Oil on page 357*.
I. Brake Master Cylinder Reservoir. See “Brake Fluid” under *Brakes on page 379*.
J. Automatic Transaxle Fluid Cap and Dipstick (Out of View). See *Automatic Transaxle Fluid on page 364*.
K. Engine Air Cleaner/Filter. See *Engine Air Cleaner/Filter on page 362*.

Engine Oil

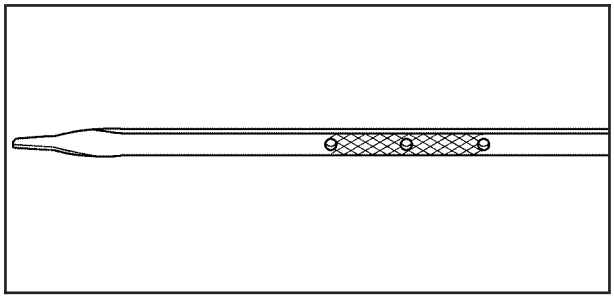
Checking Engine Oil

It is a good idea to check the engine oil every time you get fuel. In order to get an accurate reading, the oil must be warm and the vehicle must be on level ground.

The engine oil dipstick handle is a yellow loop. See *Engine Compartment Overview on page 356* for the location of the engine oil dipstick.

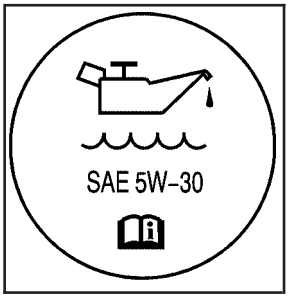
1. Turn off the engine and give the oil several minutes to drain back into the oil pan. If you do not do this, the oil dipstick might not show the actual level.
2. Pull out the dipstick and clean it with a paper towel or cloth, then push it back in all the way. Remove it again, keeping the tip down, and check the level.

When to Add Engine Oil



If the oil is below the cross-hatched area at the tip of the dipstick, you will need to add at least one quart/liter of oil. But you must use the right kind. This section explains what kind of oil to use. For engine oil crankcase capacity, see *Capacities and Specifications on page 452*.

Notice: **Do not add too much oil. If the engine has so much oil that the oil level gets above the cross-hatched area that shows the proper operating range, the engine could be damaged.**

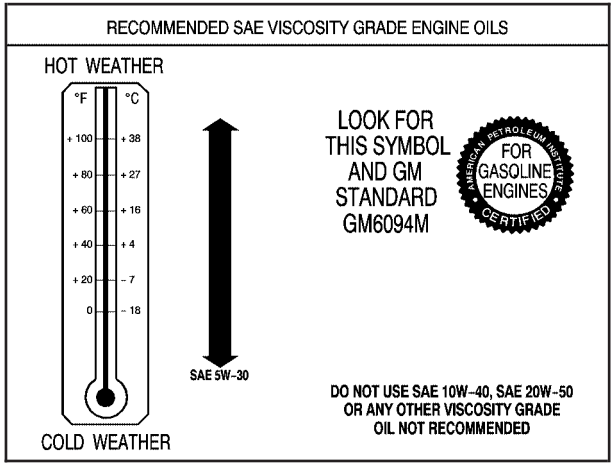


See *Engine Compartment Overview on page 356* for the location of the engine oil fill cap.

Turn the cap counterclockwise to remove it.

Be sure to add enough oil to put the level somewhere in the proper operating range in the cross-hatched area. Push the dipstick all the way back in when you are through.

What Kind of Engine Oil to Use



Look for two things:

- GM6094M
  Your vehicle's engine requires oil meeting GM Standard GM6094M. You should look for and use only an oil that meets GM Standard GM6094M.
- SAE 5W-30
  As shown in the viscosity chart, SAE 5W-30 is best for your vehicle.

These numbers on an oil container show its viscosity, or thickness. Do not use other viscosity oils such as SAE 20W-50.

Oils meeting these requirements should also have the starburst symbol on the container. This symbol indicates that the oil has been certified by the American Petroleum Institute (API).

You should look for this information on the oil container, and use only those oils that are identified as meeting GM Standard GM6094M and have the starburst symbol on the front of the oil container.

Notice: **Use only engine oil identified as meeting GM Standard GM6094M and showing the American Petroleum Institute Certified For Gasoline Engines starburst symbol. Failure to use the recommended oil can result in engine damage not covered by your warranty.**

GM Goodwrench® oil meets all the requirements for your vehicle.

If you are in an area of extreme cold, where the temperature falls below –20°F (–29°C), it is recommended that you use either an SAE 5W-30 synthetic oil or an SAE 0W-30 oil. Both will provide easier cold starting and better protection for the engine at extremely low temperatures.

Engine Oil Additives

Do not add anything to the oil. The recommended oils with the starburst symbol that meet GM Standard GM6094M are all you will need for good performance and engine protection.

Engine Oil Life System

When to Change Engine Oil

Your vehicle has a computer system that lets you know when to change the engine oil and filter. This is based on engine revolutions and engine temperature, and not on mileage. Based on driving conditions, the mileage at which an oil change will be indicated can vary considerably. For the oil life system to work properly, you must reset the system every time the oil is changed.

When the system has calculated that oil life has been diminished, it will indicate that an oil change is necessary. A CHANGE ENGINE OIL SOON message in the Driver Information Center (DIC) will come on. Change your oil as soon as possible within the next 600 miles (1 000 km). It is possible that, if you are driving under the best conditions, the oil life system may not indicate that an oil change is necessary for over a year. However, the engine oil and filter must be changed at least once a year and at this time the system must be reset. Your dealer has GM-trained people who will perform this work using genuine GM parts and reset the system. It is also important to check the oil regularly and keep it at the proper level.

If the system is ever reset accidentally, you must change the oil at 3,000 miles (5 000 km) since the last oil change. Remember to reset the oil life system whenever the oil is changed.

How to Reset the Engine Oil Life System

The Engine Oil Life System calculates when to change the engine oil and filter based on vehicle use. Anytime the oil is changed, reset the system so it can calculate when the next oil change is required. If a situation occurs where you change the oil prior to a CHANGE ENGINE OIL SOON message in the Driver Information Center (DIC) being turned on, reset the system.

After the oil has been changed, the CHANGE ENGINE OIL SOON message must be reset. To reset the message, do the following:

1. Turn the key to the RUN position without starting the engine.
2. Press the INFO button on the Driver Information Center (DIC) until OIL LIFE REMAINING is displayed. See *DIC Controls and Displays on page 233*.
3. Press and hold the INFO RESET button until 100% is displayed. This resets the oil life indicator.
4. Turn the key to OFF.

If the CHANGE ENGINE OIL SOON message comes back on when you start your vehicle, the engine oil life system has not reset. Repeat the procedure.

What to Do with Used Oil

Used engine oil contains certain elements that may be unhealthy for your skin and could even cause cancer. Do not let used oil stay on your skin for very long. Clean your skin and nails with soap and water, or a good hand cleaner. Wash or properly dispose of clothing or rags containing used engine oil. See the manufacturer's warnings about the use and disposal of oil products.

Used oil can be a threat to the environment. If you change your own oil, be sure to drain all the oil from the filter before disposal. Never dispose of oil by putting it in the trash, pouring it on the ground, into sewers, or into streams or bodies of water. Instead, recycle it by taking it to a place that collects used oil. If you have a problem properly disposing of used oil, ask your dealer, a service station, or a local recycling center for help.

Engine Air Cleaner/Filter

See *Engine Compartment Overview on page 356* for the location of the engine air cleaner/filter.

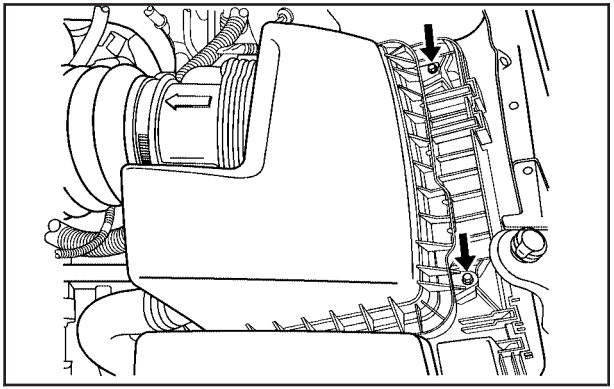
When to Inspect the Engine Air Cleaner/Filter

Inspect the air cleaner/filter at the Maintenance II intervals and replace it at the first oil change after each 50,000 mile (83 000 km) interval. See *Scheduled Maintenance on page 457* for more information. If you are driving in dusty/dirty conditions, inspect the filter at each engine oil change.

How to Inspect the Engine Air Cleaner/Filter

To inspect the air cleaner/filter, remove the filter from the vehicle and lightly shake the filter to release loose dust and dirt. If the filter remains caked with dirt, a new filter is required.

To inspect or replace the filter, do the following:



1. Loosen and remove the two screws on the top of the engine air cleaner/filter cover.
2. Lift up the outboard side of the cover at an angle while pulling toward you. This is necessary due to the two hinges located on the inboard side of the cover.

3. Remove the engine air cleaner/filter element and any loose debris that may be found in the air cleaner base.
4. Inspect or replace the air filter element.

Follow these steps to reinstall the cover to the engine air cleaner/filter housing:

1. Align the two hinges located on the inboard side of the cover.
2. Push the cover slightly down and towards the engine to engage the tabs in the hinges and align the two screws.
3. Tighten the two screws on the top of the engine air cleaner/filter housing cover.

⚠ CAUTION:

Operating the engine with the air cleaner/filter off can cause you or others to be burned. The air cleaner not only cleans the air; it helps to stop flames if the engine backfires. If it is not there and the engine backfires, you could be burned. Do not drive with it off, and be careful working on the engine with the air cleaner/filter off.

Notice: **If the air cleaner/filter is off, a backfire can cause a damaging engine fire. And, dirt can easily get into your engine, which will damage it. Always have the air cleaner/filter in place when you are driving.**

Automatic Transaxle Fluid

When to Check and Change Automatic Transaxle Fluid

A good time to check your automatic transaxle fluid level is when the engine oil is changed.

Change the fluid and filter at the intervals listed in *Additional Required Services on page 460*, and be sure to use the transaxle fluid listed in *Recommended Fluids and Lubricants on page 467*.

How to Check Automatic Transaxle Fluid

Because this operation can be a little difficult, you may choose to have this done at the dealership service department.

If you do it yourself, be sure to follow all the instructions here, or you could get a false reading on the dipstick.

Notice: **Too much or too little fluid can damage the transaxle. Too much can mean that some of the fluid could come out and fall on hot engine or exhaust system parts, starting a fire. Too little fluid could cause the transaxle to overheat. Be sure to get an accurate reading if you check the transaxle fluid.**

Wait at least 30 minutes before checking the transaxle fluid level if you have been driving:

- When outside temperatures are above 90°F (32°C).
- At high speed for quite a while.
- In heavy traffic — especially in hot weather.
- While pulling a trailer.

To get the right reading, the fluid should be at normal operating temperature, which is 180°F to 200°F (82°C to 93°C).

Get the vehicle warmed up by driving about 15 miles (24 km) when outside temperatures are above 50°F (10°C). If it is colder than 50°F (10°C), you may have to drive longer.

Checking the Fluid Level

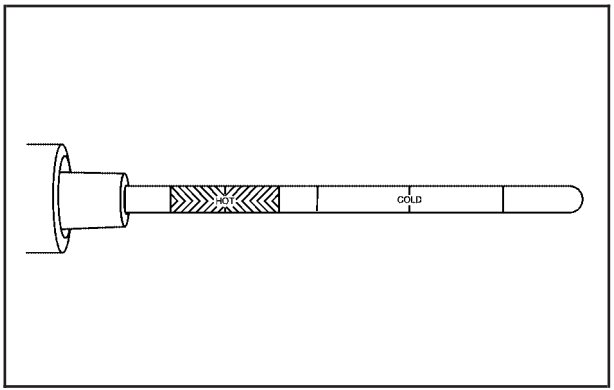
Prepare you vehicle as follows:

1. Park your vehicle on a level place. Keep the engine running.
2. With the parking brake applied, place the shift lever in PARK (P).
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, position the shift lever in PARK (P).
4. Let the engine run at idle for three to five minutes.

Then, without shutting off the engine, follow these steps:

The transaxle fluid cap is located next to the radiator hose and below the engine air cleaner/filter assembly on the driver's side of the vehicle, and is marked TRANS FLUID. See *Engine Compartment Overview on page 356* for more information on location.

1. After removing the engine air cleaner/filter assembly to reach the transaxle fluid cap, turn the cap counterclockwise to remove. Pull out the dipstick and wipe it with a clean rag or paper towel.
2. Push it back in all the way, wait three seconds, and then pull it back out again.



3. Check both sides of the dipstick, and read the lower level. The fluid level must be in the cross-hatched area.
4. If the fluid level is in the acceptable range, push the dipstick back in all the way and turn the handle clockwise. Reinstall the engine air cleaner/filter assembly.

How to Add Automatic Transaxle Fluid

Refer to the Maintenance Schedule to determine what kind of transaxle fluid to use. See *Recommended Fluids and Lubricants on page 467*.

If the fluid level is low, add only enough of the proper fluid to bring the level into the cross-hatched area on the dipstick.

1. Pull out the dipstick.
2. Using a long-neck funnel, add enough fluid at the dipstick hole to bring it to the proper level.

   It does not take much fluid, generally less than one pint (0.5 L). Do not overfill.

Notice: **Use of the incorrect automatic transaxle fluid may damage your vehicle, and the damages may not be covered by your warranty. Always use the automatic transaxle fluid listed in *Recommended Fluids and Lubricants on page 467*.**

3. After adding fluid, recheck the fluid level as described under “How to Check Automatic Transaxle Fluid,” earlier in this section.
4. When the correct fluid level is obtained, push the dipstick back in all the way and turn the handle clockwise.

Engine Coolant

The cooling system in your vehicle is filled with DEX-COOL® engine coolant. This coolant is designed to remain in your vehicle for five years or 150,000 miles (240 000 km), whichever occurs first, if you add only DEX-COOL® extended life coolant.

The following explains your cooling system and how to add coolant when it is low. If you have a problem with engine overheating, see *Engine Overheating on page 369*.

A 50/50 mixture of clean, drinkable water and DEX-COOL® coolant will:

- Giving freezing protection down to –34°F (–37°C).
- Give boiling protection up to 265°F (129°C).
- Protect against rust and corrosion.
- Help keep the proper engine temperature.
- Let the warning lights and gages work as they should.

Notice: **Using coolant other than DEX-COOL® may cause premature engine, heater core, or radiator corrosion. In addition, the engine coolant may require changing sooner, at the first maintenance service after each 30,000 miles (50 000 km) or 24 months, whichever occurs first. Any repairs would not be covered by your warranty. Always use DEX-COOL® (silicate-free) coolant in your vehicle.**

What to Use

Use a mixture of one-half clean, drinkable water and one-half DEX-COOL® coolant which will not damage aluminum parts. If you use this coolant mixture, you do not need to add anything else.

⚠ CAUTION:

Adding only plain water to your cooling system can be dangerous. Plain water, or some other liquid such as alcohol, can boil before the proper coolant mixture will. Your vehicle's coolant warning system is set for the proper coolant mixture.

CAUTION: (Continued)

CAUTION: (Continued)

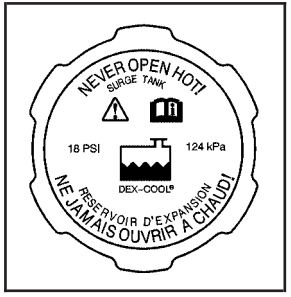
With plain water or the wrong mixture, your engine could get too hot but you would not get the overheat warning. Your engine could catch fire and you or others could be burned. Use a 50/50 mixture of clean, drinkable water and DEX-COOL® coolant.

Notice: **If you use an improper coolant mixture, your engine could overheat and be badly damaged. The repair cost would not be covered by your warranty. Too much water in the mixture can freeze and crack the engine, radiator, heater core, and other parts.**

If you have to add coolant more than two times a year, have your dealer check your cooling system.

Notice: **If you use extra inhibitors and/or additives in your vehicle's cooling system, you could damage your vehicle. Use only the proper mixture of the engine coolant listed in this manual for the cooling system. See *Recommended Fluids and Lubricants on page 467* for more information.**

Checking Coolant



The engine coolant surge tank is located toward the rear of the engine compartment on the passenger's side of the vehicle.

For more information on location, see *Engine Compartment Overview on page 356*.

⚠ CAUTION:

Turning the surge tank pressure cap when the engine and radiator are hot can allow steam and scalding liquids to blow out and burn you badly. Never turn the surge tank pressure cap — even a little — when the engine and radiator are hot.

The vehicle must be on a level surface. When your engine is cold, the coolant level should be at the FULL COLD mark, located on the side of the surge tank that faces the engine.

Adding Coolant

If you need more coolant, add the proper DEX-COOL® coolant mixture at the coolant surge tank, but only when the engine is cool.

> **⚠ CAUTION:**
>
> **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.**

When replacing the pressure cap, make sure to turn the cap until it clicks.

Coolant Surge Tank Pressure Cap

Notice: **If the pressure cap is not tightly installed, coolant loss and possible engine damage may occur. Be sure the cap is properly and tightly secured.**

See *Engine Compartment Overview on page 356* for more information on location.

Engine Overheating

You will find an ENGINE OVERHEATED IDLE ENGINE message or an ENGINE OVERHEATED STOP ENGINE message displayed in the Driver Information Center (DIC). See *DIC Warnings and Messages on page 239* for more information. You will also hear a chime.

There is also an engine temperature warning light and/or gage on the instrument panel cluster. See *Engine Coolant Temperature Warning Light on page 226* and *Engine Coolant Temperature Gage on page 226*.

If Steam Is Coming From Your Engine

⚠ CAUTION:

Steam from an overheated engine can burn you badly, even if you just open the hood. Stay away from the engine if you see or hear steam coming from it. Turn it off and get everyone away from the vehicle until it cools down. Wait until there is no sign of steam or coolant before you open the hood.

If you keep driving when the vehicles engine is overheated, the liquids in it can catch fire. You or others could be badly burned. Stop your engine if it overheats, and get out of the vehicle until the engine is cool.

See *Overheated Engine Protection Operating Mode on page 371* for information on driving to a safe place in an emergency.

Notice: **If your engine catches fire because you keep driving with no coolant, your vehicle can be badly damaged. The costly repairs would not be covered by your warranty. See *Overheated Engine Protection Operating Mode on page 371* for information on driving to a safe place in an emergency.**

If No Steam Is Coming From Your Engine

An overheat warning, along with a low coolant message, can indicate a serious problem.

If you get an engine overheat warning with no low coolant message, but see or hear no steam, the problem may not be too serious. Sometimes the engine can get a little too hot when you:

- Climb a long hill on a hot day.
- Stop after high-speed driving.
- Idle for long periods in traffic.
- Tow a trailer.

If you get the overheat warning with no sign of steam, try this for a minute or so:

1. In heavy traffic, let the engine idle in NEUTRAL (N) while stopped. If it safe to do so, pull off the road, shift to PARK (P) or NEUTRAL (N) and let the engine idle.
2. Set the climate controls to the highest heat setting and fan speed and open the windows as necessary.

If you no longer have the overheat warning, you can drive. Just to be safe, drive slower for about 10 minutes. If the warning does not come back on, you can drive normally.

If the warning continues, pull over, stop, and park your vehicle right away.

If there is still no sign of steam, idle the engine for three minutes while you are parked. If you still have the warning, turn off the engine and get everyone out of the vehicle until it cools down. Also, see “Overheated Engine Protection Operating Mode” later in this section.

You may decide not to lift the hood but to get service help right away.

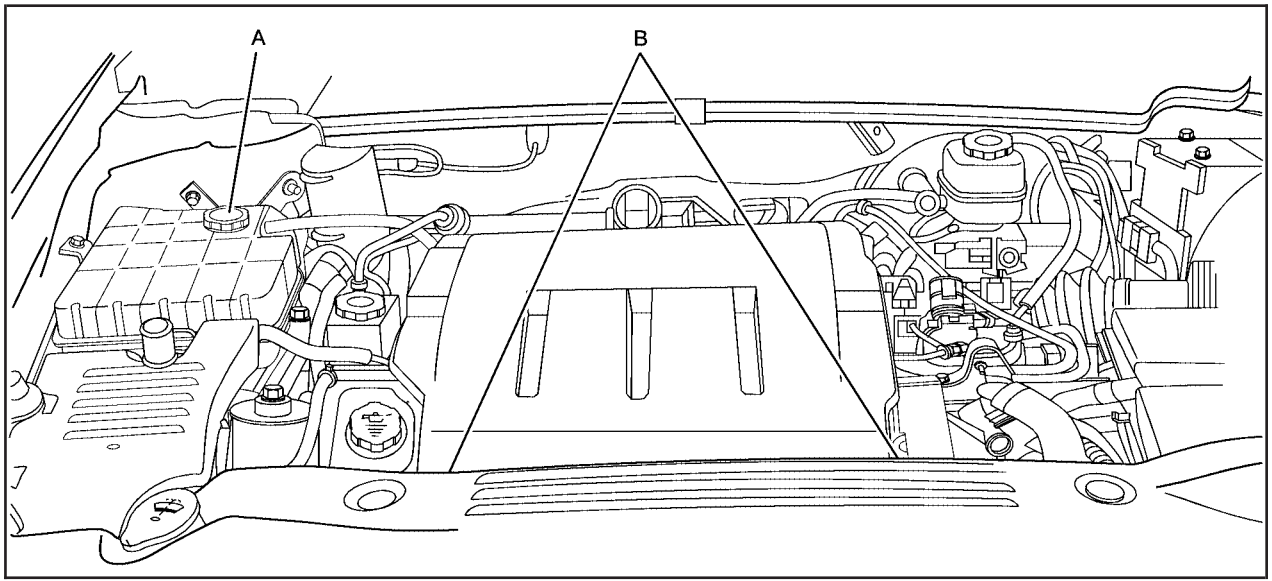
Overheated Engine Protection Operating Mode

If an overheated engine condition exists and the message ENGINE OVERHEATED STOP ENGINE is displayed, an overheat protection mode which alternates firing groups of cylinders helps prevent engine damage. In this mode, you will notice a loss in power and engine performance. This operating mode allows your vehicle to be driven to a safe place in an emergency. Driving extended miles (km) and/or towing a trailer in the overheat protection mode should be avoided.

Notice: **After driving in the overheated engine protection operating mode, to avoid engine damage, allow the engine to cool before attempting any repair. The engine oil will be severely degraded. Repair the cause of coolant loss, change the oil and reset the oil life system. See *Engine Oil on page 357*.**

Cooling System

When you decide it is safe to lift the hood, here is what you will see:



4.6L L37 Engine shown, 4.6L LD8 Engine similar

A. Coolant Surge Tank with Pressure Cap

B. Electric Engine Cooling Fans

⚠ CAUTION:

An electric engine cooling fan under the hood 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.

If the coolant inside the coolant surge tank is boiling, do not do anything else until it cools down. The vehicle should be parked on a level surface.

⚠ CAUTION:

Heater and radiator hoses, and other engine parts, can be very hot. Do not touch them. If you do, you can be burned. Do not run the engine if there is a leak. If you run the engine, it could lose all coolant. That could cause an engine fire, and you could be burned. Get any leak fixed before you drive the vehicle.

If there seems to be no leak, with the engine on, check to see if the electric engine cooling fans are running. If the engine is overheating, both fans should be running. If they are not, your vehicle needs service.

Notice: **Engine damage from running your engine without coolant is not covered by your warranty. See *Overheated Engine Protection Operating Mode on page 371* for information on driving to a safe place in an emergency.**

Notice: **Using coolant other than DEX-COOL® may cause premature engine, heater core, or radiator corrosion. In addition, the engine coolant could require changing sooner, at 30,000 miles (50 000 km) or 24 months, whichever occurs first. Any repairs would not be covered by your warranty. Always use DEX-COOL® (silicate-free) coolant in your vehicle.**

How to Add Coolant to the Coolant Surge Tank

If you have not found a problem yet, check to see if coolant is visible in the surge tank. If coolant is visible but the level is not at the FULL COLD mark located on the side of the surge tank, add enough of a 50/50 mixture of clean, drinkable water and DEX-COOL® coolant at the coolant surge tank to bring the level to the FULL COLD mark, but be sure the cooling system, including the coolant surge tank pressure cap, is cool before you do it. See *Engine Coolant on page 366* for more information.

