

# 2007 Saturn AURA Green Line Hybrid Owner Manual

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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 further notice.

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.

Keep this manual in the vehicle for quick reference.

## **Canadian Owners (English)**

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

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

## Using this Manual

Many people read the owner manual from beginning to end when they first receive their new vehicle to learn about the vehicle's features and controls. Pictures and words work together 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.

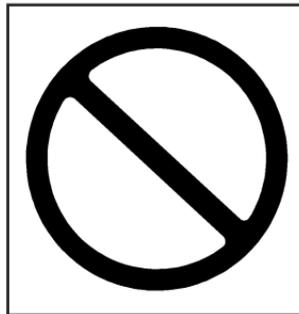
## Safety Warnings and Symbols

There are a number of safety cautions in this book. A box with the word CAUTION is used to tell about things that could hurt you or others if you were to ignore the warning.

### CAUTION:

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

We tell you what the hazard is and what to do to help avoid or reduce the hazard. Please read these cautions. If you do not, you or others could be hurt.



A circle with a slash through it is a safety symbol which means "Do Not," "Do Not do this" or "Do Not let this happen."

## Vehicle Damage Warnings

You will also find notices in this manual.

**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. The notice tells 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 which 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		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		HAZARD WARNING FLASHER		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		DAYTIME RUNNING LAMPS		FUEL	
SPARK OR FLAME COULD EXPLODE BATTERY		POWER WINDOW		DOOR LOCK UNLOCK		ANTI-LOCK BRAKE SYSTEM		OWNER MANUAL	
						FOG LAMPS		SERVICE MANUAL	

# Section 1 Seats and Restraint Systems

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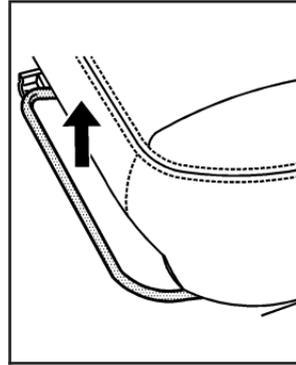
# Front Seats

## Manual Seats

### CAUTION:

You can lose control of the vehicle if you try to adjust a manual driver's seat while the vehicle is moving. The sudden movement could startle and confuse you, or make you push a pedal when you do not want to. Adjust the driver's seat only when the vehicle is not moving.

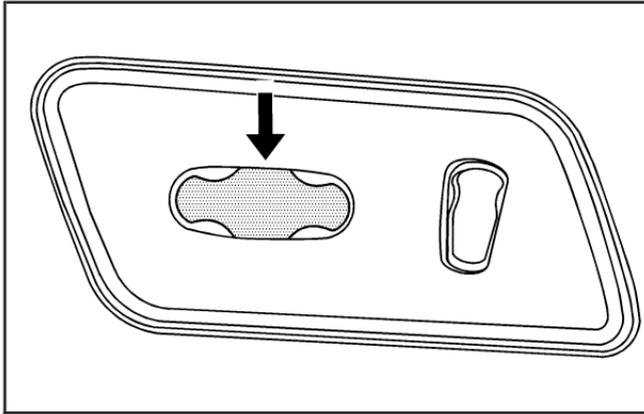
To move a manual seat forward or rearward:



1. Lift the bar to unlock the seat.
2. Slide the seat to the desired position and release the bar.

Try to move the seat with your body to be sure the seat is locked in place.

## Power Seats

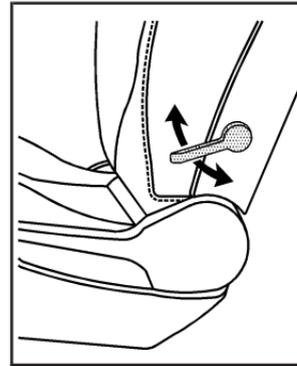


In vehicles with power seats, the controls used to operate them are located on the outboard side of the seat.

To adjust the seat, do any of the following:

- 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.

## Manual Lumbar



On vehicles with this feature, the handle is located on the outboard side of the seat.

Move the handle up repeatedly to decrease lumbar support. Move the handle down repeatedly to increase lumbar support.

## Reclining Seatbacks

### Manual Reclining Seatbacks

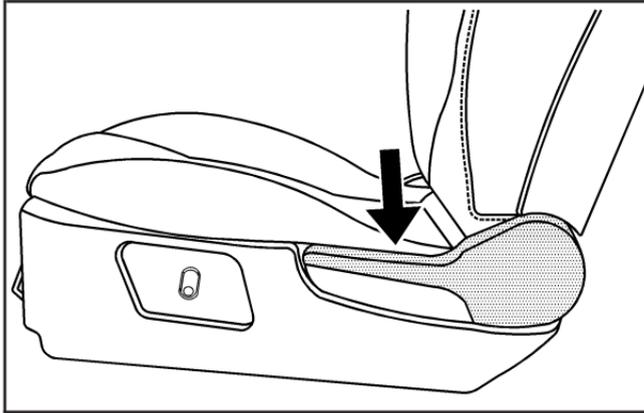
#### CAUTION:

**You can lose control of the vehicle if you try to adjust a manual driver's seat while the vehicle is moving. The sudden movement could startle and confuse you, or make you push a pedal when you do not want to. Adjust the driver's seat only when the vehicle is not moving.**

#### CAUTION:

**If the seatback is not locked, it could move forward in a sudden stop or crash. That could cause injury to the person sitting there. Always push and pull on the seatback to be sure it is locked.**

On seats with manual reclining seatbacks, the lever used to operate them is located on the outboard side of the seat.