If no coolant is visible in the surge tank, add coolant as follows:

⚠ CAUTION:

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

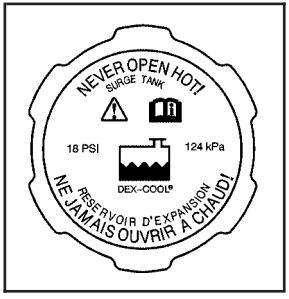
⚠ CAUTION:

Adding only plain water to your cooling system can be dangerous. Plain water, or some other liquid such as alcohol, can boil before the proper coolant mixture will. Your vehicle's coolant warning system is set for the proper coolant mixture. With plain water or the wrong mixture, your engine could get too hot but you would not get the overheat warning. Your engine could catch fire and you or others could be burned. Use a 50/50 mixture of clean, drinkable water and DEX-COOL® coolant.

Notice: **In cold weather, water can freeze and crack the engine, radiator, heater core and other parts. Use the recommended coolant and the proper coolant mixture.**

⚠ CAUTION:

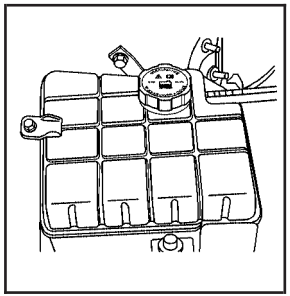
You can be burned if you spill coolant on hot engine parts. Coolant contains ethylene glycol and it will burn if the engine parts are hot enough. Do not spill coolant on a hot engine.



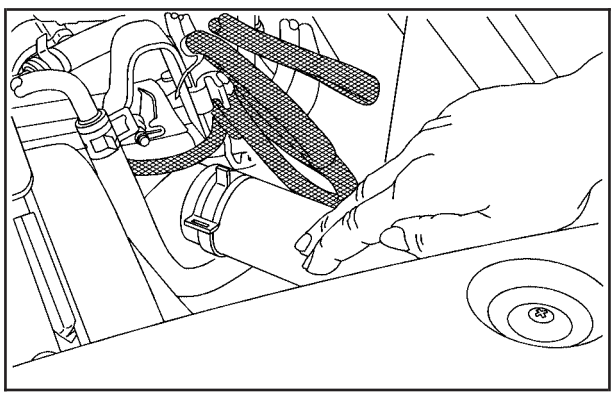
1. You can remove the coolant surge tank pressure cap when the cooling system, including the coolant surge tank pressure cap and upper radiator hose, is no longer hot.

   Turn the pressure cap slowly counterclockwise. If you hear a hiss, wait for that to stop. A hiss means there is still some pressure left.

2. Then keep turning the cap and remove it.



3. Fill the coolant surge tank with the proper mixture to the FULL COLD mark on the side of the coolant surge tank.



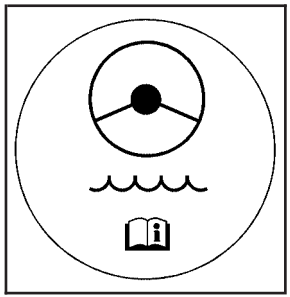
4.6L L37 Engine shown, 4.6L LD8 Engine similar

4. With the coolant surge tank cap off, start the engine and let it run until you can feel the upper radiator hose getting hot. Watch out for the engine cooling fans.

   By this time, the coolant level inside the coolant surge tank may be lower. If the level is lower, add more of the proper mixture to the coolant surge tank until the level reaches the FULL COLD mark on the side of the coolant surge tank.

5. Then replace the cap. Be sure the cap is hand-tight and fully seated.

Power Steering Fluid



The power steering fluid reservoir is located next to the underhood fuse block on the passenger's side of the vehicle. See *Engine Compartment Overview on page 356* for more information on location.

When to Check Power Steering Fluid

It is not necessary to regularly check power steering fluid unless you suspect there is a leak in the system or you hear an unusual noise. A fluid loss in this system could indicate a problem. Have the system inspected and repaired.

How to Check Power Steering Fluid

To check the power steering fluid, do the following:

1. Turn the key off and let the engine compartment cool down.
2. Wipe the cap and the top of the reservoir clean.
3. Unscrew the cap and wipe the dipstick with a clean rag.
4. Replace the cap and completely tighten it.
5. Remove the cap again and look at the fluid level on the dipstick.

The level should be at the FULL COLD mark. If necessary, add only enough fluid to bring the level up to the mark.

What to Use

To determine what kind of fluid to use, see *Recommended Fluids and Lubricants on page 467*. Always use the proper fluid. Failure to use the proper fluid can cause leaks and damage hoses and seals.

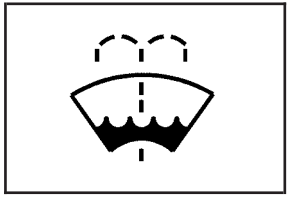
Windshield Washer Fluid

What to Use

When you need windshield washer fluid, be sure to read the manufacturer's instructions before use. If you will be operating your vehicle in an area where the temperature may fall below freezing, use a fluid that has sufficient protection against freezing.

Adding Washer Fluid

The WASHER FLUID LOW ADD FLUID message will be displayed on the Driver Information Center (DIC) when the fluid is low. See *DIC Warnings and Messages on page 239* for more information.



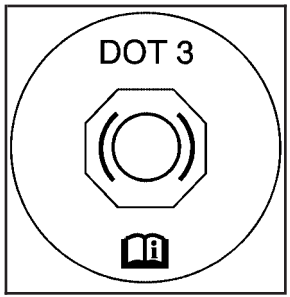
Open the cap with the washer symbol on it. Add washer fluid until the tank is full. See *Engine Compartment Overview on page 356* for reservoir location.

Notice:

- **When using concentrated washer fluid, follow the manufacturer's instructions for adding water.**
- **Do not mix water with ready-to-use washer fluid. Water can cause the solution to freeze and damage your washer fluid tank and other parts of the washer system. Also, water does not clean as well as washer fluid.**
- **Fill your washer fluid tank only three-quarters full when it is very cold. This allows for expansion if freezing occurs, which could damage the tank if it is completely full.**
- **Do not use engine coolant (antifreeze) in your windshield washer. It can damage your washer system and paint.**

Brakes

Brake Fluid



Your brake master cylinder reservoir is filled with DOT-3 brake fluid. See *Engine Compartment Overview on page 356* for reservoir location and access.

There are only two reasons why the brake fluid level in the reservoir might go down. The first is that the brake fluid goes down to an acceptable level during normal brake lining wear. When new linings are put in, the fluid level goes back up. The other reason is that fluid is leaking out of the brake system. If it is, you should have your brake system fixed, since a leak means that sooner or later your brakes will not work well, or will not work at all.

So, it is not a good idea to top off your brake fluid. Adding brake fluid will not correct a leak. If you add fluid when your linings are worn, then you will have too much fluid when you get new brake linings. You should add or remove brake fluid, as necessary, only when work is done on the brake hydraulic system.

⚠ CAUTION:

If your vehicle has too much brake fluid, it can spill on the engine. The fluid will burn if the engine is hot enough. You or others could be burned, and your vehicle could be damaged. Add brake fluid only when work is done on the brake hydraulic system.

If the ignition is on and the brake fluid is low, the SERVICE BRAKE SYSTEM message will be displayed in the Driver Information Center (DIC). See *DIC Warnings and Messages on page 239*.

What to Add

When you do need brake fluid, use only DOT-3 brake fluid. Use new brake fluid from a sealed container only. See *Recommended Fluids and Lubricants on page 467*.

Always clean the brake fluid reservoir cap and the area around the cap before removing it. This will help keep dirt from entering the reservoir.

⚠ CAUTION:

With the wrong kind of fluid in the brake system, the brakes may not work well, or they may not even work at all. This could cause a crash. Always use the proper brake fluid.

Notice:

- **Using the wrong fluid can badly damage brake system parts. For example, just a few drops of mineral-based oil, such as engine oil, in the brake system can damage brake system parts so badly that they will have to be replaced. Do not let someone put in the wrong kind of fluid.**
- **If you spill brake fluid on your vehicle's painted surfaces, the paint finish can be damaged. Be careful not to spill brake fluid on your vehicle. If you do, wash it off immediately. See *Washing Your Vehicle on page 435*.**

Brake Wear

Your vehicle has four-wheel disc brakes.

Disc brake pads have built-in wear indicators that make a high-pitched warning sound when the brake pads are worn and new pads are needed. The sound may come and go or be heard all the time your vehicle is moving, except when you are pushing on the brake pedal firmly.

⚠ CAUTION:

The brake wear warning sound means that soon the brakes will not work well. That could lead to an accident. When you hear the brake wear warning sound, have your vehicle serviced.

Notice: **Continuing to drive with worn-out brake pads could result in costly brake repair.**

Some driving conditions or climates may cause a brake squeal when the brakes are first applied or lightly applied. This does not mean something is wrong with your brakes.

Properly torqued wheel nuts are necessary to help prevent brake pulsation. When tires are rotated, inspect brake pads for wear and evenly tighten wheel nuts in the proper sequence to GM torque specifications.

Brake linings should always be replaced as complete axle sets.

Brake Pedal Travel

See your dealer if the brake pedal does not return to normal height, or if there is a rapid increase in pedal travel. This could be a sign of brake trouble.

Brake Adjustment

Every time you apply the brakes, with or without the vehicle moving, your brakes adjust for wear.

Replacing Brake System Parts

The braking system on a vehicle is complex. Its many parts have to be of top quality and work well together if the vehicle is to have really good braking. Your vehicle was designed and tested with top-quality GM brake parts. When you replace parts of your braking system — for example, when your brake linings wear down and you need new ones put in — be sure you get new approved replacement parts. If you do not, your brakes may no longer work properly. For example, if someone puts in brake linings that are wrong for your vehicle, the balance between your front and rear brakes can change — for the worse. The braking performance you have come to expect can change in many other ways if someone puts in the wrong replacement brake parts.

Battery

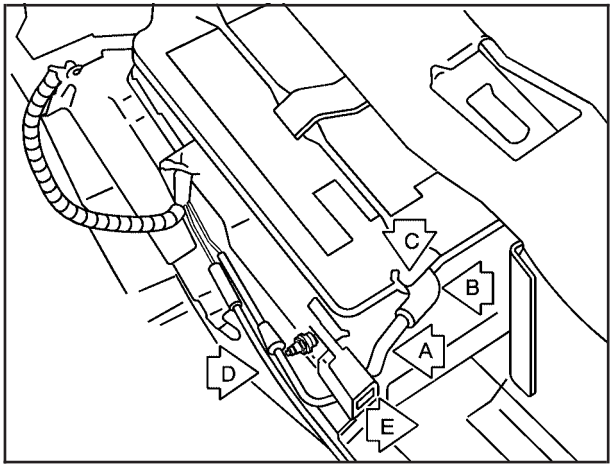
Your vehicle has a maintenance free battery. When it is time for a new battery, get one that has the replacement number shown on the original battery's label. We recommend an ACDelco® replacement battery.

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.

The battery is located under the rear seat cushion. To access the battery, see *Rear Underseat Fuse Block on page 447*. You do not need to access the battery to jump start your vehicle. See *Jump Starting on page 384*.

⚠ CAUTION:

A battery that is not properly vented can let sulfuric acid fumes into the area under the rear seat cushion. These fumes can damage your rear seat safety belt systems. You may not be able to see this damage, and the safety belts might not provide the protection needed in a crash. If a replacement battery is ever needed, it must be vented in the same manner as the original battery. Always make sure that the vent hose is properly reattached before reinstalling the seat cushion.



To be sure the vent hose (A) is properly attached, the vent hose connectors (B) must be securely reattached to the vent outlets (C) on each side of the battery, and the vent assembly grommet (D) must be secured to the floor pan (E).

Vehicle Storage

If you are not going to drive your vehicle for 25 days or more, remove the black, negative (–) cable from the battery. This will help keep your battery from running down.

⚠ CAUTION:

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 384* for tips on working around a battery without getting hurt.

Jump Starting

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

⚠ CAUTION:

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 your vehicle that would not be covered by your warranty.**

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

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

Notice: **If the other vehicle's system is not a 12-volt system with a negative ground, both vehicles can be damaged. Only use vehicles with 12-volt systems with negative grounds to jump start your vehicle.**

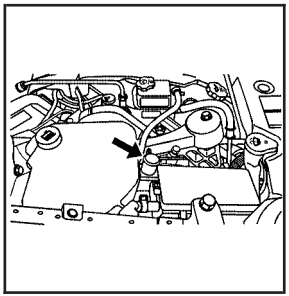
2. Get the vehicles close enough so the jumper cables can reach, but be sure the vehicles are not touching each other. If they are, it could cause a ground connection you do not want. You would not be able to start your vehicle and the bad grounding could damage the electrical systems.

   To avoid the possibility of the vehicles rolling, set the parking brake firmly on both vehicles involved in the jump start procedure.

Put an automatic transaxle in PARK (P) or a manual transaxle in NEUTRAL before setting the parking brake.

Notice: **If you leave your radio or other accessories on during the jump starting procedure, they could be damaged. The repairs would not be covered by your warranty. Always turn off your radio and other accessories when jump starting your vehicle.**

3. Turn off the ignition on both vehicles. Unplug unnecessary accessories plugged into the cigarette lighter or the accessory power outlets. Turn off the radio and all lamps that are not needed. This will avoid sparks and help save both batteries. And it could save the radio!
4. Open the hoods and locate the positive (+) and negative (–) terminal locations on the other vehicle. Your vehicle has a remote positive (+) jump starting terminal and a remote negative (–) jump starting terminal.



4.6L LD8 Engine shown, 4.6L L37 Engine similar

The remote positive (+) terminal is located in the engine compartment on the passenger's side of the vehicle. Lift the red plastic cap to access the terminal. See *Engine Compartment Overview on page 356* for more information on the location of the remote positive (+) terminal.

A second remote positive (+) terminal is located on the rear underseat fuse block.

The remote negative (–) terminal is located behind the power steering pulley, near the engine cover. It is marked GND (–).

You will not see the battery of your vehicle under the hood. It is located under the rear passenger's seat. You will not need to access the battery for jump starting. The remote terminals are for that purpose.

⚠ CAUTION:

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.

⚠ CAUTION:

Using a match 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, 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.

⚠ CAUTION:

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

5. 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 (+) will go to positive (+) or to a remote positive (+) terminal if the vehicle has one. Negative (–) will go to a heavy, unpainted metal engine part or to a remote negative (–) terminal if the vehicle has one.

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

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

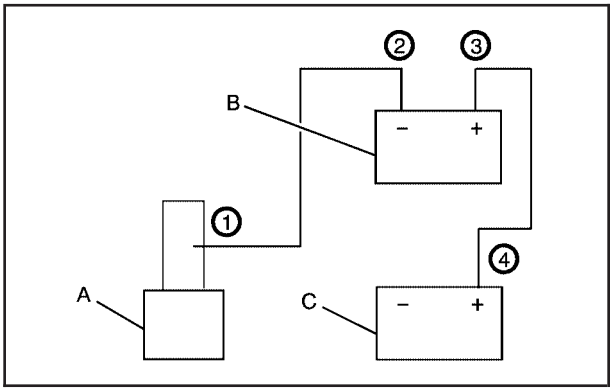
7. Do not let the other end touch metal. Connect it to the positive (+) terminal location of the vehicle with the good battery. Use a remote positive (+) terminal if the vehicle has one.

8. Now connect the black negative (–) cable to the negative (–) terminal location of the vehicle with the good battery. Use a remote negative (–) terminal if the vehicle has one.

   Do not let the other end of the cable 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 a remote negative (–) terminal on the vehicle with the dead battery.

9. Connect the other end of the negative (–) cable to the negative (–) terminal location on the vehicle with the dead battery. Your vehicle has a remote negative (–) terminal marked GND (–).
10. Now start the vehicle with the good battery and run the engine for a while.
11. 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 your 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 (GND)
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, do the following:

1. Disconnect the black negative (–) cable from the vehicle that had the dead 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.

Headlamp Aiming

The vehicle has a visual optical headlamp aiming system. The aim has been preset at the factory and should need no further adjustment.

However, if the vehicle is damaged in an accident, the headlamp aim may be affected and adjustment may be necessary.

If oncoming vehicles flash their high beams at you, this may also mean the vertical aim needs to be adjusted.

It is recommended that the vehicle is taken to your dealer for service if the headlamps need to be re-aimed. It is possible however, to re-aim the headlamps as described in the following procedure.

Notice: **To make sure your headlamps are aimed properly, read all the instructions before beginning. Failure to follow these instructions could cause damage to headlamp parts.**

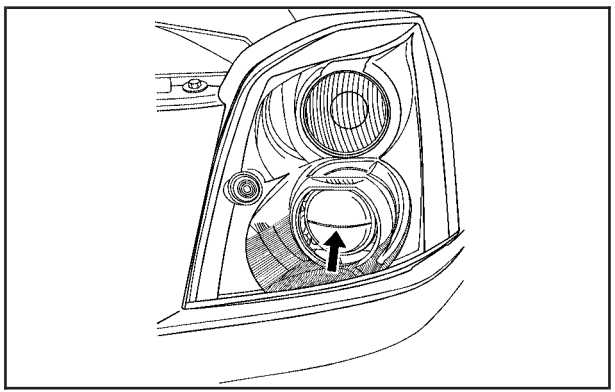
The vehicle should be properly prepared as follows:

- The vehicle should be placed so the headlamps are 25 ft. (7.6 m) from a light colored wall.
- The vehicle must have all four tires on a level surface which is level all the way to the wall.
- The vehicle should be placed so it is perpendicular to the wall.
- The vehicle should not have any snow, ice, or mud on it.
- The vehicle should be fully assembled and all other work stopped while headlamp aiming is being performed.
- The vehicle should be normally loaded with a full tank of fuel and one person or 160 lbs (75 kg) sitting on the driver's seat.
- Tires should be properly inflated.
- The spare tire is in its original location in the vehicle.

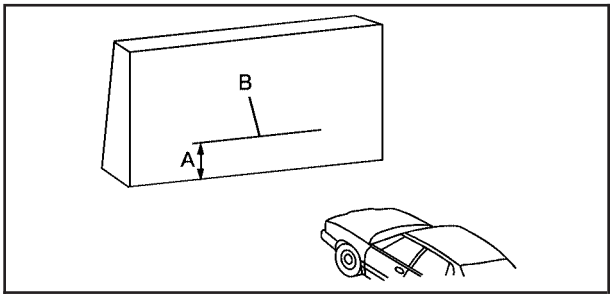
Headlamp aiming is done with the vehicle's low-beam headlamps. The high-beam headlamps will be correctly aimed if the low-beam headlamps are aimed properly.

To adjust the vertical aim, do the following:

1. Open the hood. See *Hood Release on page 355* for more information.



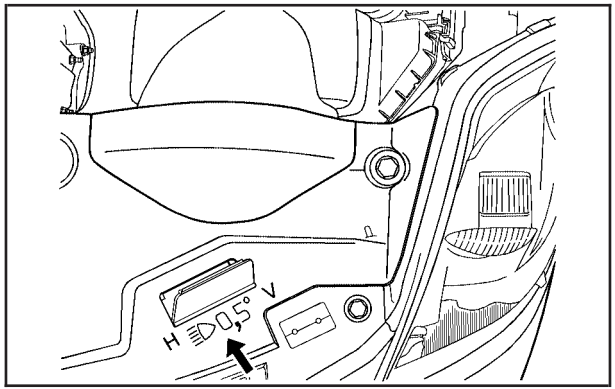
2. Find the center line running through the lens of the headlamp.
3. Measure the distance from the ground to the center line running through the lens of the headlamp. Record the distance.



4. At the wall measure from the ground upward (A) to the recorded distance from Step 3 and mark it.
5. Draw or tape a horizontal line the width of the vehicle at the wall where it was marked in Step 4.

Notice: **Do not cover a headlamp to improve beam cut-off when aiming. Covering a headlamp may cause excessive heat build-up which may cause damage to the headlamp.**

6. Turn on the low-beam headlamps and place a piece of cardboard or equivalent in front of the headlamp not being aimed. This should allow only the beam of light from the headlamp being aimed to be seen on the flat surface.

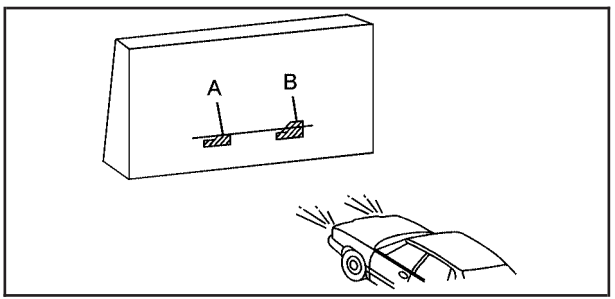


7. Locate the vertical headlamp aiming screws. They are located under the hood near each headlamp assembly. First lift the flap to access either of them. Each one is the top outboard screw by the “ V” on the cover panel next to the aiming flap.

   The adjustment screw can be turned with a 6 mm hex wrench.

8. Turn the vertical aiming screw until the headlamp beam is aimed to the horizontal tape line. If you turn it clockwise, it will raise the beam and if you turn it counterclockwise, it will lower the beam.

   The top edge of the cut-off should be positioned at the bottom edge of the horizontal tape line.



9. Make sure that the light from the headlamp is positioned at the bottom edge of the horizontal tape line. The lamp on the left (A) shows the correct headlamp aim. The lamp on the right (B) shows the incorrect headlamp aim.
10. Repeat Steps 7 through 9 for the opposite headlamp.

Bulb Replacement

It is recommended that all bulbs be replaced by your dealer.

High Intensity Discharge (HID) Lighting

⚠ CAUTION:

The low beam high intensity discharge lighting system operates at a very high voltage. If you try to service any of the system components, you could be seriously injured. Have your dealer or a qualified technician service them.

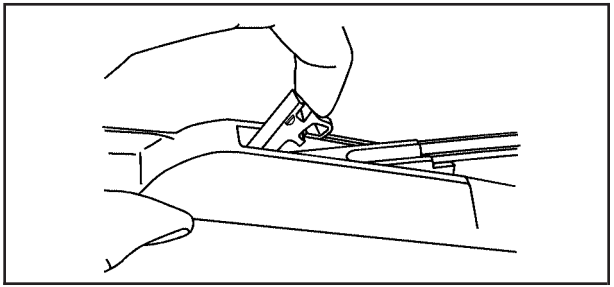
Your vehicle has HID headlamps. After your vehicle's HID headlamp bulb has been replaced, you may notice that the beam is a slightly different shade than it was originally. This is normal.

Windshield Wiper Blade Replacement

Windshield wiper blades should be inspected for wear or cracking. See *Scheduled Maintenance on page 457* for more information on wiper blade inspection.

Replacement blades come in different types and are removed in different ways. Here's how to remove the wiper blade:

1. Turn the engine off.
2. Lift the windshield wiper arm and blade away from the windshield.

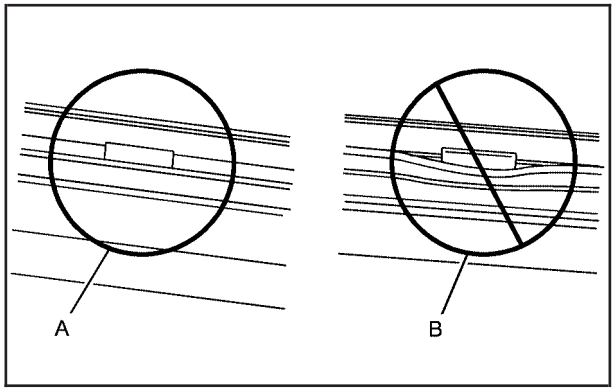


3. Pull the clip up from the blade connecting point, and pull the blade assembly down toward the windshield to remove it from the wiper arm.

4. Install the new wiper blade onto the wiper arm and firmly press down on the clip to snap it into place.

To remove and replace the wiper blade element do the following:

1. The wiper blade element has two notches at one end which are engaged by the bottom claw set of the wiper blade. At the notched end of the wiper blade, pull the wiper blade element from the wiper blade assembly.
2. To replace the element, start at the heel end of the wiper blade, which is the end nearest to the base of the wiper arm, and slide the wiper blade element, notched end last, into the wiper blade claw sets.
3. To engage the last claw into the notched end of the wiper blade element, squeeze the wiper blade element at the notched area, and push the wiper blade element so the claw fits into the notch.
4. Be sure the two wiper blade element notches are engaged by the last claw set, and that all the other claws are properly engaged in the slots of the wiper blade element on both sides.



A. Correct Installation

B. Incorrect Installation

For the proper type and size windshield wiper blades, see *Normal Maintenance Replacement Parts on page 468*.

Tires

Your new vehicle comes with high-quality tires made by a leading tire manufacturer. If you ever have questions about your tire warranty and where to obtain service, see your GM Warranty booklet for details. For additional information refer to the tire manufacturer's booklet included with your vehicle.

⚠ CAUTION:

- **Poorly maintained and improperly used tires are dangerous.**
- **Overloading your tires can cause overheating as a result of too much friction. You could have an air-out and a serious accident. See *Loading Your Vehicle on page 327*.**
- **Underinflated tires pose the same danger as overloaded tires. The resulting accident could cause serious injury. Check all tires frequently to maintain the recommended pressure.**

CAUTION: (Continued)

CAUTION: (Continued)

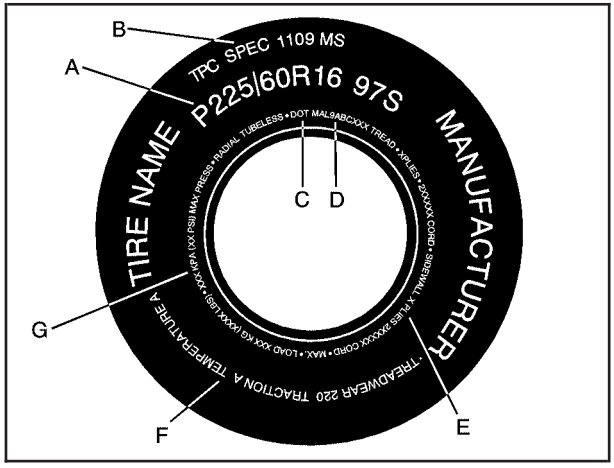
Tire pressure should be checked when your tires are cold. See *Inflation - Tire Pressure on page 402*.

- **Overinflated tires are more likely to be cut, punctured, or broken by a sudden impact — such as when you hit a pothole. Keep tires at the recommended pressure.**
- **Worn, old tires can cause accidents. If your tread is badly worn, or if your tires have been damaged, replace them.**

See *High-Speed Operation on page 405* for inflation pressure adjustment for high speed driving.

Tire Sidewall Labeling

Useful information about a tire is molded into its sidewall.



Passenger Car Tire Example

(A) Tire Size: The tire size is a combination of letters and numbers used to define a particular tire's width, height, aspect ratio, construction type and service description. See the "Tire Size" illustration later in this section for more detail.

(B) TPC Spec (Tire Performance Criteria Specification): Original equipment tires designed to GM's specific tire performance criteria have a TPC specification code molded onto the sidewall. GM's TPC specifications meet or exceed all federal safety guidelines.

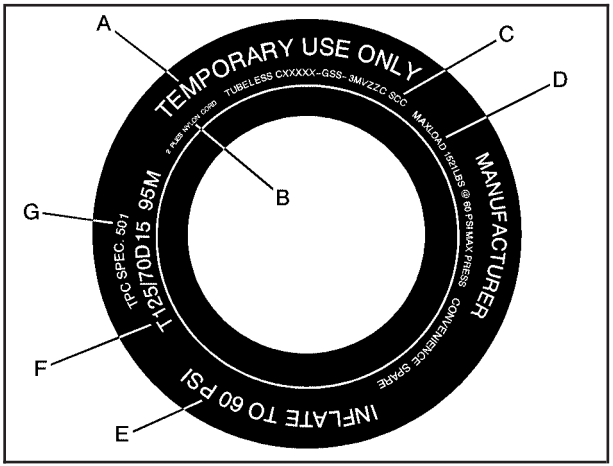
(C) DOT (Department of Transportation): The Department of Transportation (DOT) code indicates that the tire is in compliance with the U.S. Department of Transportation Motor Vehicle Safety Standards.

(D) Tire Identification Number (TIN): The letters and numbers following the DOT code are the Tire Identification Number (TIN). The TIN shows the manufacturer and plant code, tire size, and date the tire was manufactured. The TIN is molded onto both sides of the tire, although only one side may have the date of manufacture.

(E) Tire Ply Material: The type of cord and number of plies in the sidewall and under the tread.

(F) Uniform Tire Quality Grading (UTQG): Tire manufacturers are required to grade tires based on three performance factors: treadwear, traction and temperature resistance. For more information see *Uniform Tire Quality Grading on page 414*.

(G) Maximum Cold Inflation Load Limit: Maximum load that can be carried and the maximum pressure needed to support that load. For information on recommended tire pressure see *Inflation - Tire Pressure on page 402* and *Loading Your Vehicle on page 327*.



Compact Spare Tire Example

(A) Temporary Use Only: The compact spare tire or temporary use tire has a tread life of approximately 3,000 miles (5 000 km) and should not be driven at speeds over 65 mph (105 km/h). The compact spare tire is for emergency use when a regular road tire has lost air and gone flat. See *Spare Tire on page 430* and *If a Tire Goes Flat on page 419*.

(B) Tire Ply Material: The type of cord and number of plies in the sidewall and under the tread.

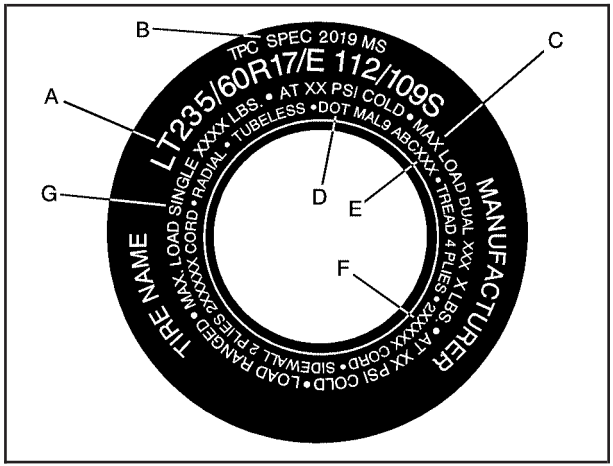
(C) Tire Identification Number (TIN): The Tire Identification Number (TIN). The TIN shows the manufacturer and plant code, tire size, and date the tire was manufactured. The TIN is molded onto both sides of the tire, although only one side may have the date of manufacture.

(D) Maximum Cold Inflation Load Limit: Maximum load that can be carried and the maximum pressure needed to support that load. See *Inflation - Tire Pressure on page 402* and *Loading Your Vehicle on page 327*.

(E) Tire Inflation: The temporary use tire or compact spare tire should be inflated to 60 psi (420 kPa). For more information on tire pressure and inflation see *Inflation - Tire Pressure on page 402* and *Spare Tire on page 430*.

(F) Tire Size: A combination of letters and numbers define a tire's width, height, aspect ratio, construction type and service description. The letter T as the first character in the tire size means the tire is for temporary use only.

(G) TPC Spec (Tire Performance Criteria Specification): Original equipment tires designed to GM's specific tire performance criteria have a TPC specification code molded onto the sidewall. GM's TPC specifications meet or exceed all federal safety guidelines.



Light Truck Tire Example

(A) Tire Size: The tire size code is a combination of letters and numbers used to define a particular tire's width, height, aspect ratio, construction type and service description. See the "Tire Size" illustration later in this section for more detail.

(B) TPC Spec (Tire Performance Criteria Specification): Original equipment tires designed to GM's specific tire performance criteria have a TPC specification code molded onto the sidewall. GM's TPC specifications meet or exceed all federal safety guidelines.

(C) Dual Tire Maximum Load: Maximum load that can be carried and the maximum pressure needed to support that load when used in a dual configuration.

(D) DOT (Department of Transportation): The Department of Transportation (DOT) code indicates that the tire is in compliance with the U.S. Department of Transportation Motor Vehicle Safety Standards.

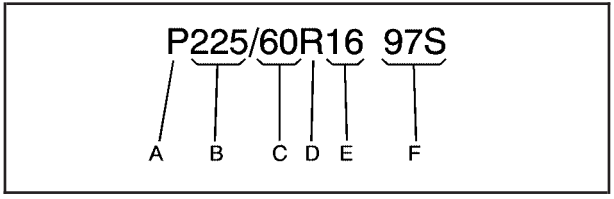
(E) Tire Identification Number (TIN): The letters and numbers following DOT code are the Tire Identification Number (TIN). The TIN shows the manufacturer and plant code, tire size, and date the tire was manufactured. The TIN is molded onto both sides of the tire, although only one side may have the date of manufacture.

(F) Tire Ply Material: The type of cord and number of plies in the sidewall and under the tread.

(G) Single Tire Maximum Load: Maximum load that can be carried and the maximum pressure needed to support that load when used as a single. For information on recommended tire pressure see *Inflation - Tire Pressure on page 402*.

Tire Size

The following illustration shows an example of a tire size.



(A) P-Metric Tire: The United States version of a metric tire sizing system. The letter P as the first character in the tire size means a passenger vehicle tire engineered to standards set by the U. S. Tire and Rim Association.

(B) Tire Width: The three-digit number indicates the tire section width in millimeters from sidewall to sidewall.

(C) Aspect Ratio: A two-digit number that indicates the tire height-to-width measurements. For example, if the tire size aspect ratio is 60, as shown in item C of the illustration, it would mean that the tire's sidewall is 60 percent as high as it is wide.

(D) Construction Code: A letter code is used to indicate the type of ply construction in the tire. The letter R means radial ply construction; the letter D means diagonal or bias ply construction; and the letter B means belted-bias ply construction.

(E) Rim Diameter: Diameter of the wheel in inches.

(F) Service Description: These characters represent the load range and speed rating of the tire. The load index represents the load carry capacity a tire is certified to carry. The load index can range from 1 to 279. The speed rating is the maximum speed a tire is certified to carry a load. Speed ratings range from A to Z.

Tire Terminology and Definitions

Air Pressure: The amount of air inside the tire pressing outward on each square inch of the tire. Air pressure is expressed in pounds per square inch (psi) or kilopascal (kPa).

Accessory Weight: This means the combined weight of optional accessories. Some examples of optional accessories are, automatic transmission/transaxle, power steering, power brakes, power windows, power seats, and air conditioning.

Aspect Ratio: The relationship of a tire's height to its width.

Belt: A rubber coated layer of cords that is located between the plies and the tread. Cords may be made from steel or other reinforcing materials.

Bead: The tire bead contains steel wires wrapped by steel cords that hold the tire onto the rim.

Bias Ply Tire: A pneumatic tire in which the plies are laid at alternate angles less than 90 degrees to the centerline of the tread.

Cold Tire Pressure: The amount of air pressure in a tire, measured in pounds per square inch (psi) or kilopascals (kPa) before a tire has built up heat from driving. See *Inflation - Tire Pressure on page 402*.

Curb Weight: This means the weight of a motor vehicle with standard and optional equipment including the maximum capacity of fuel, oil, and coolant, but without passengers and cargo.

DOT Markings: A code molded into the sidewall of a tire signifying that the tire is in compliance with the U.S. Department of Transportation (DOT) motor vehicle safety standards. The DOT code includes the Tire Identification Number (TIN), an alphanumeric designator which can also identify the tire manufacturer, production plant, brand, and date of production.

GVWR: Gross Vehicle Weight Rating. See *Loading Your Vehicle on page 327*.

GAWR FRT: Gross Axle Weight Rating for the front axle. See *Loading Your Vehicle on page 327*.

GAWR RR: Gross Axle Weight Rating for the rear axle. See *Loading Your Vehicle on page 327*.

Intended Outboard Sidewall: The side of an asymmetrical tire, that must always face outward when mounted on a vehicle.

Kilopascal (kPa): The metric unit for air pressure.

Light Truck (LT-Metric) Tire: A tire used on light duty trucks and some multipurpose passenger vehicles.

Load Index: An assigned number ranging from 1 to 279 that corresponds to the load carrying capacity of a tire.

Maximum Inflation Pressure: The maximum air pressure to which a cold tire may be inflated. The maximum air pressure is molded onto the sidewall.

Maximum Load Rating: The load rating for a tire at the maximum permissible inflation pressure for that tire.

Maximum Loaded Vehicle Weight: The sum of curb weight, accessory weight, vehicle capacity weight, and production options weight.

Normal Occupant Weight: The number of occupants a vehicle is designed to seat multiplied by 150 lbs (68 kg). See *Loading Your Vehicle on page 327*.

Occupant Distribution: Designated seating positions.

Outward Facing Sidewall: The side of an asymmetrical tire that has a particular side that faces outward when mounted on a vehicle. The side of the tire that contains a whitewall, bears white lettering, or bears manufacturer, brand, and/or model name molding that is higher or deeper than the same moldings on the other sidewall of the tire.

Passenger (P-Metric) Tire: A tire used on passenger cars and some light duty trucks and multipurpose vehicles.

Recommended Inflation Pressure: Vehicle manufacturer's recommended tire inflation pressure as shown on the tire placard. See *Inflation - Tire Pressure on page 402* and *Loading Your Vehicle on page 327*.

Radial Ply Tire: A pneumatic tire in which the ply cords that extend to the beads are laid at 90 degrees to the centerline of the tread.

Rim: A metal support for a tire and upon which the tire beads are seated.

Sidewall: The portion of a tire between the tread and the bead.

Speed Rating: An alphanumeric code assigned to a tire indicating the maximum speed at which a tire can operate.

Traction: The friction between the tire and the road surface. The amount of grip provided.

Tread: The portion of a tire that comes into contact with the road.

Treadwear Indicators: Narrow bands, sometimes called wear bars, that show across the tread of a tire when only 1/16 inch (1.6 mm) of tread remains. See *When It Is Time for New Tires on page 411*.

UTQGS (Uniform Tire Quality Grading Standards): A tire information system that provides consumers with ratings for a tire's traction, temperature, and treadwear. Ratings are determined by tire manufacturers using government testing procedures. The ratings are molded into the sidewall of the tire. See *Uniform Tire Quality Grading on page 414*.

Vehicle Capacity Weight: The number of designated seating positions multiplied by 150 lbs (68 kg) plus the rated cargo load. See *Loading Your Vehicle on page 327*.

Vehicle Maximum Load on the Tire: Load on an individual tire due to curb weight, accessory weight, occupant weight, and cargo weight.

Vehicle Placard: A label permanently attached to a vehicle showing the vehicle's capacity weight and the original equipment tire size and recommended inflation pressure. See "Tire and Loading Information Label" under *Loading Your Vehicle on page 327*.

Inflation - Tire Pressure

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

Notice: **Do not let anyone tell you that under-inflation or over-inflation is all right. It is not. If your tires do not have enough air (under-inflation), you can get the following:**

- **Too much flexing**
- **Too much heat**

- **Tire overloading**
- **Premature or irregular wear**
- **Poor handling**
- **Reduced fuel economy**

If your tires have too much air (over-inflation), you can get the following:

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

A Tire and Loading Information label is attached to the vehicle's center pillar. This label lists your vehicle's original equipment tires and shows the correct inflation pressures for your tires when they are cold. The recommended cold tire inflation pressure, shown on the label, is the minimum amount of air pressure needed to support your vehicle's maximum load carrying capacity.

For additional information regarding how much weight your vehicle can carry, and an example of the Tire and Loading Information label, see *Loading Your Vehicle on page 327*. How you load your vehicle affects the vehicle handling and ride comfort, never load your vehicle with more weight than it was designed to carry.

When to Check

Check your tires once a month or more. Do not forget to check the spare tire. If your vehicle has a compact spare tire, it should be at 60 psi (420 kPa). For additional information see *Spare Tire on page 430*.

How to Check

Use a good quality pocket-type gage to check tire pressure. You cannot tell if your tires are properly inflated simply by looking at them. Radial tires may look properly inflated even when they are under-inflated. Check the tire's inflation pressure when the tires are cold. Cold means your vehicle has been sitting for at least three hours or driven no more than 1 mile (1.6 km).

Remove the valve cap from the tire valve stem. Press the tire gage 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 you reach the recommended amount.

If you overfill the tire, release air by pushing on the metal stem in the center of the tire valve. Re-check the tire pressure with the tire gage.

Be sure to put the valve caps back on the valve stems. They help prevent leaks by keeping out dirt and moisture.

Your vehicle has a Tire Pressure Monitor System (TPMS) that sends tire pressure information to the Driver Information Center (DIC). Using the DIC control buttons, the driver is able to check tire pressure levels in all four road tires. See *Tire Pressure Monitor System on page 406* and *DIC Controls and Displays on page 233* for additional information.

Professional Vehicle

The proper inflation of the tires on your professional vehicle depends on the type of tires on it.

- If your vehicle has P235/60R17 size tires, the cold inflation pressure is 41 psi (284 kPa).
- If your vehicle has LT235/60R17E size tires, the cold inflation pressure depends on the vehicle mass and should be determined by the vehicle coach-builder. A tire and loading information label provided by the final stage manufacturer should be attached to the B-pillar on the driver's side of the vehicle. If the final stage manufacturer's label is not present, the coach-builder should be consulted. Do not use the tire pressures indicated on the General Motors label. These tire pressures are for the incomplete vehicle and are not the correct tire pressures for the completed professional vehicle.

Operation at inflation pressures below this recommendation may cause your tires to become overloaded.

High-Speed Operation

⚠ CAUTION:

Driving at high speeds, 100 mph (160 km/h) or higher, puts an additional strain on tires. Sustained high-speed driving causes excessive heat build up and can cause sudden tire failure. You could have a crash and you or others could be killed. Some high-speed rated tires require inflation pressure adjustment for high speed operation. When speed limits and road conditions are such that a vehicle can be driven at high speeds, make sure the tires are rated for high speed operation, in excellent condition, and set to the correct cold tire inflation pressure for the vehicle load.

If your vehicle has P235/55R17 or P245/50R18 size tires, and you will be driving at speeds of 100 mph (160 km/h) or higher, where it is legal, set the cold inflation pressure to the maximum inflation pressure shown on the tire sidewall, or 38 psi (265 kPa), whichever is lower. See the example following.

Example:

You will find the maximum load and inflation pressure molded on the tire's sidewall, in small letters, near the rim flange. It will read something like this: Maximum load 690 kg (1521 lbs) 300 kPa (44 psi) Max. Press.

For this example, you would set the inflation pressure for high-speed driving at 38 psi (265 kPa).

When you end this high-speed driving, return the tires to the cold inflation pressure shown on the Tire and Loading Information label. See *Loading Your Vehicle on page 327*.

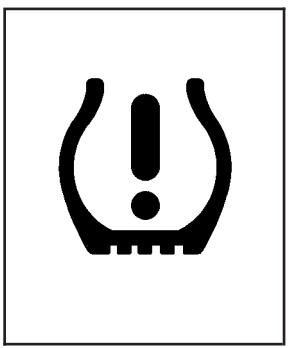
Tire Pressure Monitor System

The Tire Pressure Monitor System (TPMS) uses radio and sensor technology to check tire pressure levels. Sensors are mounted on each tire and wheel assembly, except the spare tire. The TPMS sensors monitor the air pressure in your vehicle's tires and transmit 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 panel cluster. A Driver Information Center (DIC) message to check the pressure in a specific tire will also appear on the DIC display. The low tire pressure warning symbol on the instrument panel cluster and the CHECK TIRE PRESSURE message on the DIC display will appear at each ignition cycle until the tires are inflated to the correct inflation pressure. For additional information and details about the DIC operation and displays see *DIC Controls and Displays on page 233* and *DIC Warnings and Messages on page 239*.

You may notice, during cooler weather conditions, that the low tire pressure warning symbol and the CHECK TIRE PRESSURE message will display when the vehicle is first started and then turn off as you start to drive the vehicle. This could be an early indicator that the tire pressures are getting low and need to be checked and inflated to the proper pressure.

Each tire, including the spare (if provided), should be checked monthly when cold and inflated to the inflation pressure recommended by the vehicle manufacturer on the vehicle placard or tire inflation pressure label. (If your vehicle has tires of a different size than the size indicated on the vehicle placard or tire inflation pressure label, you should determine the proper tire inflation pressure for those tires.)



As an added safety feature, your vehicle has been equipped with a tire pressure monitoring system (TPMS) that illuminates a low tire pressure telltale when one or more of your tires is significantly under-inflated.

Accordingly, when the low tire pressure telltale illuminates, you should stop and check your tires as soon as possible, and inflate them to the proper pressure. Driving on a significantly under-inflated tire causes the tire to overheat and can lead to tire failure. Under-inflation also reduces fuel efficiency and tire tread life, and may affect the vehicle's handling and stopping ability.

Please note that the TPMS is not a substitute for proper tire maintenance, and it is the driver's responsibility to maintain correct tire pressure, even if under-inflation has not reached the level to trigger illumination of the TPMS low tire pressure telltale.

Your vehicle has also been equipped with a TPMS malfunction indicator to indicate when the system is not operating properly. The TPMS malfunction indicator is combined with the low tire pressure telltale. When the system detects a malfunction, the telltale will flash for approximately one minute and then remain continuously illuminated. This sequence will continue upon subsequent vehicle start-ups as long as the malfunction exists.

When the malfunction indicator is illuminated, the system may not be able to detect or signal low tire pressure as intended. TPMS malfunctions may occur for a variety of reasons, including the installation of replacement or alternate tires or wheels on the vehicle that prevent the TPMS from functioning properly. Always check the TPMS malfunction telltale after replacing one or more tires or wheels on your vehicle to ensure that the replacement or alternate tires and wheels allow the TPMS to continue to function properly.

A Tire and Loading Information Label, attached to your vehicle, shows the size of your vehicle's original tires and the correct inflation pressure for your vehicle's tires when they are cold. See *Loading Your Vehicle on page 327*, for the location of the Tire and Loading Information label. Also see *Inflation - Tire Pressure on page 402*.

Your vehicle's TPMS can alert you about a low tire pressure condition but it does not replace normal tire maintenance. See *Tire Inspection and Rotation on page 410* and *Tires on page 394*.

Notice: **Do not use a tire sealant if your vehicle has Tire Pressure Monitors. The liquid sealant can damage the tire pressure monitor sensors.**

Resetting the TPMS Sensor Identification Codes

Each TPMS sensor has a unique identification code. Any time you replace one or more of the TPMS sensors, rotate the vehicle's tires, or install a full-size spare that has a TPMS sensor, the sensor's identification codes will need to be matched to the new tire/wheel position. Each tire/wheel position is matched to the TPMS sensor using a TPMS diagnostic tool. See your GM dealer for service.

The TPMS sensors may also be matched to each tire/wheel position by increasing or decreasing the tire's air pressure. When increasing the tire's air pressure, do not exceed the maximum tire pressure indicated on the tire's sidewall.

You will have two minutes to match the first tire/wheel position, and five minutes overall, to match all four tire/wheel positions. If it takes longer than two minutes, to match the first tire and wheel, or more than five minutes to match all four tire and wheel positions the matching process stops and you will need to start over.

The TPMS matching process is outlined below:

1. Set the parking brake.
2. Turn the ignition switch to RUN with the engine off.
3. Press the Driver Information Center (DIC) vehicle information button until the RELEARN TIRE POSITIONS displays.
4. Press the set/reset button to allow the system to learn the tire positions. The horn will sound twice to indicate that the TPMS is ready, and then the message TIRE LEARNING ACTIVE will display. The sensor matching process can begin.
5. Start with the driver's side front tire.
6. Remove the valve cap from the valve stem. Activate the TPMS sensor by increasing or decreasing the tire's air pressure for five seconds, or until a horn chirp sounds. The horn chirp, which may take up to 30 seconds, confirms that the sensor identification code has been matched to this tire position. To decrease the tire's air-pressure use the pointed end of the valve cap, a pencil-style air pressure gage or a key.