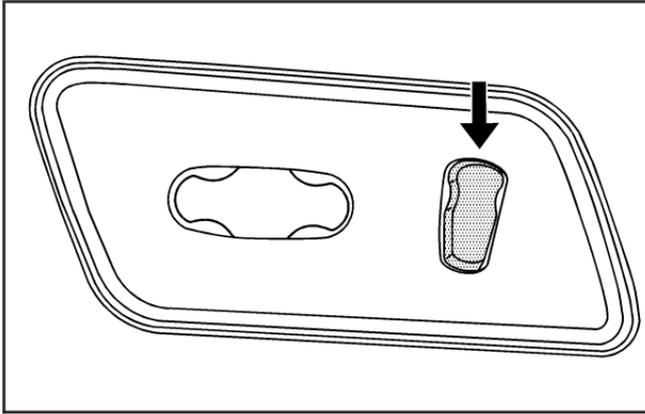
To return the seatback to an upright position, do the following:

1. Lift the lever fully without applying pressure to the seatback and the seatback returns to the upright position.
2. Push and pull on the seatback to make sure it is locked.

To recline the seatback, do the following:

1. Lift the recline lever.
2. Move the seatback to the desired position, then release the lever to lock the seatback in place.
3. Push and pull on the seatback to make sure it is locked.

## Power Reclining Seatbacks



If the seats have power reclining seatbacks, the control used to recline them is located on the outboard side of the seat behind the power seat control.

- To recline the seatback, tilt the top of the control rearward.
- To bring the seatback forward, tilt the top of the control forward.

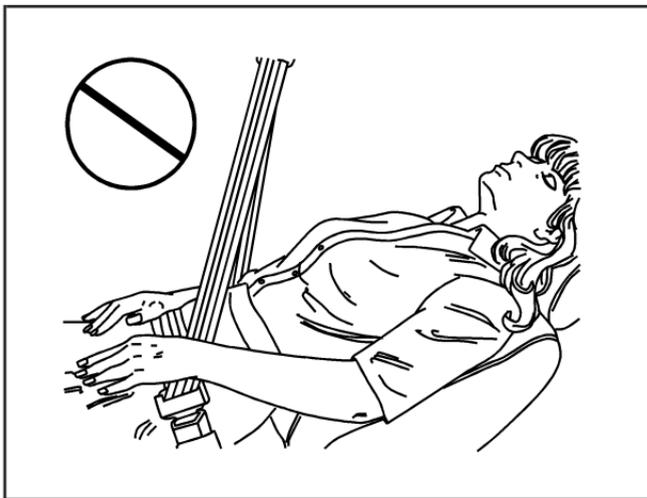
### CAUTION:

**Sitting in a reclined position when your vehicle is in motion can be dangerous. Even if you buckle up, your safety belts cannot do their job when you are reclined like this.**

**The shoulder belt cannot do its job. 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.**

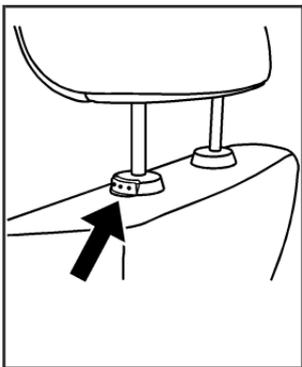


Do not have a seatback reclined if your vehicle is moving.

## Head Restraints



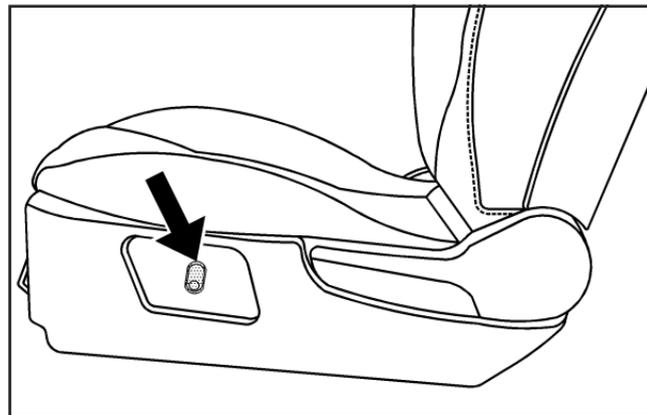
Adjust the head restraint so that the top of the restraint is at the same height as the top of the occupant's head. This position reduces the chance of a neck injury in a crash.



Pull the restraint up to raise it. To lower the head restraint, press the button, located on the top of the seatback, and push the restraint down.

The rear seat head restraints are also adjustable.

## Power Lift Seat



To adjust a power lift seat up or down:

1. Move the seat forward or rearward to the desired position.
2. Press the top or bottom of the power lift seat switch, located on the outboard side of the driver's seat, to raise or lower the seat.

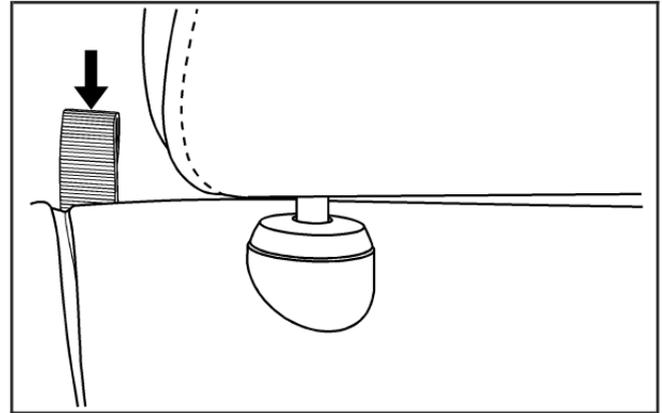
See *Manual Seats* on page 8.