7. Proceed to the passenger's side front tire, and repeat the procedure in Step 6.
8. Proceed to the passenger's side rear tire, and repeat the procedure in Step 6.
9. Proceed to the driver's side rear tire, and repeat the procedure in Step 6.
10. After hearing the confirming horn chirp for the driver's side rear tire, the tire learning process ends. Turn the ignition switch to OFF.
11. Set all four tires to the recommended air pressure level as indicated on the Tire and Loading Information label.
12. Put the valve caps back on the valve stems.

The compact spare tire does not have a TPMS sensor. If you replace one of the road tires with the compact spare, the SERVICE TIRE MONITOR SYSTEM message will be displayed on the DIC screen. This message should go off once you re-install the road tire containing the TPMS sensor.

Federal Communications Commission (FCC) and Industry and Science Canada

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This device complies with RSS-210 of Industry Canada. Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

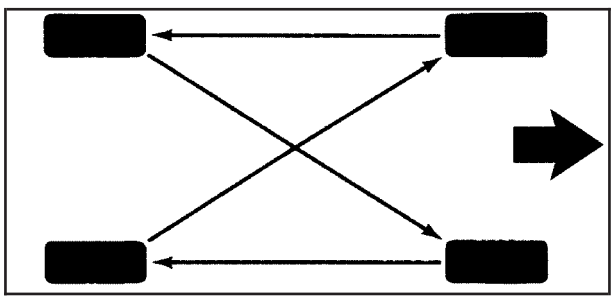
Changes or modifications to this system by other than an authorized service facility could void authorization to use this equipment.

Tire Inspection and Rotation

Tires should be rotated every 5,000 to 8,000 miles (8 000 to 13 000 km).

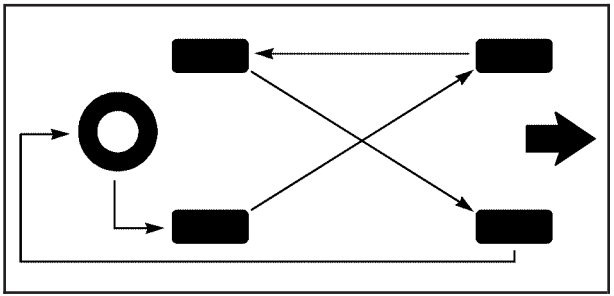
Any time you notice unusual wear, rotate your tires as soon as possible and check wheel alignment. Also check for damaged tires or wheels. See *When It Is Time for New Tires on page 411* and *Wheel Replacement on page 416* for more information.

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 *Scheduled Maintenance on page 457*.



Four-Tire Rotation Pattern

If your vehicle has a compact spare tire, it should not be included in the tire rotation process. Use the four-tire rotation pattern shown.



Five-Tire Rotation Pattern

A five-tire rotation pattern may be used for your professional vehicle, if it has a full-size spare tire and wheel assembly that matches the original equipment tires and wheels in size, type and brand. The correct five-tire rotation pattern is shown.

After the tires have been rotated, adjust the front and rear inflation pressures as shown on the Tire and Loading Information label. See *Loading Your Vehicle on page 327*.

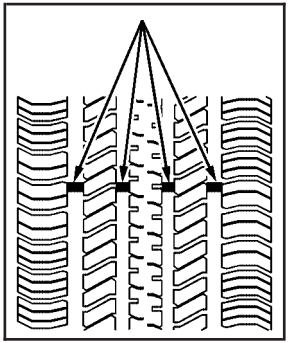
Vehicles that have the Tire Pressure Monitor System (TPMS) will need to have the sensors reset after a tire rotation is performed. See *Tire Pressure Monitor System on page 406*.

Make certain that all wheel nuts are properly tightened. See “Wheel Nut Torque” under *Capacities and Specifications on page 452*.

⚠ CAUTION:

Rust or dirt on a wheel, or on the parts to which it is fastened, can make wheel nuts become loose after time. The wheel could come off and cause an accident. When you change a wheel, remove any rust or dirt from places where the wheel attaches to the vehicle. In an emergency, you can use a cloth or a paper towel to do this; but be sure to use a scraper or wire brush later, if needed, to get all the rust or dirt off. See *Changing a Flat Tire on page 420*.

When It Is Time for New Tires



One way to tell when it is time for new tires is to check the treadwear indicators, which will appear when your tires have only 1/16 inch (1.6 mm) or less of tread remaining.

You need a new tire if any of the following statements are true:

- You can see the indicators at three or more places around the tire.
- You can see cord or fabric showing through the tire’s rubber.
- The tread or sidewall is cracked, cut, or snagged deep enough to show cord or fabric.
- The tire has a bump, bulge, or split.
- The tire has a puncture, cut, or other damage that cannot be repaired well because of the size or location of the damage.

Buying New Tires

GM has developed and matched specific tires for your vehicle. The original equipment tires installed on your vehicle, when it was new, were designed to meet General Motors Tire Performance Criteria Specification (TPC spec) system rating. If you need replacement tires, GM strongly recommends that you get tires with the same TPC Spec rating. This way, your vehicle will continue to have tires that are designed to give the same performance and vehicle safety, during normal use, as the original tires.

GM's exclusive TPC Spec system considers over a dozen critical specifications that impact the overall performance of your vehicle, including brake system performance, ride and handling, traction control, and tire pressure monitoring performance. GM's TPC Spec number is molded onto the tire's sidewall by the tire manufacturer. If the tires have an all-season tread design, the TPC spec number will be followed by an MS for mud and snow. See *Tire Sidewall Labeling on page 395* for additional information.

⚠ CAUTION:

Mixing tires could cause you to lose control of your vehicle while driving. If you mix tires of different sizes, brands, or types (radial and bias-belted tires), the vehicle may not handle properly, and you could have a crash. Using tires of different sizes, brands, or types may also cause damage to your vehicle. Be sure to use the correct size, brand, and type of tires on all wheels.

Your vehicle may have a compact spare tire and wheel assembly. If the vehicle has a compact spare tire and wheel, they have the same overall diameter as your vehicle's full-size tires and wheels. Because they were designed and developed for use on your vehicle, it is all right to drive your vehicle with the compact spare installed properly. Compact spare tires are designed for temporary use only. See *Spare Tire on page 430*.

⚠ CAUTION:

If you use bias-ply tires on your vehicle, the wheel rim flanges could develop cracks after many miles of driving. A tire and/or wheel could fail suddenly, causing a crash. Use only radial-ply tires with the wheels on your vehicle.

If you must replace your vehicle's tires with those that do not have a TPC Spec number, make sure they are the same size, load range, speed rating, and construction type (radial and bias-belted tires) as your vehicle's original tires.

Vehicles that have a tire pressure monitoring system may give an inaccurate low-pressure warning if non-TPC spec rated tires are installed on your vehicle. Non-TPC Spec rated tires may give a low-pressure warning that is higher or lower than the proper warning level you would get with TPC Spec rated tires. See *Tire Pressure Monitor System on page 406*.

Your vehicle's original equipment tires are listed on the Tire and Loading Information label. This label is attached to the vehicle's center pillar (B-pillar). See *Loading Your Vehicle on page 327*.

Different Size Tires and Wheels

If you add wheels or tires that are a different size than your original equipment wheels and tires, this may affect the way your vehicle performs, including its braking, ride and handling characteristics, stability, and resistance to rollover. Additionally, if your vehicle has electronic systems such as, anti-lock brakes, traction control, and electronic stability control, the performance of these systems can be affected.

⚠ CAUTION:

If you add different sized wheels, your vehicle may not provide an acceptable level of performance and safety if tires not recommended for those wheels are selected. You may increase the chance that you will crash and suffer serious injury. Only use GM specific wheel and tire systems developed for your vehicle, and have them properly installed by a GM certified technician.

See *Buying New Tires on page 412* and *Accessories and Modifications on page 347* for additional information.

Uniform Tire Quality Grading

Quality grades can be found where applicable on the tire sidewall between tread shoulder and maximum section width. For example:

Treadwear 200 Traction AA Temperature A

The following information relates to the system developed by the United States National Highway Traffic Safety Administration (NHTSA), which grades tires by treadwear, traction, and temperature performance. This applies only to vehicles sold in the United States. The grades are molded on the sidewalls of most passenger car tires. The Uniform Tire Quality Grading (UTQG) system does not apply to deep tread, winter-type snow tires, space-saver, or temporary use spare tires, tires with nominal rim diameters of 10 to 12 inches (25 to 30 cm), or to some limited-production tires.

While the tires available on General Motors passenger cars and light trucks may vary with respect to these grades, they must also conform to federal safety requirements and additional General Motors Tire Performance Criteria (TPC) standards.

Treadwear

The treadwear grade is a comparative rating based on the wear rate of the tire when tested under controlled conditions on a specified government test course. For example, a tire graded 150 would wear one and a half (1.5) times as well on the government course as a tire graded 100. The relative performance of tires depends upon the actual conditions of their use, however, and may depart significantly from the norm due to variations in driving habits, service practices, and differences in road characteristics and climate.

Traction – AA, A, B, C

The traction grades, from highest to lowest, are AA, A, B, and C. Those grades represent the tire's ability to stop on wet pavement as measured under controlled conditions on specified government test surfaces of asphalt and concrete. A tire marked C may have poor traction performance.

Warning: The traction grade assigned to this tire is based on straight-ahead braking traction tests, and does not include acceleration, cornering, hydroplaning, or peak traction characteristics.

Temperature – A, B, C

The temperature grades are A (the highest), B, and C, representing the tire's resistance to the generation of heat and its ability to dissipate heat when tested under controlled conditions on a specified indoor laboratory test wheel. Sustained high temperature can cause the material of the tire to degenerate and reduce tire life, and excessive temperature can lead to sudden tire failure. The grade C corresponds to a level of performance which all passenger car tires must meet under the Federal Motor Vehicle Safety Standard No. 109. Grades B and A represent higher levels of performance on the laboratory test wheel than the minimum required by law.

Warning: The temperature grade for this tire is established for a tire that is properly inflated and not overloaded. Excessive speed, underinflation, or excessive loading, either separately or in combination, can cause heat buildup and possible tire failure.

Wheel Alignment and Tire Balance

The tires and wheels on your vehicle were aligned and balanced carefully at the factory to give you the longest tire life and best overall performance. Adjustments to wheel alignment and tire balancing will not be necessary on a regular basis. However, if you notice unusual tire wear or your vehicle pulling to one side or the other, the alignment may need to be checked. If you notice your vehicle vibrating when driving on a smooth road, your tires and wheels may need to be rebalanced. See your dealer for proper diagnosis.

Wheel Replacement

Replace any wheel that is bent, cracked or badly rusted or corroded. If wheel nuts keep coming loose, the wheel, wheel bolts and wheel nuts should be replaced. If the wheel leaks air, replace it. Some aluminum wheels can sometimes be repaired. See your GM dealer if any of these conditions exist.

Your GM dealer will know the kind of wheel you need.

Each new wheel should have the same load-carrying capacity, diameter, width, offset and be mounted the same way as the one it replaces.

If you need to replace any of your wheels, wheel bolts or wheel nuts, replace them only with new GM original equipment parts. This way, you will be sure to have the right wheel, wheel bolts and wheel nuts for your vehicle.

⚠ CAUTION:

Using the wrong replacement wheels, wheel bolts, or wheel nuts on your vehicle can be dangerous. It could affect the braking and handling of your vehicle, make your tires lose air and make you lose control. You could have a collision in which you or others could be injured. Always use the correct wheel, wheel bolts, and wheel nuts for replacement.

Notice: **The wrong wheel can also cause problems with bearing life, brake cooling, speedometer or odometer calibration, headlamp aim, bumper height, vehicle ground clearance, and tire or tire chain clearance to the body and chassis.**

If your vehicle is a professional model, the wheels have a unique offset and bolt hole diameter. Each of the wheels on the professional vehicle have eight wheels nuts. The wheels on the non-professional vehicle have five wheel nuts. See *Changing a Flat Tire on page 420* for more information.

Used Replacement Wheels

⚠ CAUTION:

Putting a used wheel on your vehicle is dangerous. You cannot know how it has been used or how far it has been driven. It could fail suddenly and cause a crash. If you have to replace a wheel, use a new GM original equipment wheel.

Tire Chains

⚠ CAUTION:

Do not use tire chains. There is not enough clearance. Tire chains used on a vehicle without the proper amount of clearance can cause damage to the brakes, suspension or other vehicle parts. The area damaged by the tire chains could cause you to lose control of your vehicle and you or others may be injured in a crash.

CAUTION: (Continued)

CAUTION: (Continued)

Use another type of traction device only if its manufacturer recommends it for use on your vehicle and tire size combination and road conditions. Follow that manufacturer's instructions. To help avoid damage to your vehicle, drive slowly, readjust or remove the device if it is contacting your vehicle, and do not spin your vehicle's wheels. If you do find traction devices that will fit, install them on the front tires.

If a Tire Goes Flat

It is unusual for a tire to blowout while you are driving, especially if you maintain your vehicle's tires properly. If air goes out of a tire, it is much more likely to leak out slowly. But if you should ever have a blowout, here are a few tips about what to expect and what to do:

If a front tire fails, the flat tire will create 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 out of the traffic lane.

A rear blowout, particularly on a curve, acts much like a skid and may require the same correction you would use in a skid. In any rear blowout remove your foot from the accelerator pedal. Get the vehicle under control by steering the way you want the vehicle to go. It may be very bumpy and noisy, but you can still steer. Gently brake to a stop, well off the road if possible.

⚠ CAUTION:

Lifting a vehicle and getting under it to do maintenance or repairs is dangerous without the appropriate safety equipment and training. The jack provided with your vehicle is designed only for changing a flat tire. If it is used for anything else, you or others could be badly injured or killed if the vehicle slips off the jack. Use the jack provided with your vehicle only for changing a flat tire.

If a tire goes flat, the next part shows how to use the jacking equipment to change a flat tire safely.

Changing a Flat Tire

If a tire goes flat, avoid further tire and wheel damage by driving slowly to a level place. Turn on your vehicle's hazard warning flashers. See *Hazard Warning Flashers on page 158* for more information.

⚠ CAUTION:

Changing a tire can be dangerous. The vehicle can slip off the jack and roll over or fall on you or other people. You and they could be badly injured or even killed. Find a level place to change your tire.
To help prevent the vehicle from moving:

1. **Set the parking brake firmly.**
2. **Put the shift lever in PARK (P).**

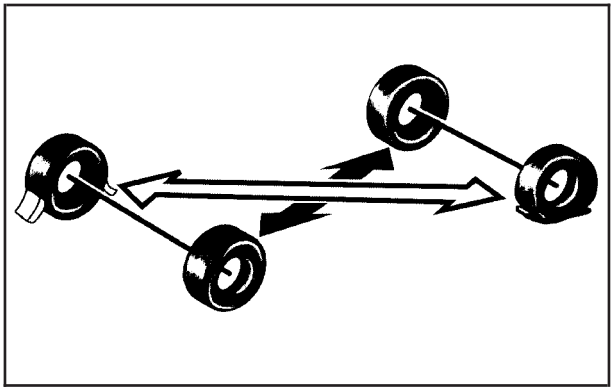
CAUTION: (Continued)

CAUTION: (Continued)

3. **Turn off the engine and do not restart while the vehicle is raised.**
4. **Do not allow passengers to remain in the vehicle.**

To be even more certain the vehicle will not move, you should put blocks at the front and rear of the tire farthest away from the one being changed. That would be the tire, on the other side, at the opposite end of the vehicle.

When your vehicle has a flat tire, use the following example as a guide to assist you in the placement of wheel blocks.

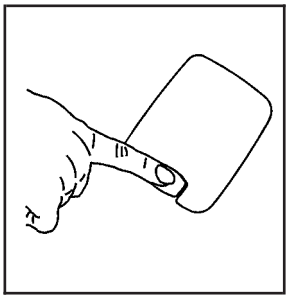


The following information will tell you next how to use the jack and change a tire.

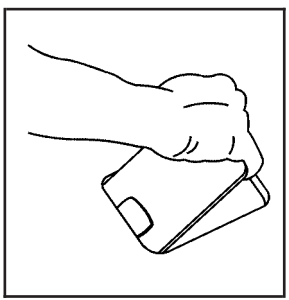
Removing the Spare Tire and Tools

The equipment you will need is in the trunk. To access the equipment, do the following:

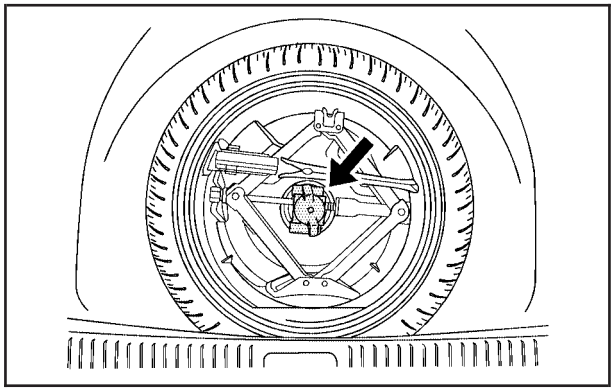
1. Open the trunk. See *Trunk on page 102* for more information.



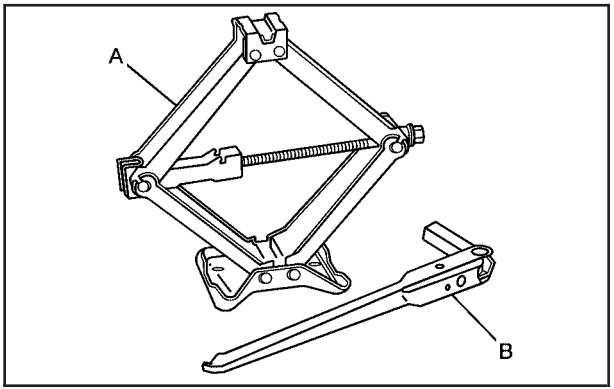
2. Press the area at the front of the handle located on the cover so that the back edge raises.



3. Grab the handle and remove the cover.

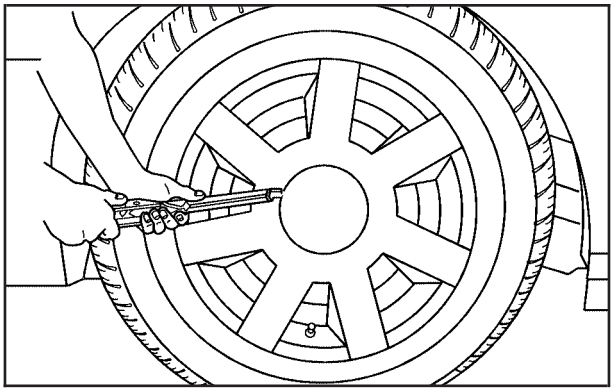


4. Turn the wing nut to remove the retainer that holds the wrench and jack.
5. Remove the wheel wrench, jack and spare tire from the trunk. See *Spare Tire on page 430* for more information.

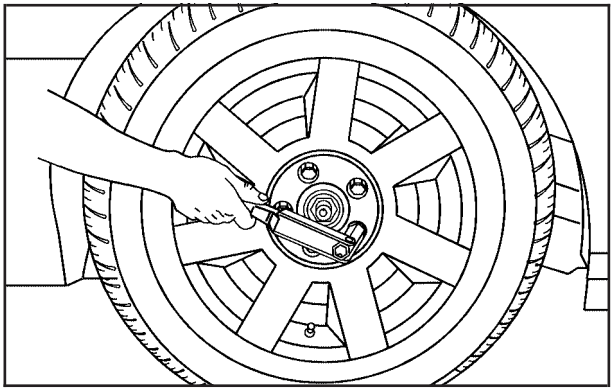


The tools you will be using include the jack (A) and the wheel wrench (B).

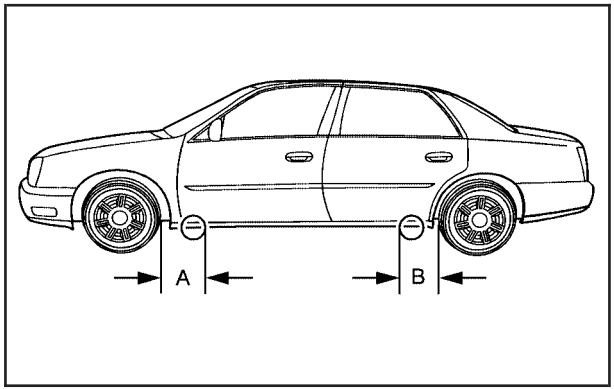
Removing the Flat Tire and Installing the Spare Tire



1. For models having aluminum wheels with a center wheel cover, use the flat end of the wheel wrench to gently pry the wheel covers off. Be careful not to scratch the aluminum wheel edge and do not try to remove it with your hands. Then loosen the wheel nuts with the wheel wrench. Do not remove them yet.



2. For models with exposed lug nuts, loosen them using the wheel wrench. Do not remove them yet.



3. Find the jacking location from the diagram above and use the corresponding cutouts located in the plastic molding.

   The front location is (A) 8.5 inches (21 cm) from the rear edge of the front wheel well, and the rear location (B) is 3.5 inches (8.5 cm) from the front edge of the rear wheel well.

   The notches may also be labeled JACK with an arrow pointing to the jacking location on the vehicle.

⚠ CAUTION:

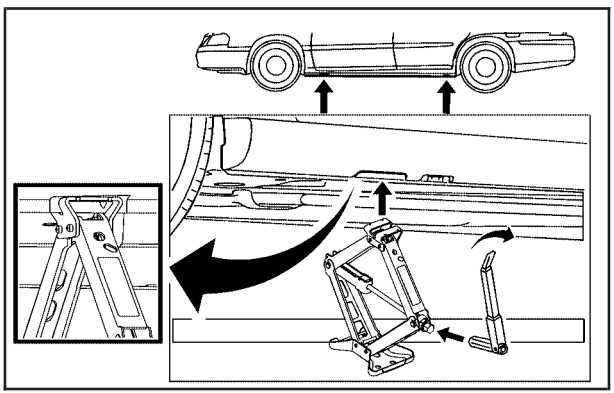
Getting under a vehicle when it is jacked up is dangerous. If the vehicle slips off the jack you could be badly injured or killed. Never get under a vehicle when it is supported only by a jack.

⚠ CAUTION:

Raising your vehicle with the jack improperly positioned can damage the vehicle and even make the vehicle fall. To help avoid personal injury and vehicle damage, be sure to fit the jack lift head into the proper location before raising the vehicle.

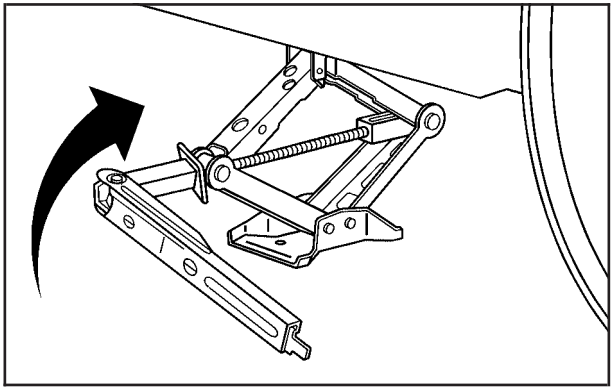
Notice: **If you position the jack under the rocker molding and attempt to raise the vehicle, you could break the molding and/or cause other damage to your vehicle. Always position the jack so that when the jack head is raised, it will fit firmly in the notch located inboard from the rocker molding.**

4. Turn the jack handle counterclockwise to lower the jack lift head until the jack fits under the vehicle.



5. Raise the jack until the metal flange fits firmly into the channel of the jack head.

6. Put the spare tire near you.

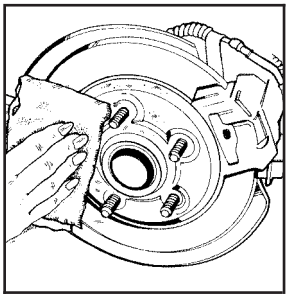


7. Raise the vehicle by turning the jack handle clockwise. Raise the vehicle far enough off the ground for the spare tire to fit under the vehicle.

8. Remove all wheel nuts and take off the flat tire.

⚠ CAUTION:

Rust or dirt on the wheel, or on the parts to which it is fastened, can make the wheel nuts become loose after time. The wheel could come off and cause an accident. When you change a wheel, remove any rust or dirt from the places where the wheel attaches to the vehicle. In an emergency, you can use a cloth or a paper towel to do this; but be sure to use a scraper or wire brush later, if needed, to get all the rust or dirt off.