## Rear Seats

### Split Folding Rear Seat

With this feature, you can fold either side of the seatback down for more cargo space. Make sure the front seat is not reclined. If it is, the rear seatback will not fold down all the way.

**Notice:** Folding a rear seat with the safety belts still fastened may cause damage to the seat or the safety belts. Always unbuckle the safety belts and return them to their normal stowed position before folding a rear seat.



To lower the rear seatback, pull on the seat tab located on the outboard side of the seatback cushion and fold the seatback down. This allows you direct access to the trunk.

To raise the rear seatback, follow these steps:

1. Raise the seatback up and make sure it latches.
2. Push and pull on the seatback to be sure it is locked in position.
3. Make sure that the safety belts are properly stowed over the seatback in all three positions.

 **CAUTION:**

**A safety belt that is improperly routed, not properly attached, or twisted will not provide the protection needed in a crash. The person wearing the belt could be seriously injured. After raising the rear seatback, always check to be sure that the safety belts are properly routed and attached, and are not twisted.**

 **CAUTION:**

**If the seatback is not locked, it could move forward in a sudden stop or crash. That could cause injury to the person sitting there. Always push and pull on the seatback to be sure it is locked.**

When the seat is not in use, it should be kept in the upright locked position.

## 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 163 and *Passenger Safety Belt Reminder Light* on page 164.

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

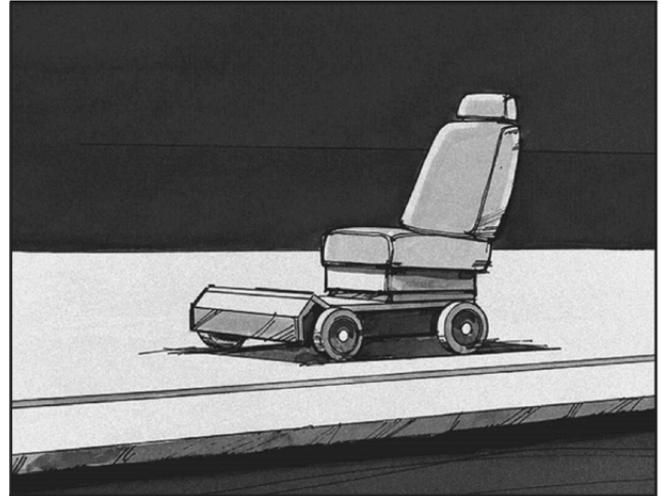
You never know if you will be in a crash. If you do have a crash, you do not know if it will be a bad one.

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.

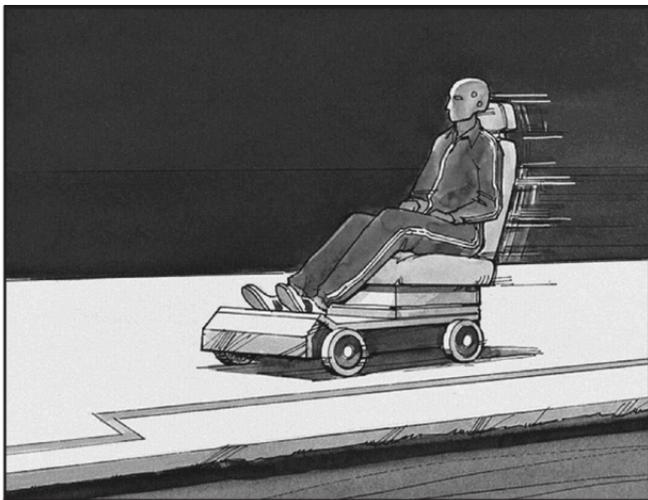
After more than 40 years of safety belts in vehicles, the facts are clear. In most crashes buckling up does matter... a lot!

## Why Safety Belts Work

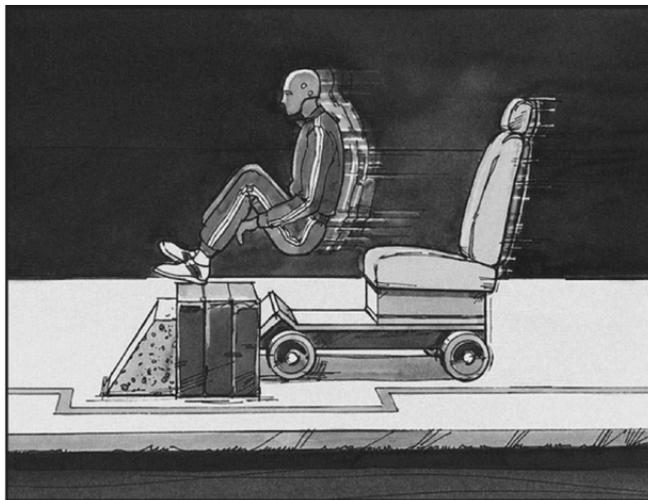
When you ride in or on anything, you go as fast as it goes.



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



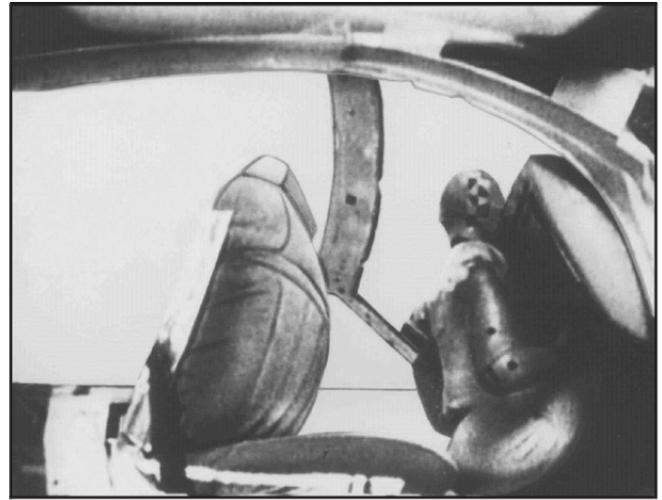
Put someone on it.