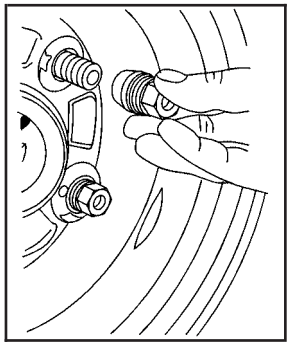


9. Remove any rust or dirt from the wheel bolts, mounting surfaces, and spare wheel.

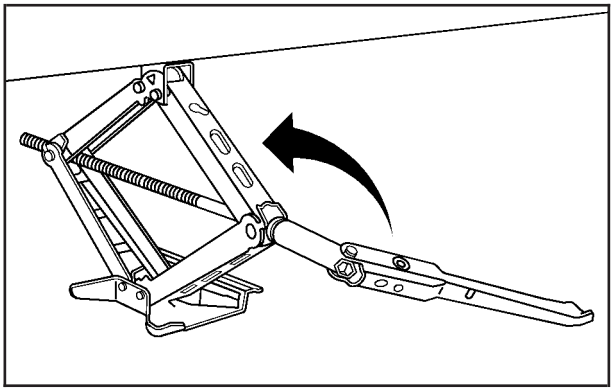
10. Place the spare tire on the wheel-mounting surface.

⚠ CAUTION:

Never use oil or grease on studs or nuts. If you do, the nuts might come loose. Your wheel could fall off, causing a serious accident.



11. Put the wheel nuts back on with the rounded end of the nuts toward the wheel. Tighten each nut by hand until the wheel is held against the hub.

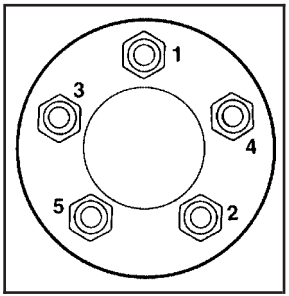


12. Lower the vehicle by turning the jack handle counterclockwise. Lower the jack completely.

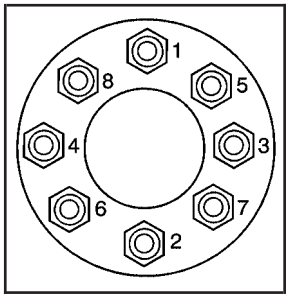
⚠ CAUTION:

Incorrect wheel nuts or improperly tightened wheel nuts can cause the wheel to come loose and even come off. This could lead to an accident. Be sure to use the correct wheel nuts. If you have to replace them, be sure to get new GM original equipment wheel nuts. Stop somewhere as soon as you can and have the nuts tightened with a torque wrench to the proper torque specification. See *Capacities and Specifications on page 452* for wheel nut torque specification.

Notice: **Improperly tightened wheel nuts can lead to brake pulsation and rotor damage. To avoid expensive brake repairs, evenly tighten the wheel nuts in the proper sequence and to the proper torque specification. See *Capacities and Specifications on page 452* for the wheel nut torque specification.**



5-Wheel Nuts



8-Wheel Nuts

13. Tighten the wheel nuts firmly in a crisscross sequence as shown.

    If your vehicle is equipped with wheel nut covers, screw the nut covers on with your fingers, then tighten one-quarter turn with the wheel wrench.

Notice: **Wheel covers will not fit on your compact spare. If you try to put a wheel cover on the compact spare, you could damage the cover or the spare.**

Do not try to put a wheel cover on your compact spare tire, if equipped. It will not fit. Store the wheel cover and lug nut caps in the trunk until you have the flat tire repaired or replaced.

Storing a Flat or Spare Tire and Tools

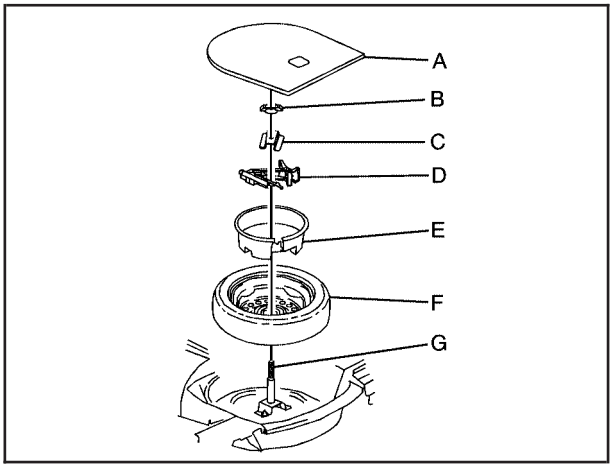
⚠ CAUTION:

Storing a jack, a tire, 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 all these in the proper place.

After you have put the spare tire on your vehicle, store the flat tire in your trunk.

Store the flat tire as far forward in the trunk as possible. Store the jack and wheel wrench in their compartment in the trunk. For storage, the jack must be raised until the screw end is flush with the edge of the jack.

The compact spare is for temporary use only. Replace the compact spare tire with a full-size tire as soon as you can.



A. Cover
B. Wing Nut
C. Retainer
D. Jack and Wheel Wrench
E. Jack Container
F. Spare Tire
G. Bolt

1. Open the trunk. See *Trunk on page 102*
2. Reinstall the spare tire (F) making sure to line up the wheel center hole with the bolt (G) and place it on the compartment floor.

3. Insert the jack container (E) into the spare tire (F). Then insert the jack and wheel wrench (D) into the center of the spare tire making sure to line up the wheel nut hole with the bolt (G) on the compartment floor.
4. Secure the spare tire and the jack container with the retainer (C) and then the wing nut (B).
5. Reinstall the spare tire cover (A).

Spare Tire

Compact Spare Tire

Your vehicle may have a compact spare tire. Although the compact spare tire was fully inflated when the vehicle was new, it can lose air after a time. Check the inflation pressure regularly. It should be 60 psi (420 kPa).

After installing the compact spare on the vehicle, stop as soon as possible and make sure the spare tire is correctly inflated. The compact spare is made to perform well at speeds up to 65 mph (105 km/h) for distances up to 3,000 miles (5 000 km), so you can finish your trip and have the full-size tire repaired or replaced at your convenience.

Of course, it is best to replace the spare with a full-size tire as soon as possible. The spare tire will last longer and be in good shape in case it is needed again.

Notice: **When the compact spare is installed, do not take your vehicle through an automatic car wash with guide rails. The compact spare can get caught on the rails. That can damage the tire and wheel, and maybe other parts of your vehicle.**

Do not use the compact spare on other vehicles.

And do not mix the compact spare tire or wheel with other wheels or tires. They will not fit. Keep the spare tire and its wheel together.

Notice: **Tire chains will not fit your compact spare. Using them can damage your vehicle and can damage the chains too. Do not use tire chains on your compact spare.**

Spare Tire

Your vehicle may have a spare tire, which, when new, was fully inflated. A spare tire may lose air over time, so check its inflation pressure regularly. See *Inflation - Tire Pressure on page 402* and *Loading Your Vehicle on page 327* for information regarding proper tire inflation and loading your vehicle. For instructions on how to remove, install or store a spare tire, see *Removing the Flat Tire and Installing the Spare Tire on page 423*.

After installing the spare tire on your vehicle, you should stop as soon as possible and make sure the spare is correctly inflated. Have the damaged or flat road tire repaired or replaced as soon as you can and installed back onto your vehicle. This way, a spare tire will be available in case you need it again.

Your vehicle may have a different size spare tire than the road tire originally installed on your vehicle. This spare tire was developed for use on your vehicle, so it is all right to drive on it.

If your vehicle has a spare tire that does not match your vehicle's original road tires and wheels in size and type, do not include the spare in the tire rotation.

Appearance Care

Cleaning the Inside of Your Vehicle

Your vehicle's interior will continue to look its best if it is cleaned often. Although not always visible, dust and dirt can accumulate on your upholstery. Dirt can damage carpet, fabric, leather, and plastic surfaces. Regular vacuuming is recommended to remove particles from your upholstery. It is important to keep your upholstery from becoming and remaining heavily soiled. Soils should be removed as quickly as possible. Your vehicle's interior may experience extremes of heat that could cause stains to set rapidly.

Lighter colored interiors may require more frequent cleaning. Use care because newspapers and garments that transfer color to your home furnishings may also transfer color to your vehicle's interior.

When cleaning your vehicle's interior, only use cleaners specifically designed for the surfaces being cleaned. Permanent damage may result from using cleaners on surfaces for which they were not intended. Use glass cleaner only on glass.

Remove any accidental over-spray from other surfaces immediately. To prevent over-spray, apply cleaner directly to the cleaning cloth.

Notice: **If you use abrasive cleaners when cleaning glass surfaces on your vehicle, you could scratch the glass and/or cause damage to the integrated radio antenna and the rear window defogger. When cleaning the glass on your vehicle, use only a soft cloth and glass cleaner.**

Many cleaners contain solvents that may become concentrated in your vehicle's breathing space. Before using cleaners, read and adhere to all safety instructions on the label. While cleaning your vehicle's interior, maintain adequate ventilation by opening your vehicle's doors and windows.

Dust may be removed from small buttons and knobs using a small brush with soft bristles.

Your dealer has a product for cleaning your vehicle's glass. Should it become necessary, you can also obtain a product from your dealer to remove odors from your vehicle's upholstery.

Do not clean your vehicle using the following cleaners or techniques:

- Never use a knife or any other sharp object to remove a soil from any interior surface.
- Never use a stiff brush. It can cause damage to your vehicle's interior surfaces.
- Never apply heavy pressure or rub aggressively with a cleaning cloth. Use of heavy pressure can damage your interior and does not improve the effectiveness of soil removal.
- Use only mild, neutral-pH soaps. Avoid laundry detergents or dishwashing soaps with degreasers. Using too much soap will leave a residue that leaves streaks and attracts dirt. For liquid cleaners, about 20 drops per gallon (3.78 L) of water is a good guide.
- Do not heavily saturate your upholstery while cleaning.
- Damage to your vehicle's interior may result from the use of many organic solvents such as naptha, alcohol, etc.

Fabric/Carpet

Use a vacuum cleaner with a soft brush attachment frequently to remove dust and loose dirt. A canister vacuum with a beater bar in the nozzle may only be used on floor carpet and carpeted floor mats. For soils, always try to remove them first with plain water or club soda. Before cleaning, gently remove as much of the soil as possible using one of the following techniques:

- For liquids: gently blot the remaining soil with a paper towel. Allow the soil to absorb into the paper towel until no more can be removed.
- For solid dry soils: remove as much as possible and then vacuum.

To clean, use the following instructions:

1. Saturate a lint-free, clean white cloth with water or club soda.
2. Wring the cloth to remove excess moisture.
3. Start on the outside edge of the soil and gently rub toward the center. Continue cleaning, using a clean area of the cloth each time it becomes soiled.
4. Continue to gently rub the soiled area until the cleaning cloth remains clean.
5. If the soil is not completely removed, use a mild soap solution and repeat the cleaning process that was used with plain water.

If any of the soil remains, a commercial fabric cleaner or spot lifter may be necessary. When a commercial upholstery cleaner or spot lifter is to be used, test a small hidden area for colorfastness first. If the locally cleaned area gives any impression that a ring formation may result, clean the entire surface.

After the cleaning process has been completed, a paper towel can be used to blot excess moisture from the fabric or carpet.

Leather

A soft cloth dampened with water may be used to remove dust. If a more thorough cleaning is necessary, a soft cloth dampened with a mild soap solution can be used. Allow the leather to dry naturally. Do not use heat to dry. Never use steam to clean leather. Never use spot lifters or spot removers on leather. Many commercial leather cleaners and coatings that are sold to preserve and protect leather may permanently change the appearance and feel of your leather and are not recommended. Do not use silicone or wax-based products, or those containing organic solvents to clean your vehicle's interior because they can alter the appearance by increasing the gloss in a non-uniform manner. Never use shoe polish on your leather.

Instrument Panel, Vinyl, and Other Plastic Surfaces

A soft cloth dampened with water may be used to remove dust. If a more thorough cleaning is necessary, a clean soft cloth dampened with a mild soap solution can be used to gently remove dust and dirt. Never use spot lifters or removers on plastic surfaces. Many commercial cleaners and coatings that are sold to preserve and protect soft plastic surfaces may permanently change the appearance and feel of your interior and are not recommended. Do not use silicone or wax-based products, or those containing organic solvents to clean your vehicle's interior because they can alter the appearance by increasing the gloss in a non-uniform manner.

Some commercial products may increase gloss on your instrument panel. The increase in gloss may cause annoying reflections in the windshield and even make it difficult to see through the windshield under certain conditions.

Wood Panels

Use a clean cloth moistened in warm, soapy water (use mild dish washing soap). Dry the wood immediately with a clean cloth.

Speaker Covers

Vacuum around a speaker cover gently, so that the speaker will not be damaged. Clean spots with just water and mild soap.

Care of Safety Belts

Keep belts clean and dry.

⚠ CAUTION:

Do not bleach or dye safety belts. If you do, it may severely weaken them. In a crash, they might not be able to provide adequate protection. Clean safety belts only with mild soap and lukewarm water.

Weatherstrips

Silicone grease on weatherstrips will make them last longer, seal better, and not stick or squeak. Apply silicone grease with a clean cloth. During very cold, damp weather frequent application may be required. See *Recommended Fluids and Lubricants on page 467*.

Washing Your Vehicle

The paint finish on the vehicle provides beauty, depth of color, gloss retention, and durability.

The best way to preserve the vehicle's finish is to keep it clean by washing it often with lukewarm or cold water.

Do not wash the vehicle in the direct rays of the sun. Use a car washing soap. Do not use strong soaps or chemical detergents. Be sure to rinse the vehicle well, removing all soap residue completely. Approved cleaning products can be obtained from your dealer. See *Vehicle Care/Appearance Materials on page 440*. Do not use cleaning agents that are petroleum based, or that contain acid or abrasives.

All cleaning agents should be flushed promptly and not allowed to dry on the surface, or they could stain. Dry the finish with a soft, clean chamois or an all-cotton towel to avoid surface scratches and water spotting.

High pressure car washes may cause water to enter the vehicle.

Cleaning Exterior Lamps/Lenses

Use only lukewarm or cold water, a soft cloth and a car washing soap to clean exterior lamps and lenses. Follow instructions under *Washing Your Vehicle on page 435*.

Finish Care

Occasional waxing or mild polishing of the vehicle by hand may be necessary to remove residue from the paint finish. GM-approved cleaning products can be obtained from your dealer. See *Vehicle Care/Appearance Materials on page 440*.

Notice: **Machine compounding or aggressive polishing on a basecoat/clearcoat paint finish may damage it. Use only non-abrasive waxes and polishes that are made for a basecoat/clearcoat paint finish on your vehicle.**

The vehicle has a “basecoat/clearcoat” paint finish. The clearcoat gives more depth and gloss to the colored basecoat. Always use waxes and polishes that are non-abrasive and made for a basecoat/clearcoat paint finish.

Foreign materials such as calcium chloride and other salts, ice melting agents, road oil and tar, tree sap, bird droppings, chemicals from industrial chimneys, etc., can damage the vehicle’s finish if they remain on painted surfaces. Wash the vehicle as soon as possible. If necessary, use non-abrasive cleaners that are marked safe for painted surfaces to remove foreign matter.

Exterior painted surfaces are subject to aging, weather, and chemical fallout that can take their toll over a period of years. To help keep the paint finish looking new, keep the vehicle in a garage or covered whenever possible.

Protecting Exterior Bright Metal Parts

Bright metal parts should be cleaned regularly to keep their luster. Washing with water is all that is usually needed. However, you may use chrome polish on chrome or stainless steel trim, if necessary.

Use special care with aluminum trim. To avoid damaging protective trim, never use auto or chrome polish, steam or caustic soap to clean aluminum. A coating of wax, rubbed to high polish, is recommended for all bright metal parts.

Windshield and Wiper Blades

If the windshield is not clear after using the windshield washer, or if the wiper blade chatters when running, wax, sap, or other material may be on the blade or windshield.

Clean the outside of the windshield with a glass cleaning liquid or powder and water solution. The windshield is clean if beads do not form when it is rinsed with water.

Grime from the windshield will stick to the wiper blades and affect their performance. Clean the blade by wiping vigorously with a cloth soaked in full-strength windshield washer solvent. Then rinse the blade with water.

Check the wiper blades and clean them as necessary; replace blades that look worn.

Aluminum or Chrome-Plated Wheels

Your vehicle may have either aluminum or chrome-plated wheels.

Keep the wheels clean using a soft clean cloth with mild soap and water. Rinse with clean water. After rinsing thoroughly, dry with a soft clean towel. A wax may then be applied.

Notice: **If you use strong soaps, chemicals, abrasive polishes, cleaners, brushes, or cleaners that contain acid on aluminum or chrome-plated wheels, you could damage the surface of the wheel(s). The repairs would not be covered by your warranty. Use only GM-approved cleaners on aluminum or chrome-plated wheels.**

The surface of these wheels is similar to the painted surface of your vehicle. Do not use strong soaps, chemicals, abrasive polishes, abrasive cleaners, cleaners with acid, or abrasive cleaning brushes on them because you could damage the surface. Do not use chrome polish on aluminum wheels.

Notice: **Using chrome polish on aluminum wheels could damage the wheels. The repairs would not be covered by your warranty. Use chrome polish on chrome wheels only.**

Use chrome polish only on chrome-plated wheels, but avoid any painted surface of the wheel, and buff off immediately after application.

Notice: **If you drive your vehicle through an automatic car wash that has silicone carbide tire cleaning brushes, you could damage the aluminum or chrome-plated wheels. The repairs would not be covered by your warranty. Never drive a vehicle equipped with aluminum or chrome-plated wheels through an automatic car wash that uses silicone carbide tire cleaning brushes.**

Do not take your vehicle through an automatic car wash that has silicone carbide tire cleaning brushes. These brushes can also damage the surface of these wheels.

Tires

To clean the tires, use a stiff brush with tire cleaner.

Notice: **Using petroleum-based tire dressing products on your vehicle may damage the paint finish and/or tires. When applying a tire dressing, always wipe off any overspray from all painted surfaces on your vehicle.**

Sheet Metal Damage

If the vehicle is damaged and requires sheet metal repair or replacement, make sure the body repair shop applies anti-corrosion material to parts repaired or replaced to restore corrosion protection.

Original manufacturer replacement parts will provide the corrosion protection while maintaining the warranty.

Finish Damage

Any stone chips, fractures or deep scratches in the finish should be repaired right away. Bare metal will corrode quickly and may develop into major repair expense.

Minor chips and scratches can be repaired with touch-up materials available from your dealer. Larger areas of finish damage can be corrected in your dealer's body and paint shop.

Underbody Maintenance

Chemicals used for ice and snow removal and dust control can collect on the underbody. If these are not removed, corrosion and rust can develop on the underbody parts such as fuel lines, frame, floor pan, and exhaust system even though they have corrosion protection.

At least every spring, flush these materials from the underbody with plain water. Clean any areas where mud and debris can collect. Dirt packed in close areas of the frame should be loosened before being flushed. Your dealer or an underbody car washing system can do this for you.

Chemical Paint Spotting

Some weather and atmospheric conditions can create a chemical fallout. Airborne pollutants can fall upon and attack painted surfaces on the vehicle. This damage can take two forms: blotchy, ring-shaped discolorations, and small, irregular dark spots etched into the paint surface.

Although no defect in the paint job causes this, GM will repair, at no charge to the owner, the surfaces of new vehicles damaged by this fallout condition within 12 months or 12,000 miles (20 000 km) of purchase, whichever occurs first.

Vehicle Care/Appearance Materials

Description	Usage
Polishing Cloth Wax-Treated	Interior and exterior polishing cloth.
Tar and Road Oil Remover	Removes tar, road oil, and asphalt.
Chrome Cleaner and Polish	Use on chrome or stainless steel.
White Sidewall Tire Cleaner	Removes soil and black marks from whitewalls.
Vinyl Cleaner	Cleans vinyl.
Glass Cleaner	Removes dirt, grime, smoke and fingerprints.
Chrome and Wire Wheel Cleaner	Removes dirt and grime from chrome wheels and wire wheel covers.
Finish Enhancer	Removes dust, fingerprints, and surface contaminants. Spray on and wipe off.

Description	Usage
Swirl Remover Polish	Removes swirl marks, fine scratches, and other light surface contamination.
Cleaner Wax	Removes light scratches and protects finish.
Foaming Tire Shine Low Gloss	Cleans, shines, and protects in one step. No wiping necessary.
Wash Wax Concentrate	Medium foaming shampoo. Cleans and lightly waxes. Biodegradable and phosphate free.
Spot Lifter	Quickly removes spots and stains from carpets, vinyl, and cloth upholstery.
Odor Eliminator	Odorless spray odor eliminator used on fabrics, vinyl, leather and carpet.

Vehicle Identification

Vehicle Identification Number (VIN)

This is the legal identifier for your vehicle. It appears on a plate in the front corner of the instrument panel, on the driver's side. You can see it if you look through the windshield from outside your vehicle. The VIN also appears on the Vehicle Certification and Service Parts labels and the certificates of title and registration.

Engine Identification

The eighth character in the VIN is the engine code. This code will help you identify your vehicle's engine, specifications, and replacement parts.

Service Parts Identification Label

You will find this label on your spare tire cover. It is very helpful if you ever need to order parts. On this label, you will find the following:

- VIN
- Model designation
- Paint information
- Production options and special equipment

Do not remove this label from the vehicle.

Electrical System

Add-On Electrical Equipment

Notice: **Do not add anything electrical to your vehicle unless you check with your dealer first. Some electrical equipment can damage your vehicle and the damage would not be covered by your warranty. Some add-on electrical equipment can keep other components from working as they should.**

Add-on equipment can drain your vehicle's battery, even if your vehicle is not operating.

Your vehicle has an airbag system. Before attempting to add anything electrical to your vehicle, see *Servicing Your Airbag-Equipped Vehicle on page 82*.

Headlamp Wiring

The headlamp wiring system has four individual fuses. An electrical overload will cause the lamps to go on and off, or in some cases to remain off. If this happens, have the headlamp wiring checked right away.

Windshield Wiper Fuses

The windshield wiper motor is protected by an internal circuit breaker. If the wiper motor overheats due to heavy snow, the wipers will stop until the motor cools and will then restart.

A fuse powers the wiper motor. If the fuse blows, there is an electrical problem. Be sure to have it fixed.

Power Windows and Other Power Options

Circuit breakers protect the power windows and power seats. When the current load is too heavy, the circuit breaker opens and closes, protecting the circuit until the problem is fixed or goes away.

Fuses and Circuit Breakers

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

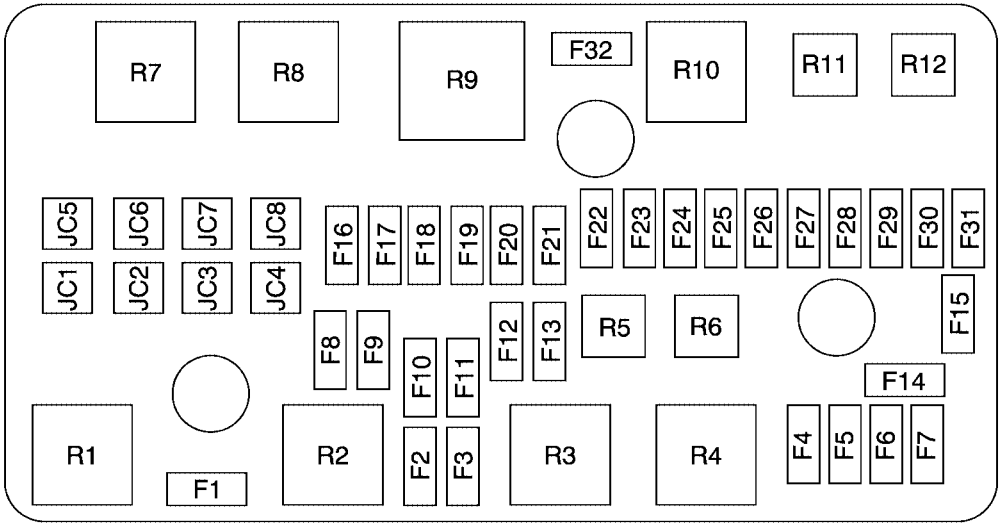
Look at the silver-colored band inside the fuse. If the band is broken or melted, replace the fuse. Be sure you replace a bad fuse with a new one of the identical size and rating. If a fuse should blow, see your dealer for service immediately.