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 39* or *Infants and Young Children on page 42*. Follow those rules for everyone's protection.

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

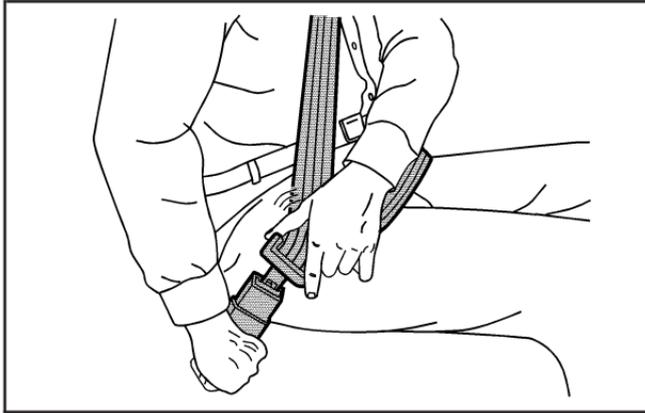
We will start with the driver position.

### 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.

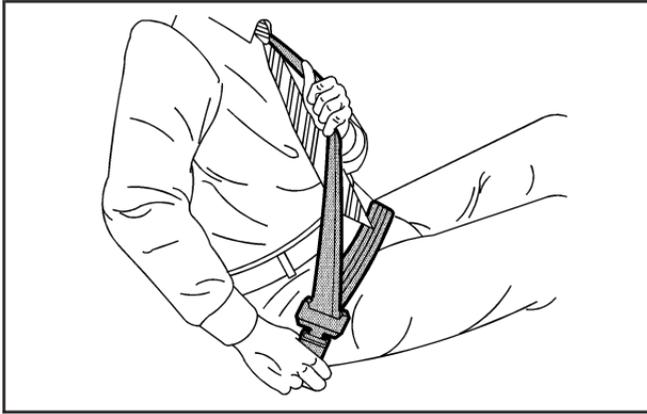
The lap-shoulder belt may lock if you pull the belt across you very quickly. If this happens, let the belt go back slightly to unlock it. Then pull the belt across you more slowly.

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

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 38*.

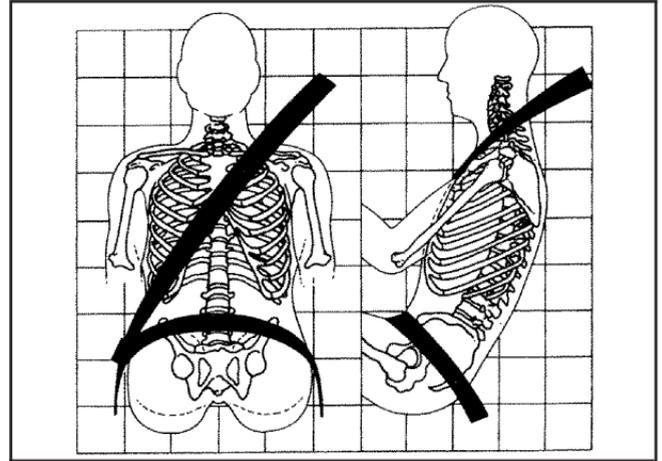
Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.

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 30*.



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

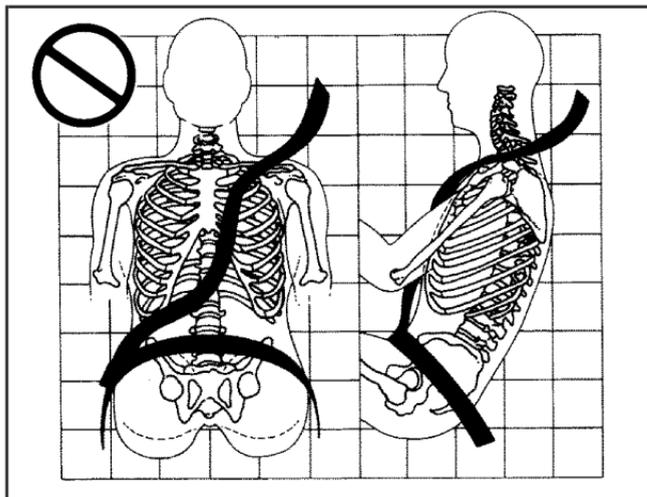
It may be necessary to pull stitching on the safety belt through the latch plate to fully tighten the lap belt on smaller occupants.



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?

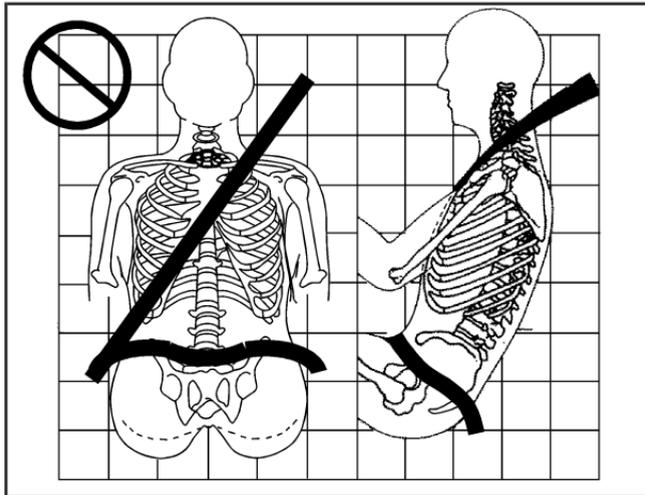


**A:** The shoulder belt is too loose. It will not give nearly as much protection this way.

**⚠ 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?

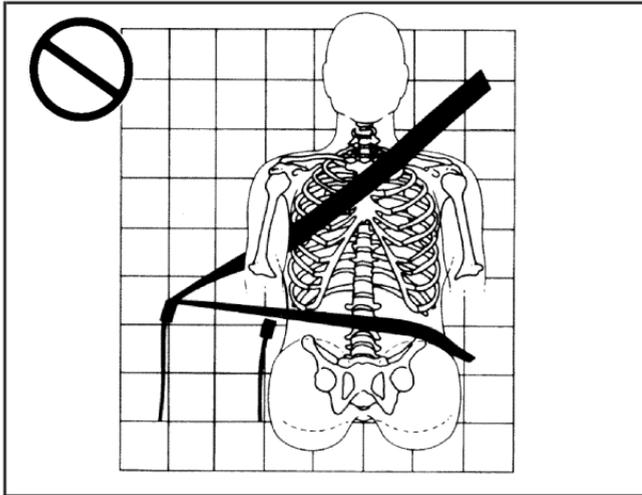


**A:** The lap belt is too loose. It will not give nearly as much protection this way.

**⚠ 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?

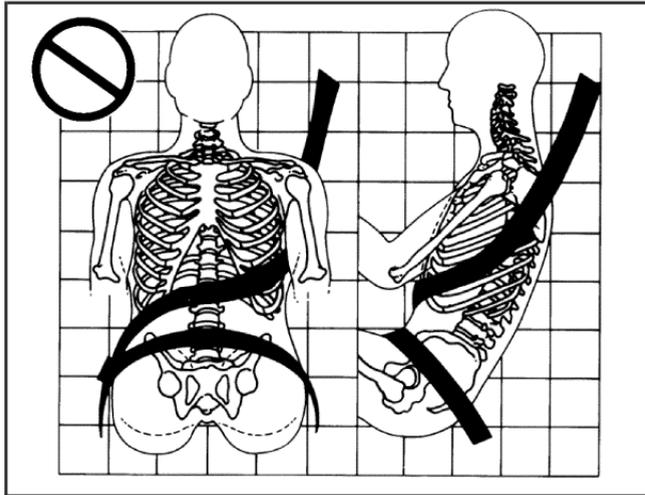


**A:** The belt is buckled in the wrong place.

**⚠ 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?

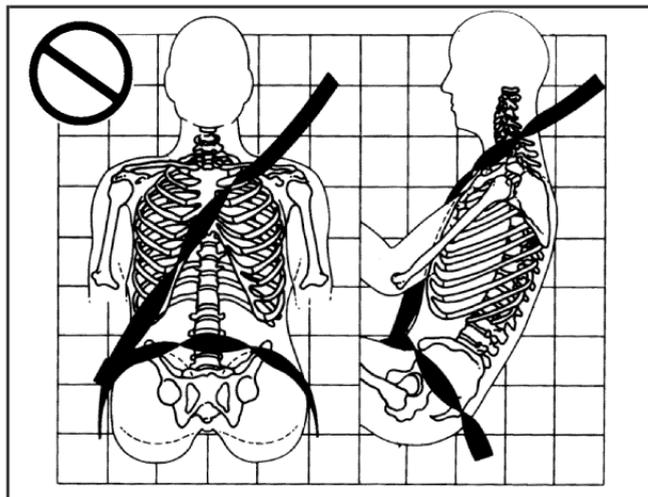


**A:** The shoulder belt is worn under the arm. It should be worn over the shoulder at all times.

**⚠ 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.

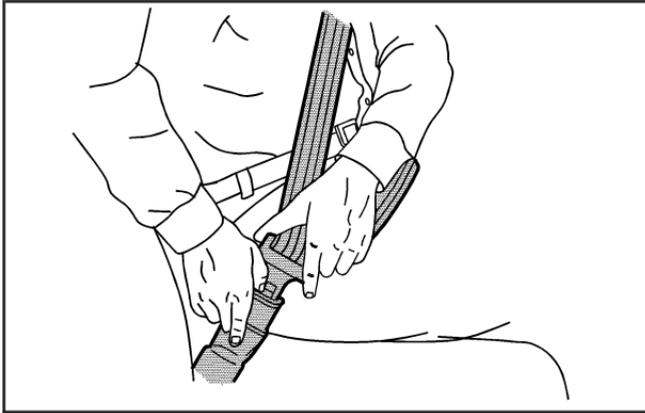
**Q:** What is wrong with this?



**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 retailer to fix it.



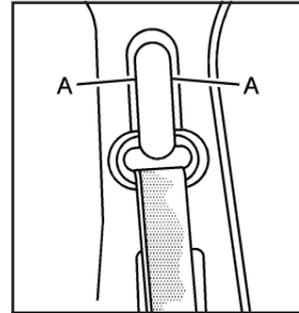
To unlatch the belt, just push the button on the buckle. The belt should go back out of the way.

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 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.