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. Pick some feature of your vehicle that you can get along without — like the radio or cigarette lighter — and use its fuse, if it is the correct amperage. Replace it as soon as you can.

The fuses are located in two fuse blocks, one located in the engine compartment, and the other under the rear seat. If a fuse should blow, have your vehicle serviced by your dealer immediately.

Underhood Fuse Block

The underhood fuse block is located on the passenger’s side of the engine compartment. Remove the fuse cover and secondary service cover to access the fuse block.



Fuses	Usage
F1	Spare
F2	Driver's Side Low-Beam
F3	Passenger's Side Low-Beam
F4	Airbag Ignition

Fuses	Usage
F5	Engine Control Module
F6	Transaxle Ignition
F7	Spare
F8	Spare

Fuses	Usage
F9	Spare
F10	Passenger's Side High-Beam Headlamp
F11	Driver's Side High-Beam Headlamp
F12	Windshield Washer Pump
F13	Spare
F14	Climate Controls, Instrument Panel Cluster
F15	Spare
F16	Fog Lamps
F17	Horn
F18	Windshield Wiper
F19	Driver's Side Corner Lamp
F20	Passenger's Side Corner Lamp
F21	Oxygen Sensor
F22	Powertrain
F23	Engine Control Module (ECM), Crank
F24	Injector Coil
F25	Injector Coil
F26	Air Conditioning
F27	Air Solenoid
F28	Engine Control Module, Transaxle Control Module (ECM/TCM)
F29	Spare

Fuses	Usage
F30	Spare
F31	Spare
F32	Spare

J-Case Fuse	Usage
JC1	Heated Windshield Washer
JC2	Cooling Fan 1
JC3	Spare
JC4	Crank
JC5	Cooling Fan 2
JC6	Anti-lock Brake System 2
JC7	Anti-lock Brake System 1
JC8	Air Pump

Relays	Usage
R1	Cooling Fan 1
R2	Cooling Fan
R3	Crank
R4	Powertrain
R5	Spare
R6	Run/Crank

Relays	Usage
R7	Cooling Fan 2
R8	Windshield Wiper
R9	Air Pump
R10	Windshield Wiper High
R11	Air Conditioning
R12	Air Solenoid

Rear Underseat Fuse Block

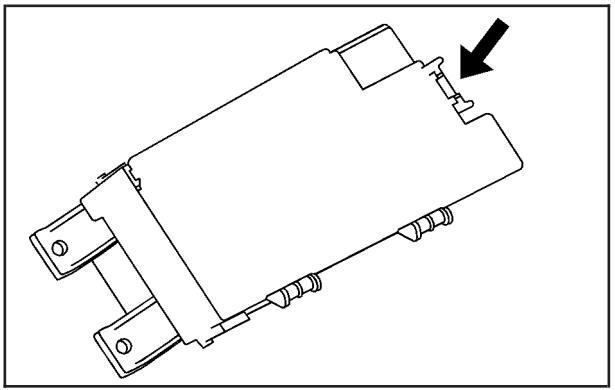
The rear fuse block is located under the rear seat on the driver's side. The rear seat cushion must be removed to access the rear fuse block.

Removing the Rear Seat Cushion

Notice: **If you touch the exposed wires with the metal on the seat cushion, you could cause a short that could damage the battery and or wires. Avoid contact between the rear seat and the fuse center whenever you remove or reinstall the rear seat. Do not remove covers from any of the covered parts, and do not store anything under the seats.**

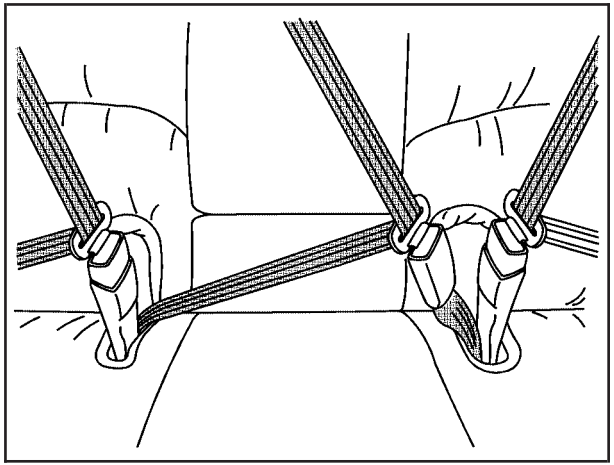
To remove the rear seat cushion, do the following:

1. Pull up on the front of the cushion to release the front hooks.
2. Pull the cushion up and out toward the front of the vehicle.



To access the fuse block, pull out and lift up on the cover latch, located at the end of the fuse block, near the battery cable.

To reinstall the rear seat cushion, do the following:



⚠ CAUTION:

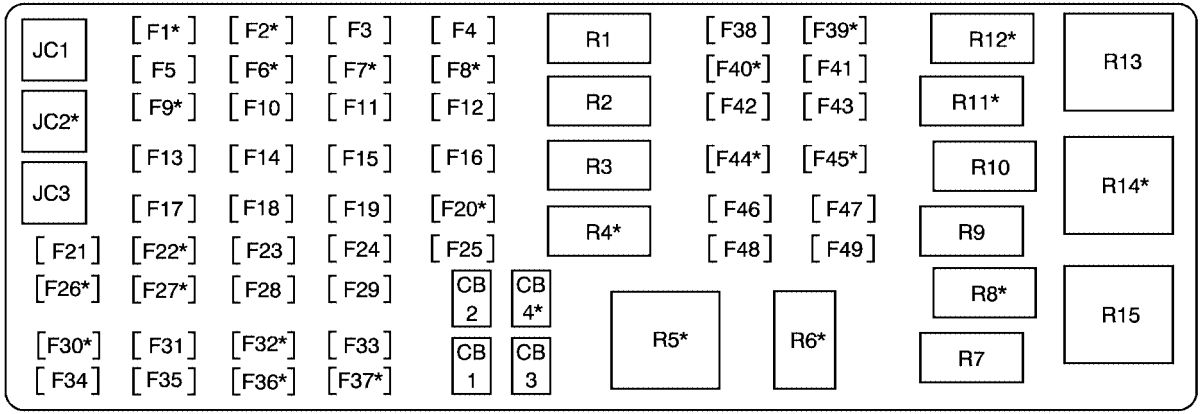
A safety belt that is not properly routed through the seat cushion or is twisted will not provide the protection needed in a

CAUTION: (Continued)

CAUTION: (Continued)

crash. If the safety belt has not been routed through the seat cushion at all, it will not be there to work for the next passenger. The person sitting in that position could be badly injured. After reinstalling the seat cushion, always check to be sure that the safety belts are properly routed and are not twisted.

1. Buckle the center passenger position safety belt, then route the safety belts through the proper slots in the seat cushion. Do not let the safety belts get twisted.
2. Slide the rear of the cushion up and under the seatback so the rear-locating guides hook into the wire loops on the back frame.
3. With the seat cushion lowered, push rearward and then press down on the seat cushion until the spring locks on both ends engage.
4. Check to make sure the safety belts are properly routed and that no portion of any safety belt is trapped under the seat.
   Also make sure the seat cushion is secured.



J-CaseFuses	Usage
JC1	Climate Control Fan
JC2	Rear Defogger (Option)
JC3	Automatic Leveling Control/Compressor

Fuses	Usage
F1	Amplifier
F2	Navigation - Japan (Option)
F3	Interior Lamps
F4	Courtesy/Passenger Side Front Turn Signal
F5	Canister Vent
F6	Magnetic Ride Control Module (Option)

Fuses	Usage
F7	Leveling Compressor (Option)
F8	Rear Seat Lumbar (Option)
F9	Door Unlatch - Limo (Option)
F10	Switch Dimmer
F11	Fuel Pump
F12	Body Control Module Logic
F13	Airbag
F14	Auxiliary Power Outlets
F15	Driver's Side Turn Signal
F16	Passenger Side Rear Turn Signal
F17	Not Used
F18	Center High-Mounted Stoplamp, Back-up Lamps
F19	Rear Door Locks
F20	Stoplamp - Export (Option)
F21	Radio, S-Band
F22	OnStar® (Option)
F23	Auxiliary Power Outlet, Cigarette Lighter, Console
F24	Driver Door Module
F25	Passenger Door Module
F26	Trunk Release (Option)
F27	Heated/Cooled Seats (Option)

Fuses	Usage
F28	Engine Control Module, Transaxle Control Module (ECM/TCM)
F29	Regulated Voltage Control Sense
F30	Not Used
F31	Instrument Panel Harness Module
F32	Rear Heated Seats (Option)
F33	Not Used
F34	Steering Wheel Illumination
F35	Body Harness Module
F36	Memory Seat Module Logic, Right Front Massage (Option)
F37	Object Detection Sensor (Option)
F38	Sunroof
F40	Shifter Solenoid (Option)
F41	Retained Accessory Power, Miscellaneous
F42	Driver's Side Park Lamp
F43	Passenger's Side Park Lamp
F44	Heated Steering Wheel (Option)
F45	Rear Climate Control (Option)
F46	Not Used
F47	Heated/Cooled Seats, Ignition 3
F48	Ignition Switch
F49	Not Used

Circuit Breakers	Usage
CB1	Front Passenger's Seat, Memory Seat Module
CB2	Driver's Power Seat, Memory Seat Module
CB3	Door Module, Power Windows
CB4	Memory Seat Module, Tilt/Telescoping Steering Wheel (Option)

Resistor	Usage
F39	Terminating Resistor

Relays	Usage
R1	Retained Accessory Power
R2	Park Lamps
R3	Run
R4	Park Lamps - Export (Option)
R5	Front Heating, Ventilation, Air Conditioning Fan (Option)
R6	Trunk Release (Option)
R7	Fuel Pump
R8	Door Unlatch, License Plate Lamp (Option)
R9	Door Lock
R10	Door Unlock
R11	Overhead Lamps (Option)
R12	Stoplamps (Option)
R13	Not Used
R14	Rear Defogger (Option)
R15	Electronic Leveling Control Compressor

Capacities and Specifications

The following approximate capacities are given in English and metric conversions. See *Recommended Fluids and Lubricants on page 467* for more information.

Application	Capacities	
	English	Metric
Air Conditioning Refrigerant	For the air conditioning system refrigerant charge amount, see the refrigerant caution label located under the hood. See your dealer for more information.	
Cooling System	12.6 qt	12.0 L
Engine Oil with Filter	7.5 qt	7.1 L
Fuel Tank	18.5 gal	70.0 L
Transaxle	7.0 qt	6.6 L
Wheel Nut Torque	100 lb ft	140 N•m
All capacities are approximate. When adding, be sure to fill to the approximate level as recommended in this manual. Recheck fluid level after filling.		

Engine Specifications

Engine	VIN Code	Transaxle	Spark Plug Gap
4.6L DOHC V8	Y	Automatic	0.050 inches (1.27 mm)
4.6L DOHC V8	9	Automatic	0.050 inches (1.27 mm)

Section 6 Maintenance Schedule

Maintenance Schedule 454
Introduction 454
Maintenance Requirements 454
Your Vehicle and the Environment 455
Using the Maintenance Schedule 455
Scheduled Maintenance 457
Additional Required Services 460
Maintenance Footnotes 461
Owner Checks and Services 463
At Each Fuel Fill 464
At Least Once a Month 464
At Least Once a Year 465
Recommended Fluids and Lubricants 467
Normal Maintenance Replacement Parts 468
Engine Drive Belt Routing 469
Maintenance Record 470

Maintenance Schedule

Introduction

Important: Keep engine oil at the proper level and change as recommended.

Have you purchased the GM Protection Plan? The Plan supplements your new vehicle warranties. See your Warranty and Owner Assistance booklet or your dealer for details.

Maintenance Requirements

Notice: **Maintenance intervals, checks, inspections, replacement parts, and recommended fluids and lubricants as prescribed in this manual are necessary to keep your vehicle in good working condition. Any damage caused by failure to follow scheduled maintenance may not be covered by warranty.**

Your Vehicle and the Environment

Proper vehicle maintenance not only helps to keep your vehicle in good working condition, but also helps the environment. All recommended maintenance is important. Improper vehicle maintenance can even affect the quality of the air we breathe. Improper fluid levels or the wrong tire inflation can increase the level of emissions from your vehicle. To help protect our environment, and to keep your vehicle in good condition, be sure to maintain your vehicle properly.

Using the Maintenance Schedule

We at General Motors want to help you keep your vehicle in good working condition. But we do not know exactly how you will drive it. You may drive very short distances only a few times a week. Or you may drive long distances all the time in very hot, dusty weather. You may use your vehicle in making deliveries. Or you may drive it to work, to do errands, or in many other ways.

Because of all the different ways people use their vehicles, maintenance needs vary. You may need more frequent checks and replacements. So please read the following and note how you drive. If you have any questions on how to keep your vehicle in good condition, see your GM Goodwrench® dealer.

This schedule is for vehicles that:

- carry passengers and cargo within recommended limits. You will find these limits on the Tire and Loading Information label. See *Loading Your Vehicle on page 327*.
- are driven on reasonable road surfaces within legal driving limits.
- use the recommended fuel. See *Gasoline Octane on page 349*.

The services in *Scheduled Maintenance on page 457* should be performed when indicated. See *Additional Required Services on page 460* and *Maintenance Footnotes on page 461* for further information.

⚠ CAUTION:

Performing maintenance work on a vehicle can be dangerous. In trying to do some jobs, you can be seriously injured. Do your own maintenance work only if you have the required know-how and the proper tools and equipment for the job. If you have any doubt, see your GM Goodwrench® dealer to have a qualified technician do the work.

Some maintenance services can be complex. So, unless you are technically qualified and have the necessary equipment, you should have your GM Goodwrench® dealer do these jobs.

When you go to your GM Goodwrench® dealer for your service needs, you will know that GM-trained and supported service technicians will perform the work using genuine GM parts.

If you want to purchase service information, see *Service Publications Ordering Information on page 490*.

Owner Checks and Services on page 463 tells you what should be checked, when to check it, and what you can easily do to help keep your vehicle in good condition.

The proper replacement parts, fluids, and lubricants to use are listed in *Recommended Fluids and Lubricants on page 467* and *Normal Maintenance Replacement Parts on page 468*. When your vehicle is serviced, make sure these are used. All parts should be replaced and all necessary repairs done before you or anyone else drives the vehicle. We recommend the use of genuine GM parts.

Scheduled Maintenance

When the CHANGE ENGINE OIL SOON message in the Driver Information Center (DIC) comes on, it means that service is required for your vehicle. Have your vehicle serviced as soon as possible within the next 600 miles (1 000 km). It is possible that, if you are driving under the best conditions, the engine oil life system may not indicate that vehicle service is necessary for over a year. However, your engine oil and filter must be changed at least once a year and at this time the system must be reset. Your GM Goodwrench® dealer has GM-trained service technicians who will perform this work using genuine GM parts and reset the system.

If the engine oil life system is ever reset accidentally, you must service your vehicle within 3,000 miles (5 000 km) since your last service. Remember to reset the oil life system whenever the oil is changed. See *Engine Oil Life System on page 360* for information on the Engine Oil Life System and resetting the system.

When the CHANGE ENGINE OIL SOON message appears, certain services, checks, and inspections are required. Required services are described in the following for “Maintenance I” and “Maintenance II.” Generally, it is recommended that your first service be Maintenance I, your second service be Maintenance II, and that you alternate Maintenance I and Maintenance II thereafter. However, in some cases, Maintenance II may be required more often.

Maintenance I — Use Maintenance I if the CHANGE ENGINE OIL SOON message comes on within 10 months since the vehicle was purchased or Maintenance II was performed.

Maintenance II — Use Maintenance II if the previous service performed was Maintenance I. Always use Maintenance II whenever the message comes on 10 months or more since the last service or if the message has not come on at all for one year.

Scheduled Maintenance

Service	Maintenance I	Maintenance II
Change engine oil and filter. See *Engine Oil on page 357*. Reset oil life system. See *Engine Oil Life System on page 360. An Emission Control Service.*	•	•
Visually check for any leaks or damage. *See footnote (k).*	•	•
Inspect engine air cleaner filter. If necessary, replace filter. See *Engine Air Cleaner/Filter on page 362. See footnote (m).*		•
Rotate tires and check inflation pressures and wear. See *Tire Inspection and Rotation on page 410* and “Tire Wear Inspection” in *At Least Once a Month on page 464*.	•	•
Inspect brake system. *See footnote (a).*	•	•
Check engine coolant and windshield washer fluid levels and add fluid as needed.	•	•
Perform any needed additional services. See “Additional Required Services” in this section.	•	•
Inspect suspension and steering components. *See footnote (b).*		•
Inspect engine cooling system. *See footnote (c).*		•
Inspect wiper blades. *See footnote (d).*		•
Inspect restraint system components. *See footnote (e).*		•
Lubricate body components. *See footnote (f).*		•
Check transaxle fluid level and add fluid as needed.		•
Replace passenger compartment air filter. *See footnote (g).*		•

Additional Required Services

The following services should be performed at the first maintenance service (I or II) after the indicated miles (kilometers) shown for each item.

Additional Required Services

Service and Miles (Kilometers)	25,000 (40 000)	50,000 (80 000)	75,000 (120 000)	100,000 (160 000)	125,000 (200 000)	150,000 (240 000)
Inspect fuel system for damage or leaks.	•	•	•	•	•	•
Inspect exhaust system for loose or damaged components.	•	•	•	•	•	•
Replace engine air cleaner filter. See *Engine Air Cleaner/Filter on page 362*.		•		•		•
Throttle body service. *An Emission Control Service. See footnotes † and (l).*	•	•	•	•	•	•
Change automatic transaxle fluid and filter (severe service). *See footnote (h).*		•		•		•
Change automatic transaxle fluid and filter (normal service).						•
Replace spark plugs. *An Emission Control Service.*				•		
Except Professional Vehicle: Engine cooling system service (or every five years, whichever occurs first). *An Emission Control Service. See footnote (j).*						•

Additional Required Services (cont'd)

Service and Miles (Kilometers)	25,000 (40 000)	50,000 (80 000)	75,000 (120 000)	100,000 (160 000)	125,000 (200 000)	150,000 (240 000)
Professional Vehicle Only: Engine cooling system service (or every five years, whichever occurs first). *An Emission Control Service. See footnote (j).*			•			•
Inspect engine accessory drive belt. *An Emission Control Service. See footnote (n).*						•

Maintenance Footnotes

† *The U.S. Environmental Protection Agency or the California Air Resources Board has determined that the failure to perform this maintenance item will not nullify the emission warranty or limit recall liability prior to the completion of the vehicle's useful life. We, however, urge that all recommended maintenance services be performed at the indicated intervals and the maintenance be recorded.*

(a) *Visually inspect brake lines and hoses for proper hook-up, binding, leaks, cracks, chafing, etc. Inspect disc brake pads for wear and rotors for surface condition. Inspect other brake parts, including calipers, parking brake, etc.*

(b) *Visually inspect front and rear suspension and steering system for damaged, loose, or missing parts or signs of wear. Inspect power steering lines and hoses for proper hook-up, binding, leaks, cracks, chafing, etc.*

(c) *Visually inspect hoses and have them replaced if they are cracked, swollen, or deteriorated. Inspect all pipes, fittings and clamps; replace with genuine GM parts as needed. To help ensure proper operation, a pressure test of the cooling system and pressure cap and cleaning the outside of the radiator and air conditioning condenser is recommended at least once a year.*

(d) *Visually inspect wiper blades for wear or cracking. Replace wiper blades that appear worn or damaged or that streak or miss areas of the windshield.*

(e) *Make sure the safety belt reminder light and all your belts, buckles, latch plates, retractors, and anchorages are working properly. Look for any other loose or damaged safety belt system parts. If you see anything that might keep a safety belt system from doing its job, have it repaired. Have any torn or frayed safety belts replaced. Also look for any opened or broken airbag coverings, and have them repaired or replaced. The airbag system does not need regular maintenance.*

(f) *Lubricate all key lock cylinders. Lubricate all hinges and latches, including those for the hood, rear compartment, glove box door, and console door. More frequent lubrication may be required when exposed to a corrosive environment. Applying silicone grease on weatherstrips with a clean cloth will make them last longer, seal better, and not stick or squeak.*

(g) *If you drive regularly under dusty conditions, the filter may require replacement more often.*

(h) *Change automatic transaxle fluid and filter if the vehicle is mainly driven under one or more of these conditions:*

- *In heavy city traffic where the outside temperature regularly reaches 90°F (32°C) or higher.*
- *In hilly or mountainous terrain.*
- *When doing frequent trailer towing.*
- *Professional vehicle uses, such as limousine service.*
- *Uses such as high performance operation.*

(j) *Drain, flush, and refill cooling system. This service can be complex; you should have your dealer perform this service. See Engine Coolant on page 366 for what to use. Inspect hoses. Clean radiator, condenser, pressure cap, and filler neck. Pressure test the cooling system and pressure cap.*

(k) *A fluid loss in any vehicle system could indicate a problem. Have the system inspected and repaired and the fluid level checked. Add fluid if needed.*

(l) *Inspect throttle body bore and valve plates for deposits. Open the throttle valve and inspect all surfaces. Clean as required.*

(m) *If you drive regularly under dusty conditions, inspect the filter at each engine oil change.*

(n) *Visually inspect belt for fraying, excessive cracks, or obvious damage. Replace belt if necessary.*

Owner Checks and Services

These owner checks and services should be performed at the intervals specified to help ensure the safety, dependability, and emission control performance of your vehicle. Your GM Goodwrench® dealer can assist you with these checks and services.

Be sure any necessary repairs are completed at once. Whenever any fluids or lubricants are added to your vehicle, make sure they are the proper ones, as shown in *Recommended Fluids and Lubricants on page 467*.

At Each Fuel Fill

It is important to perform these underhood checks at each fuel fill.

Engine Oil Level Check

Check the engine oil level and add the proper oil if necessary. See *Engine Oil on page 357* for further details.

Notice: **It is important to check your oil regularly and keep it at the proper level. Failure to keep your engine oil at the proper level can cause damage to your engine not covered by your warranty.**

Engine Coolant Level Check

Check the engine coolant level and add DEX-COOL® coolant mixture if necessary. See *Engine Coolant on page 366* for further details.

Windshield Washer Fluid Level Check

Check the windshield washer fluid level in the windshield washer fluid reservoir and add the proper fluid if necessary.

At Least Once a Month

Tire Inflation Check

Visually inspect your vehicle's tires and make sure they are inflated to the correct pressures. Do not forget to check the spare tire. See *Inflation - Tire Pressure on page 402*. Check to make sure the spare tire is stored securely. See *Changing a Flat Tire on page 420*.

Tire Wear Inspection

Tire rotation may be required for high mileage highway drivers prior to the Engine Oil Life System service notification. Check the tires for wear and, if necessary, rotate the tires. See *Tire Inspection and Rotation on page 410*.

At Least Once a Year

Starter Switch Check

⚠ CAUTION:

When you are doing this inspection, the vehicle could move suddenly. If the vehicle moves, you or others could be injured.

1. Before you start, be sure you have enough room around the vehicle.
2. Firmly apply both the parking brake and the regular brake. See *Parking Brake on page 121*.

   Do not use the accelerator pedal, and be ready to turn off the engine immediately if it starts.
3. Try to start the engine in each gear. The vehicle should start only in PARK (P) or NEUTRAL (N). If the vehicle starts in any other position, contact your GM Goodwrench® dealer for service.

Automatic Transaxle Shift Lock Control System Check

⚠ CAUTION:

When you are doing this inspection, the vehicle could move suddenly. If the vehicle moves, you or others could be injured.

1. Before you start, be sure you have enough room around the vehicle. It should be parked on a level surface.
2. Firmly apply the parking brake. See *Parking Brake on page 121*.

   Be ready to apply the regular brake immediately if the vehicle begins to move.
3. With the engine off, turn the ignition to RUN, but do not start the engine. Without applying the regular brake, try to move the shift lever out of PARK (P) with normal effort. If the shift lever moves out of PARK (P), contact your GM Goodwrench® dealer for service.

Ignition Transaxle Lock Check

While parked, and with the parking brake set, try to turn the ignition to OFF in each shift lever position.