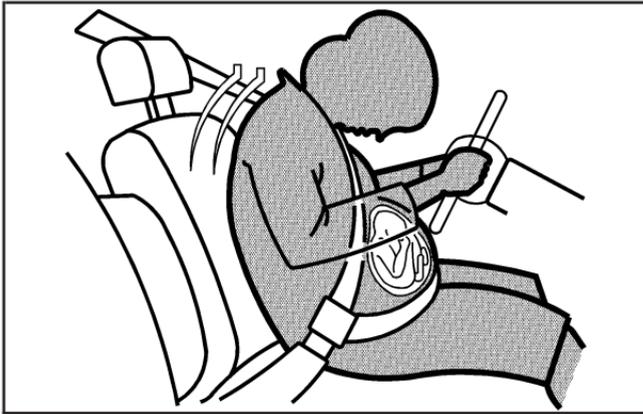


To move it down, squeeze the buttons (A) on the sides of the height adjuster and move the height adjuster to the desired position.

After you move the adjuster to where you want it, try to move it down without squeezing the buttons 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 22*.

The right front passenger's safety belt works the same way as the driver's safety belt — except for the following.

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, just let the belt go back all the way and start again.

When the safety belt is not in use, slide the latch plate up the safety belt webbing. The latch plate should rest on the stitching on the safety belt, near the guide loop.

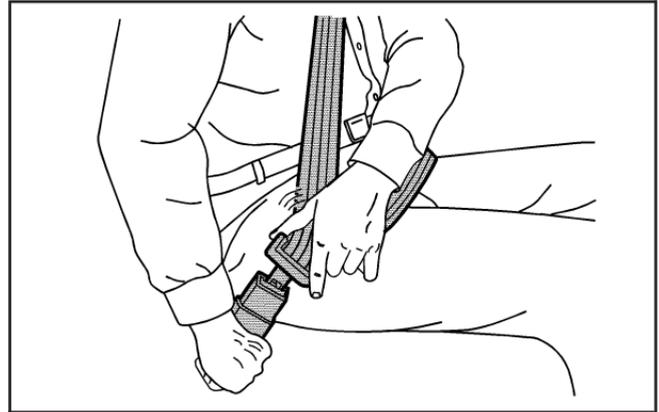
## Rear Seat Passengers

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 seat 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.

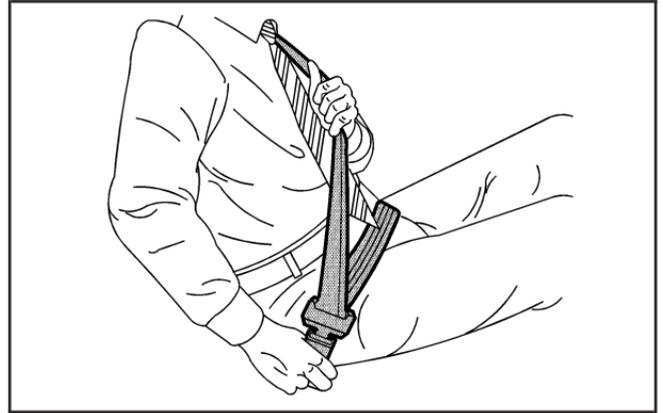
2. Push the latch plate into the buckle until it clicks.

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

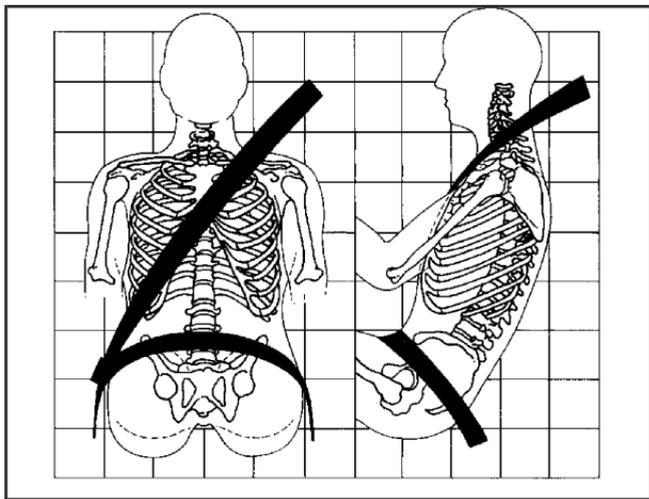
When the shoulder belt is pulled out all the way, it will lock. If it does, let it go back all the way and start again.

If the belt is not long enough, see *Safety Belt Extender on page 38*.

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.



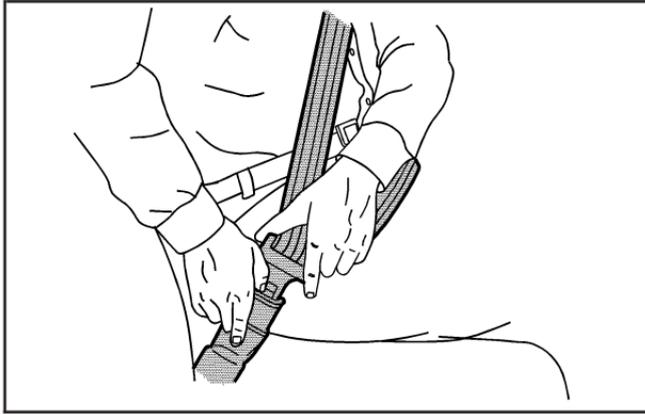
The lap part of the belt should be worn low and snug on the hips, just touching the thighs. In a crash, this applies force to the strong pelvic bones. And you would be less likely to slide under the lap belt. If you slid under it, the belt would apply force at your abdomen. This could cause serious or 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 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.**

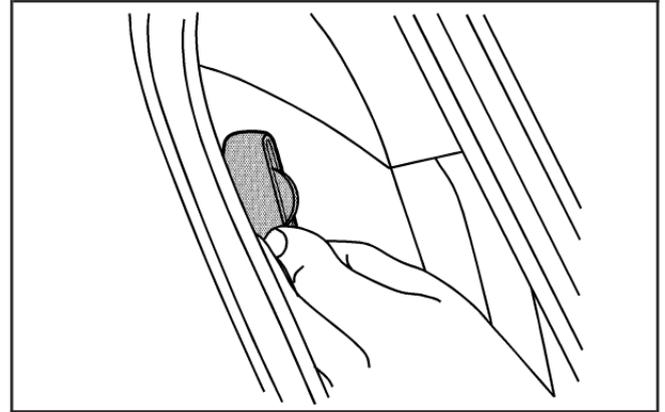


To unlatch the belt, push the button on the buckle.

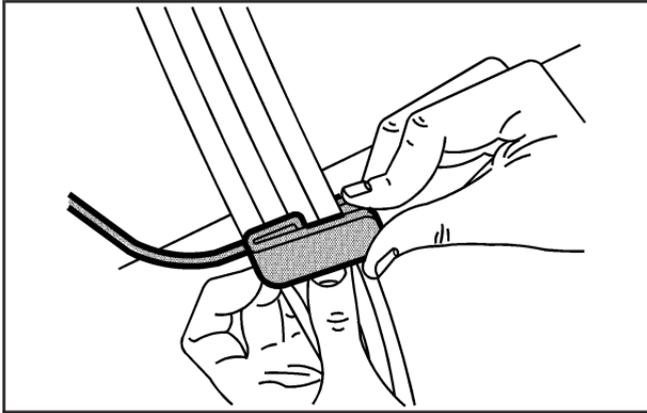
## Rear Safety Belt Comfort Guides

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

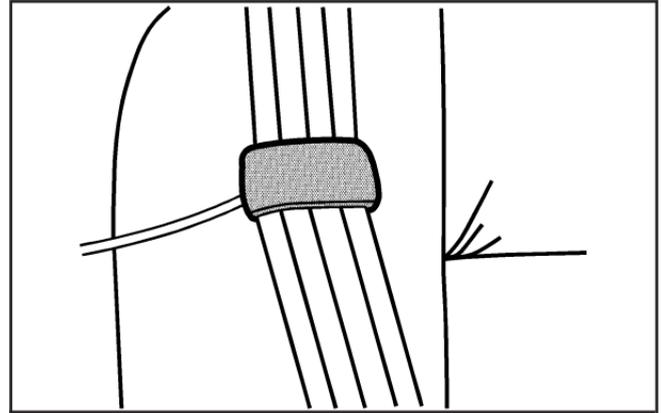
There is one guide for each outboard passenger position in the rear seat. Here is how to install a comfort guide to the safety belt:



1. Pull the elastic cord out from between the edge of the seatback and the interior body to remove the guide from its storage clip.



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 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 32*. 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. Pull the guide upward to expose its storage clip, and then slide the guide onto the clip. Turn the guide and clip inward and slide them in between the seatback and the interior body, leaving only the loop of the elastic cord exposed.

## 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.

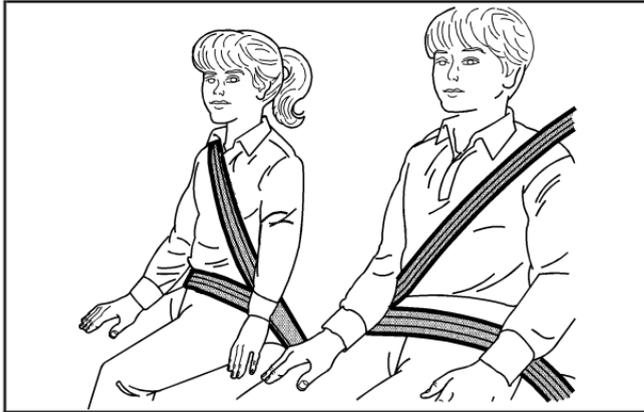
## Safety Belt Extender

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

But if a safety belt is not long enough, your retailer 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 cannot 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 35*. 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.

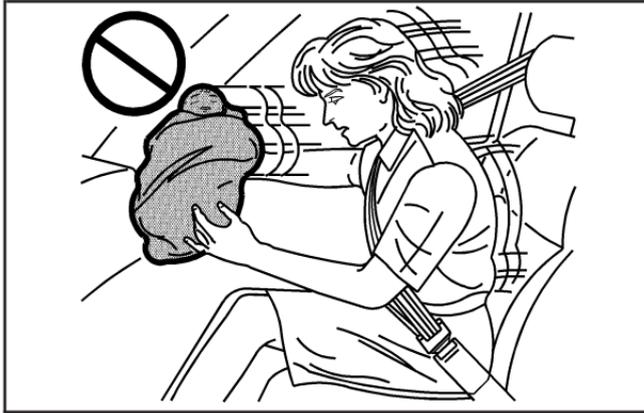
### CAUTION:

**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.**



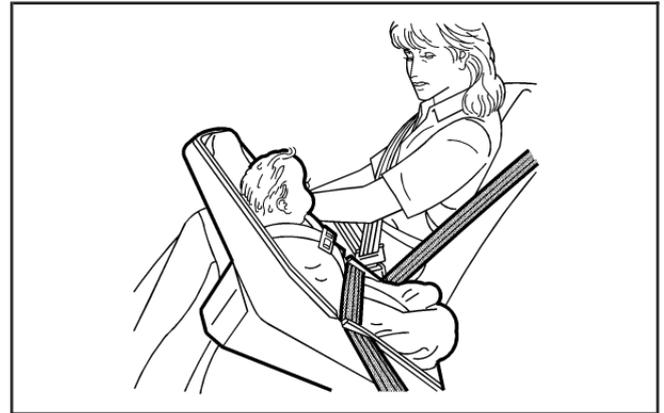
**⚠ CAUTION:**

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

**CAUTION: (Continued)**

**CAUTION: (Continued)**

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.