- The ignition should turn to OFF only when the shift lever is in PARK (P).
- The ignition key should come out only in OFF.

Contact your GM Goodwrench® dealer if service is required.

Parking Brake and Automatic Transaxle Park (P) Mechanism Check

⚠ CAUTION:

When you are doing this check, your vehicle could begin to move. You or others could be injured and property could be damaged. Make sure there is room in front of your vehicle in case it begins to roll. Be ready to apply the regular brake at once should the vehicle begin to move.

Park on a fairly steep hill, with the vehicle facing downhill. Keeping your foot on the regular brake, set the parking brake.

- To check the parking brake's holding ability: With the engine running and transaxle in NEUTRAL (N), slowly remove foot pressure from the regular brake pedal. Do this until the vehicle is held by the parking brake only.
- To check the PARK (P) mechanism's holding ability: With the engine running, shift to PARK (P). Then release the parking brake followed by the regular brake.

Contact your GM Goodwrench® dealer if service is required.

Underbody Flushing Service

At least every spring, use plain water to flush any corrosive materials from the underbody. Take care to clean thoroughly any areas where mud and other debris can collect.

Recommended Fluids and Lubricants

Fluids and lubricants identified below by name, part number, or specification may be obtained from your dealer.

Usage	Fluid/Lubricant
Engine Oil	Engine oil which meets GM Standard GM6094M and displays the American Petroleum Institute Certified for Gasoline Engines starburst symbol. GM Goodwrench® oil meets all the requirements for your vehicle. To determine the proper viscosity for your vehicle's engine, see *Engine Oil on page 357*.
Engine Coolant	50/50 mixture of clean, drinkable water and use only DEX-COOL® Coolant. See *Engine Coolant on page 366*.
Hydraulic Brake System	Delco® Supreme 11 Brake Fluid or equivalent DOT-3 brake fluid.
Windshield Washer	GM Optikleen® Washer Solvent.

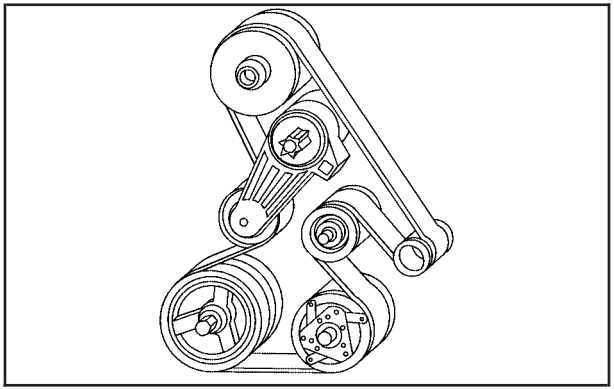
Usage	Fluid/Lubricant
Parking Brake Cable Guides	Chassis Lubricant (GM Part No. U.S. 12377985, in Canada 88901242) or lubricant meeting requirements of NLGI #2, Category LB or GC-LB.
Power Steering System	GM Power Steering Fluid (GM Part No. U.S. 89021184, in Canada 89021186).
Automatic Transaxle	DEXRON®-VI Automatic Transmission Fluid.
Key Lock Cylinders	Multi-Purpose Lubricant, Superlube (GM Part No. U.S. 12346241, in Canada 10953474).
Hood Latch Assembly, Secondary Latch, Pivots, Spring Anchor, and Release Pawl	Lubriplate Lubricant Aerosol (GM Part No. U.S. 12346293, in Canada 992723) or lubricant meeting requirements of NLGI #2, Category LB or GC-LB.
Hood and Door Hinges	Multi-Purpose Lubricant, Superlube (GM Part No. U.S. 12346241, in Canada 10953474).
Weatherstrip Conditioning	Weatherstrip Lubricant (GM Part No. U.S. 3634770, in Canada 10953518) or Dielectric Silicone Grease (GM Part No. U.S. 12345579, in Canada 992887).

Normal Maintenance Replacement Parts

Replacement parts identified below by name, part number, or specification can be obtained from your dealer.

Part	GM Part Number	ACDelco® Part Number
Engine Air Cleaner/Filter Element	22676970	A1627C
Engine Oil Filter	89017342	PF61
Passenger Compartment Air Filter Element	25689297	CF118C
Spark Plugs	12571535	41–987
Wiper Blade 21.7 in (55.0 cm)		
Driver's Side	10374585	—
Passenger's Side	10374586	—

Engine Drive Belt Routing



4.6L V8 Engines

Maintenance Record

After the scheduled services are performed, record the date, odometer reading, who performed the service, and the type of services performed in the boxes provided. See *Maintenance Requirements on page 454*. Any additional information from *Owner Checks and Services on page 463* can be added on the following record pages. You should retain all maintenance receipts.

Maintenance Record

Date	Odometer Reading	Serviced By	Maintenance I or Maintenance II	Services Performed

Maintenance Record (cont'd)

Date	Odometer Reading	Serviced By	Maintenance I or Maintenance II	Services Performed

Maintenance Record (cont'd)

Date	Odometer Reading	Serviced By	Maintenance I or Maintenance II	Services Performed

Section 7 Customer Assistance Information

Customer Assistance and Information 474
Customer Satisfaction Procedure 474
Online Owner Center 477
Customer Assistance for Text Telephone (TTY) Users 478
Customer Assistance Offices 478
GM Mobility Reimbursement Program 479
Roadside Service 480
Courtesy Transportation 481
Vehicle Data Collection and Event Data Recorders 484
Collision Damage Repair 485
Reporting Safety Defects 489
Reporting Safety Defects to the United States Government 489
Reporting Safety Defects to the Canadian Government 489
Reporting Safety Defects to General Motors 490
Service Publications Ordering Information 490

Customer Assistance and Information

Customer Satisfaction Procedure

Your satisfaction and goodwill are important to your dealer and to Cadillac. Normally, any concerns with the sales transaction or the operation of your vehicle will be resolved by your dealer's sales or service departments. Sometimes, however, despite the best intentions of all concerned, misunderstandings can occur.
If your concern has not been resolved to your satisfaction, the following steps should be taken:

STEP ONE: Discuss your concern with a member of dealership management. Normally, concerns can be quickly resolved at that level. If the matter has already been reviewed with the sales, service or parts manager, contact the owner of the dealership or the general manager.

STEP TWO: If after contacting a member of dealership management, it appears your concern cannot be resolved by the dealership without further help, in the United States, contact the Cadillac Customer Assistance Center, 24 hours a day, by calling 1-800-458-8006. In Canada, contact the Canadian Cadillac Customer Communication Centre by calling 1-888-446-2000.

We encourage you to call the toll-free number in order to give your inquiry prompt attention. Please have the following information available to give the Customer Assistance Representative:

- Vehicle Identification Number (VIN). This is available from the vehicle registration or title, or the plate at the top left of the instrument panel and visible through the windshield.
- Dealership name and location.
- Vehicle delivery date and present mileage.

When contacting Cadillac, please remember that your concern will likely be resolved at a dealer's facility. That is why we suggest you follow Step One first if you have a concern.

STEP THREE (United States Owners): Both General Motors and your dealer are committed to making sure you are completely satisfied with your new vehicle. However, if you continue to remain unsatisfied after following the procedure outlined in Steps One and Two, you should file with the Better Business Bureau (BBB) Auto Line Program to enforce your rights.

The BBB Auto Line Program is an out of court program administered by the Council of Better Business Bureaus to settle automotive disputes regarding vehicle repairs or the interpretation of the New Vehicle Limited Warranty. Although you may be required to resort to this informal dispute resolution program prior to filing a court action, use of the program is free of charge and your case will generally be heard within 40 days. If you do not agree with the decision given in your case, you may reject it and proceed with any other venue for relief available to you.

You may contact the BBB Auto Line Program using the toll-free telephone number or write them at the following address:

BBB Auto Line Program
Council of Better Business Bureaus, Inc.
4200 Wilson Boulevard
Suite 800
Arlington, VA 22203-1838

Telephone: 1-800-955-5100

This program is available in all 50 states and the District of Columbia. Eligibility is limited by vehicle age, mileage and other factors. General Motors reserves the right to change eligibility limitations and/or discontinue its participation in this program.

STEP THREE (Canadian Owners):

General Motors Participation in the Mediation/Arbitration Program

In the event that you do not feel your concerns have been addressed after the following the procedure outlined in Steps One and Two. General Motors of Canada Limited wants you to be aware of its participation in a no-charge mediation/Arbitration program. General Motors of Canada Limited has committed to binding arbitration of owner disputes involving factory-related vehicle service claims. The program provides for the review of the facts involved by an impartial third party arbiter, and may include an informal hearing before the arbiter. The program is designed so that the entire dispute settlement process, from the time you file your complaint to the final decision, should be completed in approximately 70 days. We believe our impartial program offers advantages over courts in most jurisdictions because it is informal, quick, and free of charge.

For further information concerning eligibility in the Canadian Motor Vehicle Arbitration Plan (CAMVAP), call toll-free 1-800-207-0685. Alternatively you may call the General Motors Customer Communication Centre, 1-800-263-3777 (English), 1-800-263-7854 (French), or you may write to the Mediation/Arbitration Program at the following address. Your inquiry should be accompanied by your Vehicle Identification Number (VIN).

Mediation/Arbitration Program
c/o Customer Communication Centre
General Motors of Canada Limited
Mail Code: CA1–163–005
1908 Colonel Sam Drive
Oshawa, Ontario L1H 8P7

Online Owner Center

Online Owner Center (United States only)

The Owner Center is a resource for your GM ownership needs. Specific vehicle information can be found in one place.

The Online Owner Center allows you to:

- Get e-mail service reminders.
- Access information about your specific vehicle, including tips and videos and an electronic version of this owner manual.
- Keep track of your vehicle's service history and maintenance schedule.
- Find GM dealers for service nationwide.
- Receive special promotions and privileges only available to members.

Refer to www.MyGMLink.com on the web for updated information and to register your vehicle.

My GM Canada (Canada only)

My GM Canada is a password-protected section of gmcanada.com where you can save information on GM vehicles, get personalized offers, and use handy tools and forms with greater ease.

Here are a few of the valuable tools and services you will have access to:

- My Showroom: Find and save information on vehicles and current offers in your area.
- My Dealers/Retailers: Save details such as address and phone number for each of your preferred GM Dealers or Retailers.
- My Driveway: Receive service reminders and helpful advice on owning and maintaining your vehicle.
- My Preferences: Manage your profile, subscribe to E-News and use tools and forms with greater ease.

To sign up to My GM Canada, visit the My GM Canada section within www.gmcanada.com.

Customer Assistance for Text Telephone (TTY) Users

To assist customers who are deaf, hard of hearing, or speech-impaired and who use Text Telephones (TTYs), Cadillac has TTY equipment available at its Customer Assistance Center. Any TTY user can communicate with Cadillac by dialing: 1-800-833-CMCC (2622). (TTY users in Canada can dial 1-800-263-3830.)

Customer Assistance Offices

Cadillac encourages customers to call the toll-free number for assistance. However, if a customer wishes to write or e-mail Cadillac, refer to the addresses below.

United States — Customer Assistance

Cadillac Customer Assistance Center
Cadillac Motor Car Division
P.O. Box 33169
Detroit, MI 48232-5169

www.Cadillac.com
1-800-458-8006
1-800-43-FLEET (1-800-433-5338)
(Cadillac Professional Vehicle)
1-800-833-2622
(For Text Telephone devices (TTYs))
Roadside Assistance: 1-800-882-1112
Fax Number: 313-381-0022

From Puerto Rico:
1-800-496-9992 (English)
1-800-496-9993 (Spanish)
Fax Number: 313-381-0022

From U.S. Virgin Islands:
1-800-496-9994
Fax Number: 313-381-0022

Canada — Customer Assistance

General Motors of Canada Limited
Canadian Cadillac Customer Communication Centre, CA1-163-005
1908 Colonel Sam Drive
Oshawa, Ontario L1H 8P7

1-888-446-2000
1-800-263-3830 (For Text Telephone devices (TTYs)
Roadside Assistance: 1-800-882-1112

Overseas — Customer Assistance

Please contact the local General Motors Business Unit.

Mexico, Central America and Caribbean Islands/Countries (Except Puerto Rico and U.S. Virgin Islands) — Customer Assistance

General Motors de Mexico, S. de R.L. de C.V.
Customer Assistance Center
Paseo de la Reforma # 2740
Col. Lomas de Bezares
C.P. 11910, Mexico, D.F.
01-800-508-0000
Long Distance: 011-52-53 29 0 800

GM Mobility Reimbursement Program

GM MOBILITY℠

This program, available to qualified applicants, can reimburse you up to $1,000 of the cost of eligible aftermarket adaptive equipment required for your vehicle, such as hand controls or a wheelchair/scooter lift.

The offer is available for a very limited period of time from the date of vehicle purchase/lease. For more details, or to determine your vehicle's eligibility, visit gmmobility.com or call the GM Mobility Assistance Center at 1-800-323-9935. Text telephone (TTY) users, call 1-800-833-9935.

GM of Canada also has a Mobility Program. Call 1-800-GM-DRIVE (463-7483) for details. TTY users call 1-800-263-3830.

Roadside Service

Cadillac's exceptional Roadside Service is more than an auto club or towing service. It provides every Cadillac owner with the advantage of contacting a Cadillac advisor and, where available, a Cadillac trained dealer technician who can provide on-site service.

Each technician travels with a specially equipped service vehicle complete with the necessary Cadillac parts and tools required to handle most roadside repairs.

Cadillac Roadside Service® can be reached by dialing **1-800-882-1112**, 24 hours a day, 365 days a year. This service is provided at no charge for any situation covered by the base warranty coverage and at a nominal charge if the Cadillac is no longer covered by the base warranty. Roadside Service is available only in the United States and Canada.

Cadillac Owner Privileges™

Roadside Service provides several Cadillac Owner Privileges™ at "no charge," throughout your *Cadillac Warranty Period — 48 months/50,000 miles (80 000 km).*

Emergency Road Service is performed on site for the following situations:

- Towing Service
- Battery Jump Starting
- Lock Out Assistance
- Fuel Delivery
- Flat Tire Change (Covers change only)
- Trip Interruption — If your trip is interrupted due to a warranty failure, incidental expenses may be reimbursed during the 48 months/50,000 miles (80 000 km) warranty period. Items covered are hotel, meals, and rental car.

Roadside Service Availability

Wherever you drive in the United States or Canada, an advisor is available to assist you over the phone. A dealer technician, if available, can travel to your location within a 30 mile (50 km) radius of a participating Cadillac dealership. If beyond this radius, we will arrange to have your car towed to the nearest Cadillac dealership.

Reaching Roadside Service

Dial the toll-free Roadside Service number: **1-800-882-1112**. A Roadside Service Advisor will assist you and request the following information:

- A description of the problem
- Name, home address, home telephone number
- Location of your Cadillac and number you are calling from
- The model year, Vehicle Identification Number (VIN), mileage, and date of delivery

Roadside Service for the Hearing or Speech Impaired

Roadside Service is prepared to assist owners who have hearing difficulties or are speech impaired. Cadillac has installed special telecommunication devices called Text Telephone (TTY) in the Roadside Service Center.

Any customer who has access to a (TTY) or a conventional teletypewriter can communicate with Cadillac by dialing from the United States or Canada **1-888-889-2438** — daily, 24 hours.

Courtesy Transportation

To enhance your ownership experience, we and our participating dealers are proud to offer Courtesy Transportation, a customer support program for new vehicles.

The Courtesy Transportation program is offered to customers in conjunction with the Bumper-to-Bumper coverage provided by the New Vehicle Limited Warranty. Several transportation options are available when warranty repairs are required. This will reduce your inconvenience during warranty repairs.

Scheduling Service Appointments

When your vehicle requires warranty service, you should contact your dealer and request an appointment. By scheduling a service appointment and advising your service consultant of your transportation needs, your dealer can help minimize your inconvenience.

If your vehicle cannot be scheduled into the service department immediately, keep driving it until it can be scheduled for service, unless, of course, the problem is safety-related. If it is, please call your dealership, let them know this, and ask for instructions.

If the dealer requests that you simply drop the vehicle off for service, you are urged to do so as early in the work day as possible to allow for the same day repair.

Transportation Options

Warranty service can generally be completed while you wait. However, if you are unable to wait, GM helps to minimize your inconvenience by providing several transportation options. Depending on the circumstances, your dealer can offer you one of the following:

Shuttle Service

Participating dealers can provide you with shuttle service to get you to your destination with minimal interruption of your daily schedule. This includes one-way or round trip shuttle service to a destination up to 10 miles (16 km) from the dealership.

Public Transportation or Fuel Reimbursement

If your vehicle requires warranty repairs, reimbursement of public transportation expenses may be available, for up to a maximum of five days. In addition, should you arrange transportation through a friend or relative, reimbursement for reasonable fuel expenses may be available, up to a five-day maximum. Claim amounts should reflect actual costs and be supported by original receipts.

Courtesy Rental Vehicle

Your dealer may arrange to provide you with a courtesy rental vehicle or reimburse you for a rental vehicle that you obtain if your vehicle is kept for a warranty repair. Reimbursement will be limited to a maximum amount per day and must be supported by receipts. This requires that you sign and complete a rental agreement and meet state, local and rental vehicle provider requirements. Requirements vary and may include minimum age requirements, insurance coverage, credit card, etc. You are responsible for fuel usage charges and may also be responsible for taxes, levies, usage fees, excessive mileage or rental usage beyond the completion of the repair.

Generally it is not possible to provide a like-vehicle as a courtesy rental.

Additional Program Information

Courtesy Transportation is available during the Bumper-to-Bumper warranty coverage period, but it is not part of the New Vehicle Limited Warranty. A separate booklet entitled *Warranty and Owner Assistance Information* furnished with each new vehicle provides detailed warranty coverage information.

Courtesy Transportation is available only at participating dealers and all program options, such as shuttle service, may not be available at every dealer. Please contact your dealer for specific information about availability. All Courtesy Transportation arrangements will be administered by appropriate dealer personnel.

Canadian Vehicles: For warranty repairs during the Complete Vehicle Coverage period of the General Motors of Canada New Vehicle Limited Warranty, alternative transportation may be available under the Courtesy Transportation Program. Please consult your dealer for details.

General Motors reserves the right to unilaterally modify, change or discontinue Courtesy Transportation at any time and to resolve all questions of claim eligibility pursuant to the terms and conditions described herein at its sole discretion.

Vehicle Data Collection and Event Data Recorders

Your vehicle, like other modern motor vehicles, has a number of sophisticated computer systems that monitor and control several aspects of the vehicle's performance. Your vehicle uses on-board vehicle computers to monitor emission control components to optimize fuel economy, to monitor conditions for airbag deployment and, if so equipped, to provide anti-lock braking and to help the driver control the vehicle in difficult driving situations. Some information may be stored during regular operations to facilitate repair of detected malfunctions; other information is stored only in a crash event by computer systems, such as those commonly called Event Data Recorders (EDR).

In a crash event, computer systems, such as the airbag Sensing and Diagnostic Module (SDM) in your vehicle may record information about the condition of the vehicle and how it was operated, such as data related to engine speed, brake application, throttle position, vehicle speed, safety belt usage, airbag readiness, airbag performance, and the severity of a collision. If your vehicle is equipped with StabiliTrak®, steering performance, including yaw rate, steering wheel angle, and lateral acceleration, is also recorded. This information has been used to improve vehicle crash performance and may be used to improve crash performance of future vehicles and driving safety. Unlike the data recorders on many airplanes, these on-board systems do not record sounds, such as conversation of vehicle occupants.

To read this information, special equipment is needed and access to the vehicle or the device that stores the data is required. GM will not access information about a crash event or share it with others other than:

- with the consent of the vehicle owner or, if the vehicle is leased, with the consent of the lessee,
- in response to an official request of police or similar government office,
- as part of GM's defense of litigation through the discovery process, or
- as required by law.

In addition, once GM collects or receives data, GM may:

- use the data for GM research needs,
- make it available for research where appropriate confidentiality is to be maintained and need is shown, or
- share summary data which is not tied to a specific vehicle with non-GM organizations for research purposes.

Others, such as law enforcement, may have access to the special equipment that can read the information if they have access to the vehicle or the device that stores the data.

If your vehicle has OnStar®, please check the OnStar® subscription service agreement or manual for information on its operations and data collection.

Collision Damage Repair

If your vehicle is involved in a collision and it is damaged, have the damage repaired by a qualified technician using the proper equipment and quality replacement parts. Poorly performed collision repairs will diminish your vehicle's resale value, and safety performance can be compromised in subsequent collisions.

Collision Parts

Genuine GM Collision parts are new parts made with the same materials and construction methods as the parts with which your vehicle was originally built. Genuine GM Collision parts are your best choice to assure that your vehicle's designed appearance, durability and safety are preserved. The use of Genuine GM parts can help maintain your GM New Vehicle Warranty.

Recycled original equipment parts may also be used for repair. These parts are typically removed from vehicles that were total losses in prior accidents. In most cases, the parts being recycled are from undamaged sections of the vehicle.

A recycled original equipment GM part, may be an acceptable choice to maintain your vehicle's originally designed appearance and safety performance, however, the history of these parts is not known. Such parts are not covered by your GM New Vehicle Limited Warranty, and any related failures are not covered by that warranty.

Aftermarket collision parts are also available. These are made by companies other than GM and may not have been tested for your vehicle. As a result, these parts may fit poorly, exhibit premature durability/corrosion problems, and may not perform properly in subsequent collisions. Aftermarket parts are not covered by your GM New Vehicle Limited Warranty, and any vehicle failure related to such parts are not covered by that warranty.

Repair Facility

GM also recommends that you choose a collision repair facility that meets your needs before you ever need collision repairs. Your GM dealer may have a collision repair center with GM-trained technicians and state of the art equipment, or be able to recommend a collision repair center that has GM-trained technicians and comparable equipment.

Insuring Your Vehicle

Protect your investment in your GM vehicle with comprehensive and collision insurance coverage. There are significant differences in the quality of coverage afforded by various insurance policy terms. Many insurance policies provide reduced protection to your GM vehicle by limiting compensation for damage repairs by using aftermarket collision parts. Some insurance companies will not specify aftermarket collision parts. When purchasing insurance, we recommend that you assure your vehicle will be repaired with GM original equipment collision parts. If such insurance coverage is not available from your current insurance carrier, consider switching to another insurance carrier.

If your vehicle is leased, the leasing company may require you to have insurance that assures repairs with Genuine GM Original Equipment Manufacturer (OEM) parts or Genuine Manufacturer replacement parts. Read your lease carefully, as you may be charged at the end of your lease for poor quality repairs.

If an Accident Occurs

Here is what to do if you are involved in an accident.

- Try to relax and then check to make sure you are all right. If you are uninjured, make sure that no one else in your vehicle, or the other vehicle, is injured.
- If there has been an injury, call 911 for help. Do not leave the scene of an accident until all matters have been taken care of. Move your vehicle only if its position puts you in danger or you are instructed to move it by a police officer.
- Give only the necessary and requested information to police and other parties involved in the accident. Do not discuss your personal condition, mental frame of mind, or anything unrelated to the accident. This will help guard against post-accident legal action.
- If you need roadside assistance, call GM Roadside Assistance. See *Roadside Service on page 480* for more information.
- If your vehicle cannot be driven, know where the towing service will be taking it. Get a card from the tow truck operator or write down the driver's name, the service's name, and the phone number.
- Remove any valuables from your vehicle before it is towed away. Make sure this includes your insurance information and registration if you keep these items in your vehicle.
- Gather the important information you will need from the other driver. Things like name, address, phone number, driver's license number, vehicle license plate, vehicle make, model and model year, Vehicle Identification Number (VIN), insurance company and policy number, and a general description of the damage to the other vehicle.

- If possible, call your insurance company from the scene of the accident. They will walk you through the information they will need. If they ask for a police report, phone or go to the police department headquarters the next day and you can get a copy of the report for a nominal fee. In some states/provinces with “no fault” insurance laws, a report may not be necessary. This is especially true if there are no injuries and both vehicles are driveable.
- Choose a reputable collision repair facility for your vehicle. Whether you select a GM dealer or a private collision repair facility to fix the damage, make sure you are comfortable with them. Remember, you will have to feel comfortable with their work for a long time.
- Once you have an estimate, read it carefully and make sure you understand what work will be performed on your vehicle. If you have a question, ask for an explanation. Reputable shops welcome this opportunity.

Managing the Vehicle Damage Repair Process

In the event that your vehicle requires damage repairs, GM recommends that you take an active role in its repair. If you have a pre-determined repair facility of choice, take your vehicle there, or have it towed there. Specify to the facility that any required replacement collision parts be original equipment parts, either new Genuine GM parts or recycled original GM parts. Remember, recycled parts will not be covered by your GM vehicle warranty.

Insurance pays the bill for the repair, but you must live with the repair. Depending on your policy limits, your insurance company may initially value the repair using aftermarket parts. Discuss this with your repair professional, and insist on Genuine GM parts. Remember if your vehicle is leased you may be obligated to have the vehicle repaired with Genuine GM parts, even if your insurance coverage does not pay the full cost.

If another party's insurance company is paying for the repairs, you are not obligated to accept a repair valuation based on that insurance company's collision policy repair limits, as you have no contractual limits with that company. In such cases, you can have control of the repair and parts choices as long as cost stays within reasonable limits.

Reporting Safety Defects

Reporting Safety Defects to the United States Government

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA), in addition to notifying General Motors.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or General Motors.

To contact NHTSA, you may call the Vehicle Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153); go to http://www.safercar.gov; or write to:

Administrator, NHTSA
400 Seventh Street, SW.
Washington, D.C. 20590

You can also obtain other information about motor vehicle safety from http://www.safercar.gov.

Reporting Safety Defects to the Canadian Government

If you live in Canada, and you believe that your vehicle has a safety defect, you should immediately notify Transport Canada, in addition to notifying General Motors of Canada Limited. You may call them at 1-800-333-0510 or write to:

Transport Canada
Road Safety Branch
2780 Sheffield Road
Ottawa, Ontario K1B 3V9

Reporting Safety Defects to General Motors

In addition to notifying NHTSA (or Transport Canada) in a situation like this, we certainly hope you will notify us. Please call us at 1-800-458-8006, or write:

Cadillac Customer Assistance Center
Cadillac Motor Car Division
P.O. Box 33169
Detroit, MI 48232-5169

In Canada, please call us at 1-888-446-2000. Or, write:

Canadian Cadillac Customer Communication Centre, CA1-163-005
General Motors of Canada Limited
1908 Colonel Sam Drive
Oshawa, Ontario L1H 8P7

Service Publications Ordering Information

Service Manuals

Service Manuals have the diagnosis and repair information on engines, transmission, axle suspension, brakes, electrical, steering, body, etc.

Transmission, Transaxle, Transfer Case Unit Repair Manual

This manual provides information on unit repair service procedures, adjustments, and specifications for GM transmissions, transaxles, and transfer cases.

Service Bulletins

Service Bulletins give technical service information needed to knowledgeably service General Motors cars and trucks. Each bulletin contains instructions to assist in the diagnosis and service of your vehicle.

In Canada, information pertaining to Product Service Bulletins can be obtained by contacting your General Motors dealer or by calling 1-800-GM-DRIVE (1-800-463-7483).

Owner's Information

Owner publications are written specifically for owners and intended to provide basic operational information about the vehicle. The owner's manual will include the Maintenance Schedule for all models.

In-Portfolio: Includes a Portfolio, Owner's Manual, and Warranty Booklet.

RETAIL SELL PRICE: $35.00

Without Portfolio: Owner's Manual only.

RETAIL SELL PRICE: $25.00

Current and Past Model Order Forms

Technical Service Bulletins and Manuals are available for current and past model GM vehicles. To request an order form, please specify year and model name of the vehicle.

ORDER TOLL FREE: 1-800-551-4123
Monday-Friday 8:00 AM - 6:00 PM
Eastern Time

For Credit Card Orders Only (VISA-MasterCard-Discover), visit Helm, Inc. on the World Wide Web at: www.helminc.com

Or you can write to:

Helm, Incorporated
P.O. Box 07130
Detroit, MI 48207

Prices are subject to change without notice and without incurring obligation. Allow ample time for delivery.

Note to Canadian Customers: All listed prices are quoted in U.S. funds. Canadian residents are to make checks payable in U.S. funds.

NOTES

A

Accessories and Modifications 347
Accessory Power Outlet(s) 201
Adaptive Cruise Control 173
Adding Equipment to Your
  Airbag-Equipped Vehicle 83
Additives, Fuel 350
Add-On Electrical Equipment 442
Air Cleaner/Filter, Engine 362
Air Conditioning 204
Airbag
  Passenger Status Indicator 220
  Readiness Light 219
Airbag Sensing and Diagnostic
  Module (SDM) 484
Airbag System 66
  Adding Equipment to Your
    Airbag-Equipped Vehicle 83
  How Does an Airbag Restrain? 75
  Passenger Sensing System 77
  Servicing Your Airbag-Equipped Vehicle 82
  What Makes an Airbag Inflate? 75
  What Will You See After an
    Airbag Inflates? 76
Airbag System (cont.)
  When Should an Airbag Inflate? 73
  Where Are the Airbags? 69
Analog Clock 203
Antenna, Backglass 292
Antenna, XM™ Satellite Radio
  Antenna System 293
Anti-Lock Brake System (ABS) 301
Anti-Lock Brake, System Warning Light 223
Appearance Care
  Aluminum or Chrome-Plated Wheels 438
  Care of Safety Belts 435
  Chemical Paint Spotting 440
  Cleaning Exterior Lamps/Lenses 436
  Cleaning the Inside of Your Vehicle 431
  Fabric/Carpet 433
  Finish Care 436
  Finish Damage 439
  Instrument Panel, Vinyl, and Other
    Plastic Surfaces 434
  Leather 434
  Sheet Metal Damage 439
  Speaker Covers 435
  Tires 439

Appearance Care (cont.)
Underbody Maintenance 439
Vehicle Care/Appearance Materials 440
Washing Your Vehicle 435
Weatherstrips 435
Windshield and Wiper Blades 437
Wood Panels 435
Ashtray(s) 202
Audio System(s) 261
Audio Steering Wheel Controls 289
Backglass Antenna 292
Care of Your CD Player 292
Care of Your CDs 292
Navigation/Radio System,
see Navigation Manual 289
Radio with CD 266
Setting the Time 262, 264
Theft-Deterrent Feature 289
Understanding Radio Reception 291
XM™ Satellite Radio Antenna System 293
Automatic Transaxle
Fluid 364
Operation 118

B

Backglass Antenna 292
Battery 382
Electric Power Management 194
Exterior Lighting Battery Saver 192
Inadvertent Power Saver 195
Load Management 194
Run-Down Protection 195
Before Leaving on a Long Trip 318
Brake
Anti-Lock Brake System (ABS) 301
Emergencies 303
Panic Assist 306
Parking 121
System Warning Light 222
Brakes 379
Braking 300
Braking in Emergencies 303
Break-In, New Vehicle 113
Bulb Replacement 392
Headlamp Aiming 389
High Intensity Discharge (HID)
Lighting 392
Buying New Tires 412

C

Calibration 17, 128, 130, 132
California Fuel 350
California Proposition 65 Warning 348
Canadian Owners 3
Capacities and Specifications 452
Carbon Monoxide 102, 126, 322, 336
Care of
  Safety Belts 435
  Your CD Player 292
  Your CDs 292
CD, MP3 280
Center Console Storage Area 150
Center Flex Storage Unit 151
Center Front Passenger Position,
  Safety Belts 33
Center Seat 16
Chains, Tire 418
Charging System Light 222
Check
  Engine Light 227
Checking Things Under the Hood 354
Chemical Paint Spotting 440
Child Restraints
  Child Restraint Systems 47
  Infants and Young Children 43
  Lower Anchors and Tethers for
    Children 53
  Older Children 40
  Securing a Child Restraint in a
    Rear Seat Position 60
  Securing a Child Restraint in the
    Center Front Seat Position 62
  Securing a Child Restraint in the
    Right Front Seat Position 62
  Where to Put the Restraint 51
Cigarette Lighter 202
Cleaning
  Aluminum or Chrome-Plated Wheels 438
  Exterior Lamps/Lenses 436
  Fabric/Carpet 433
  Finish Care 436
  Inside of Your Vehicle 431
  Instrument Panel, Vinyl, and Other
    Plastic Surfaces 434
  Leather 434
  Speaker Covers 435

Cleaning (cont.)
Tires 439
Underbody Maintenance 439
Washing Your Vehicle 435
Weatherstrips 435
Windshield and Wiper Blades 437
Wood Panels 435
Climate Control System
Air Filter, Passenger Compartment 213
Dual 204
Outlet Adjustment 210
Rear 211
Clock 203
Coinholder(s) 150
Collision Damage Repair 485
Comfort Guides, Rear Safety Belt 37
Compass 17, 128, 130, 132
Content Theft-Deterrent 109
Control of a Vehicle 300
Convenience Net 151
Coolant
Engine Temperature Gage 226
Engine Temperature Warning Light 226
Heater, Engine 117
Surge Tank Pressure Cap 369
Cooled Seats 10
Cooling System 372
Cornering Lamps 192
Courtesy Lamps 193
Cruise Control 169
Cruise Control, Adaptive 173
Cruise Control, Forward Collision
Alert (FAC) System 161
Cruise Control Light 231
Cupholder(s) 150
Customer Assistance Information
Courtesy Transportation 481
Customer Assistance for Text
Telephone (TTY) Users 478
Customer Assistance Offices 478
Customer Satisfaction Procedure 474
GM Mobility Reimbursement Program 479
Reporting Safety Defects to General
Motors 490
Reporting Safety Defects to the
Canadian Government 489
Reporting Safety Defects to the
United States Government 489
Roadside Service 480
Service Publications Ordering
Information 490

D

Daytime Running Lamps 190
Defensive Driving 296
Disc, MP3 280
Doing Your Own Service Work 348
Door
  Central Door Unlocking System 99
  Locks 98
  Power Door Locks 99
  Programmable Automatic Door Locks 100
  Rear Door Security Locks 100
Driver
  Position, Safety Belt 24
Driver Information Center (DIC) 233
  DIC Controls and Displays 233
  DIC Vehicle Customization 252
  DIC Warnings and Messages 239
Driving
  At Night 312
  City 316
  Defensive 296
  Drunken 297
  Freeway 317
  Hill and Mountain Roads 320
Driving (cont.)
  In Rain and on Wet Roads 314
  Rocking Your Vehicle to Get it Out 327
  Winter 322
Dual Climate Control System 204

E

Electric Power Management 194
Electrical System
  Add-On Equipment 442
  Fuses and Circuit Breakers 443
  Headlamp Wiring 443
  Power Windows and Other Power
    Options 443
  Rear Underseat Fuse Block 447
  Underhood Fuse Block 444
  Windshield Wiper Fuses 443
Engine
  Air Cleaner/Filter 362
  Battery 382
  Check and Service Engine Soon Light 227
  Coolant 366
  Coolant Heater 117
  Coolant Temperature Gage 226

Engine (cont.)
Coolant Temperature Warning Light 226
Drive Belt Routing 469
Engine Compartment Overview 356
Exhaust 126
Oil 357
Oil Life System 360
Overheated Protection Operating Mode 371
Overheating 369
Starting 115
Entry Lighting 193
Event Data Recorders (EDR) 484
Extender, Safety Belt 39
Exterior Lamps 186
Exterior Lighting Battery Saver 192

F

Filter
Engine Air Cleaner 362
Finish Damage 439
Flashers, Hazard Warning 158
Flash-to-Pass 165
Flat Tire 419
Flat Tire, Changing 420
Flat Tire, Storing 429
Fluid
Automatic Transaxle 364
Power Steering 377
Windshield Washer 378
Fog Lamp Light 231
Fog Lamps 191
Forward Collision Alert (FAC) System 161
Fuel 349
Additives 350
California Fuel 350
Filling a Portable Fuel Container 354
Filling Your Tank 352
Fuels in Foreign Countries 351
Gage 232
Gasoline Octane 349
Gasoline Specifications 349
Fuses
Fuses and Circuit Breakers 443
Rear Underseat Fuse Block 447
Underhood Fuse Block 444
Windshield Wiper 443

G

Gage
Engine Coolant Temperature 226
Fuel 232
Speedometer 217
Tachometer 217
Garage Door Opener 139, 140
Gasoline
Octane 349
Specifications 349
Glove Box 150
GM Mobility Reimbursement Program 479

H

Hazard Warning Flashers 158
Head Restraints 15
Headlamp
Aiming 389
Headlamp Wiring 443
Headlamps
Bulb Replacement 392
Daytime Running Lamps 190
Flash-to-Pass 165
Headlamps (cont.)
High Intensity Discharge (HID) Lighting 392
High/Low Beam Changer 161
On Reminder 190
Wiper Activated 190
Heated Seats 10
Heated Steering Wheel 159
Heater 204
Highbeam On Light 231
High-Speed Operation, Tires 405
Highway Hypnosis 319
Hill and Mountain Roads 320
Hood
Checking Things Under 354
Release 355
Horn 158
How to Use This Manual 3
How to Wear Safety Belts Properly 23

I

Ignition Positions 114
Inadvertent Power Battery Saver 195
Infants and Young Children, Restraints 43

Inflation - Tire Pressure 402
Instrument Panel
  Overview 156
Instrument Panel (I/P)
  Brightness 192
  Cluster 216

J

Jump Starting 384

K

Keyless Entry System 91
Keys 89

L

Labeling, Tire Sidewall 395
Lamps
  Battery Load Management 194
  Battery Run-Down Protection 195
  Cornering 192
  Courtesy 193
Lamps (cont.)
  Electric Power Management 194
  Exterior 186
  Exterior Lighting Battery Saver 192
  Fog 191
  Inadvertent Power Battery Saver 195
  Reading 193
LATCH System
  Child Restraints 53
Light
  Airbag Readiness 219
  Anti-Lock Brake System Warning 223
  Brake System Warning 222
  Charging System 222
  Cruise Control 231
  Engine Coolant Temperature Warning 226
  Fog Lamp 231
  Highbeam On 231
  Lights On Reminder 231
  Low Tire Pressure Warning Light 224
  Malfunction Indicator 227
  Oil Pressure 230
  Passenger Airbag Status Indicator 220
  Passenger Safety Belt Reminder 218

Light (cont.)
Safety Belt Reminder 218
Security 230
StabiliTrak® Indicator 225
TCS Warning Light 225
Traction Control System (TCS) Warning 225
Lighting
Entry 193
Parade Dimming 193
Loading Your Vehicle 327
Lockout Protection 101
Locks
Central Door Unlocking System 99
Door 98
Lockout Protection 101
Power Door 99
Programmable Automatic Door Locks 100
Rear Door Security Locks 100
Loss of Control 311
Lumbar
Massaging Controls 10
Power Controls 9
Lumbar Controls, Rear Power 17

M

Magnetic Ride Control 304
Maintenance Schedule
Additional Required Services 460
At Each Fuel Fill 464
At Least Once a Month 464
At Least Once a Year 465
Introduction 454
Maintenance Footnotes 461
Maintenance Record 470
Maintenance Requirements 454
Normal Maintenance Replacement Parts 468
Owner Checks and Services 463
Recommended Fluids and Lubricants 467
Scheduled Maintenance 457
Using 455
Your Vehicle and the Environment 455
Malfunction Indicator Light 227
Massaging Lumbar Controls 10
Memory Seat, Mirrors, Steering Wheel Controls 11
Message
DIC Warnings and Messages 239

Mirrors
Automatic Dimming Mirror with Intellibeam™, OnStar®, and Compass 128
Automatic Dimming Rearview with Compass 132
Automatic Dimming Rearview with OnStar® and Compass 130
Manual Rearview Mirror with Compass and Temperature 17
Outside Automatic Dimming Mirror 134
Outside Convex Mirror 134
Outside Curb View Assist Mirror 134
Outside Heated Mirrors 134
Outside Power Foldaway Mirrors 133
MP3 280
MyGMLink.com 477

N

Navigation/Radio System, see Navigation Manual 289
New Vehicle Break-In 113
Normal Maintenance Replacement Parts 468

O

Odometer 217
Off-Road Recovery 309
Oil
Engine 357
Pressure Light 230
Oil, Engine Oil Life System 360
Older Children, Restraints 40
Online Owner Center 477
OnStar® System, see OnStar® Manual 135
Other Warning Devices 158
Outlet Adjustment 210
Outlet(s), Accessory Power 201
Outside
Automatic Dimming Mirror 134
Convex Mirror 134
Curb View Assist Mirror 134
Heated Mirrors 134
Power Foldaway Mirrors 133
Overheated Engine Protection Operating Mode 371
Owner Checks and Services 463
Owners, Canadian 3

P

Paint, Damage 439
Panic Brake Assist 306
Parade Dimming 193
Park Aid 196
Park (P)
  Shifting Into 122
  Shifting Out of 125
Parking
  Assist 196
  Brake 121
  Over Things That Burn 125
Passenger Airbag Status Indicator 220
Passenger Compartment Air Filter 213
Passenger Sensing System 77
Passing 309
PASS-Key® III+ 111
PASS-Key® III+ Operation 112
Performance Shifting 121
Power
  Accessory Outlet(s) 201
  Door Locks 99
  Electrical System 443
  Inadvertent Battery Saver 195
Power (cont.)
  Lumbar Controls 9
  Rear Lumbar Controls 17
  Reclining Seatbacks 13
  Retained Accessory (RAP) 115
  Seat 9
  Steering Fluid 377
  Tilt Wheel and Telescopic
    Steering Column 159
  Windows 105
Pretensioners, Safety Belt 39
Programmable Automatic Door Locks 100

Q

Questions and Answers About
  Safety Belts 22

R

Radios 261
  Care of Your CD Player 292
  Care of Your CDs 292
  Navigation/Radio System,
    see Navigation Manual 289

Radios (cont.)
Radio with CD 266
Setting the Time 262, 264
Theft-Deterrent 289
Understanding Reception 291
Rainsense™ II Wipers 167
Reading Lamps 193
Rear Climate Control System 211
Rear Door Security Locks 100
Rear Heated Seats 16
Rear Safety Belt Comfort Guides 37
Rear Seat Armrest 151
Rear Seat Passengers, Safety Belts 34
Rearview Mirror, Automatic Dimming
with Compass 132
Rearview Mirror, Automatic Dimming
with OnStar® and Compass 130
Rearview Mirror with Compass and
Temperature 17
Reclining Seatbacks, Power 13
Recommended Fluids and Lubricants 467
Recreational Vehicle Towing 334
Remote Keyless Entry (RKE) System 91
Remote Keyless Entry (RKE) System,
Operation 92
Removing the Flat Tire and Installing
the Spare Tire 423
Removing the Spare Tire and Tools 421
Reporting Safety Defects
Canadian Government 489
General Motors 490
United States Government 489
Restraint System Check
Checking the Restraint Systems 84
Replacing Restraint System Parts
After a Crash 85
Retained Accessory Power (RAP) 115
Right Front Passenger Position,
Safety Belts 32
Roadside
Service 480
Rocking Your Vehicle to Get it Out 327
Routing, Engine Drive Belt 469
Running the Engine While Parked 127

S

Safety Belt
- Passenger Reminder Light 218
- Pretensioners 39
- Reminder Light 218

Safety Belts
- Care of 435
- Center Front Passenger Position 33
- Driver Position 24
- How to Wear Safety Belts Properly 23
- Questions and Answers About Safety Belts 22
- Rear Safety Belt Comfort Guides 37
- Rear Seat Passengers 34
- Right Front Passenger Position 32
- Safety Belt Extender 39
- Safety Belt Use During Pregnancy 32
- Safety Belts Are for Everyone 18
- Shoulder Belt Height Adjuster 31

Safety Warnings and Symbols 4

Scheduled Maintenance 457

Seats
- Center Seat 16
- Head Restraints 15
- Heated and Cooled Seats 10
- Heated Seats - Rear 16
- Massaging Lumbar 10
- Memory, Mirrors 11
- Power Lumbar 9
- Power Lumbar, Rear 17
- Power Reclining Seatbacks 13
- Power Seats 9

Securing a Child Restraint
- Center Front Seat Position 62
- Rear Seat Position 60
- Right Front Seat Position 62

Security Light 230

Service 347
- Accessories and Modifications 347
- Adding Equipment to the Outside of Your Vehicle 349
- California Proposition 65 Warning 348
- Doing Your Own Work 348
- Engine Soon Light 227
- Publications Ordering Information 490

Servicing Your Airbag-Equipped Vehicle 82
Setting the Time 262, 264
Sheet Metal Damage 439
Shifting Into Park (P) 122
Shifting Out of Park (P) 125
Shoulder Belt Height Adjuster 31
Signals, Turn and Lane-Change 160
Spare Tire 430
  Installing 423
  Removing 421
  Storing 429
Specifications, Capacities 452
Speedometer 217
StabiliTrak® System 305
StabiliTrak® Indicator Light 225
Starting Your Engine 115
Steering 306
Steering Wheel Controls, Audio 289
Steering Wheel Controls, Memory 11
Steering Wheel, Heated 159
Steering Wheel, Power Tilt Wheel and
  Telescopic Steering Column 159
Steering Wheel, Tilt Wheel 158
Storage Areas
  Center Console Storage Area 150
  Center Flex Storage Unit 151
  Coinholder(s) 150
  Convenience Net 151
  Cupholder(s) 150
  Glove Box 150
  Rear Seat Armrest 151
Stuck in Sand, Mud, Ice, or Snow 326
Sun Visors 107
Sunroof 152

T

Tachometer 217
TCS Warning Light 225
Telescopic Steering Column,
  Power Tilt Wheel 159
Theft-Deterrent, Radio 289
Theft-Deterrent Systems 108
  Content Theft-Deterrent 109
  PASS-Key® III+ 111
  PASS-Key® III+ Operation 112
Tilt Wheel 158

Tires 394
Aluminum or Chrome-Plated Wheels, Cleaning 438
Buying New Tires 412
Chains 418
Changing a Flat Tire 420
Cleaning 439
Different Size 414
High-Speed Operation 405
If a Tire Goes Flat 419
Inflation - Tire Pressure 402
Inspection and Rotation 410
Installing the Spare Tire 423
Pressure Monitor System 406
Removing the Flat Tire 423
Removing the Spare Tire and Tools 421
Spare Tire 430
Storing a Flat or Spare Tire and Tools 429
Tire Sidewall Labeling 395
Tire Terminology and Definitions 400
Uniform Tire Quality Grading 414
Wheel Alignment and Tire Balance 416
Wheel Replacement 416
When It Is Time for New Tires 411
Towing
Recreational Vehicle 334
Towing a Trailer 336
Your Vehicle 334
Traction
Control System (TCS) 303
Control System Warning Light 225
Magnetic Ride Control 304
StabiliTrak® System 305
Transaxle
Fluid, Automatic 364
Transaxle Operation, Automatic 118
Trunk 102
Turn and Lane-Change Signals 160
Turn Signal/Multifunction Lever 160

U

Ultrasonic Front and Rear Parking Assist (UFRPA) 196
Understanding Radio Reception 291
Uniform Tire Quality Grading 414
Universal Home Remote System 139, 140
Operation 141, 146

V

Valet Lockout Switch 108
Vehicle
  Control 300
  Damage Warnings 5
  Loading 327
  Symbols 5
Vehicle Customization, DIC 252
Vehicle Data Collection and Event
  Data Recorders 484
Vehicle Identification
  Number (VIN) 441
  Service Parts Identification Label 442
Ventilation Adjustment 210
Visors 107

W

Warning Lights, Gages and Indicators 215
Warnings
  DIC Warnings and Messages 239
  Hazard Warning Flashers 158
  Other Warning Devices 158
  Safety and Symbols 4
  Vehicle Damage 5
Wheels
  Alignment and Tire Balance 416
  Different Size 414
  Replacement 416
Where to Put the Restraint 51
Windows 104
  Power 105
Windshield
  Rainsense™ II Wipers 167
  Washer 168
  Washer Fluid 378
  Wiper Blade Replacement 392
  Wiper Blades, Cleaning 437
  Wiper Fuses 443
  Wipers 166
Winter Driving 322
Wiper Activated Headlamps 190

X

XM Radio Messages 287
XM™ Satellite Radio Antenna System 293

Y

Your Vehicle and the Environment 455