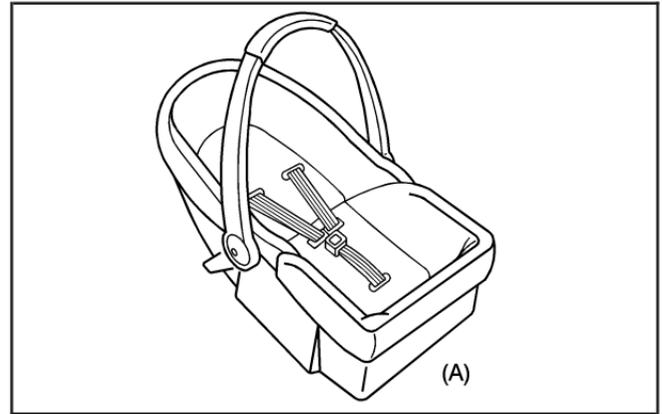
 **CAUTION:**

**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.**

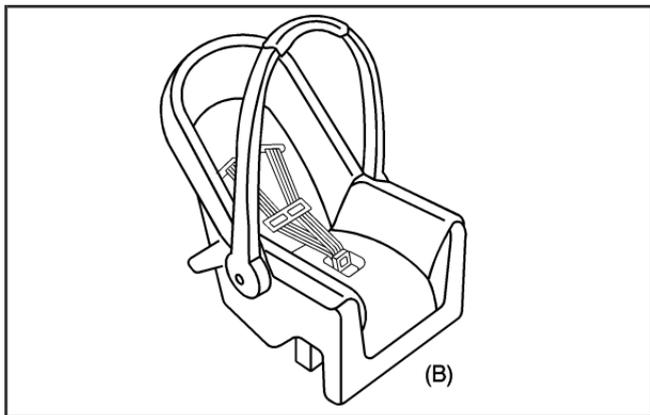
**⚠ CAUTION:**

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.

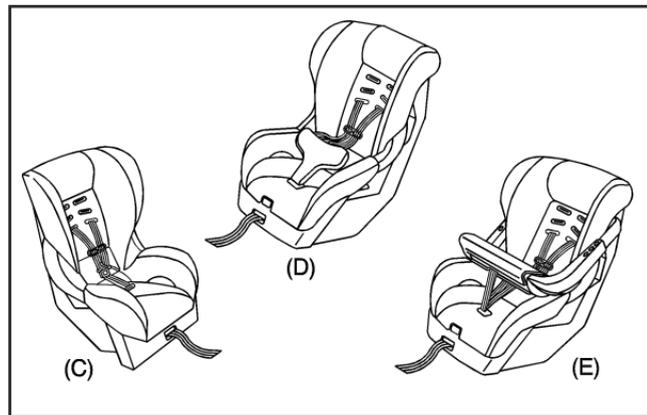
## Child Restraint Systems



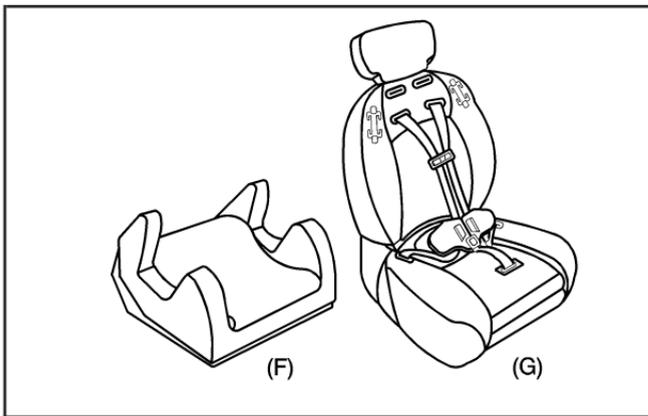
An infant car bed (A), a special bed made for use in a motor vehicle, is an infant restraint system designed to restrain or position a child on a continuous flat surface. Make sure that the infant's head rests toward the center of the vehicle.



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 52 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 recommend that children be secured in a rear seat, including: an infant or a child riding in a rear-facing child restraint; a child riding in a forward-facing child seat; an older child riding in a booster seat; and children, who are large enough, using safety belts.

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 equipped) if the system detects a rear-facing child restraint, no system is fail-safe, and no one can**

**CAUTION: (Continued)**

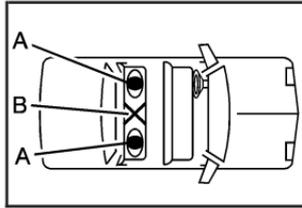
**CAUTION: (Continued)**

**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 a rear seat, even if the airbag(s) are off.**

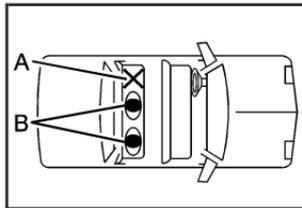
**If you secure a forward-facing child restraint in the right front seat, always move the front passenger seat as far back as it will go. It is better to secure the child restraint in a rear seat.**

If you need to secure more than one child restraint in the rear seat, review the following illustrations. Depending on where you place the child restraint or the size of the child restraint, you may not be able to access certain safety belt assemblies or LATCH anchors for additional passengers or child restraints.

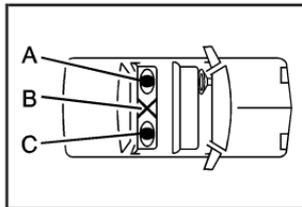
## Configurations for Use of Two Child Restraints



- A. Child restraint using LATCH
- B. Occupant prohibited

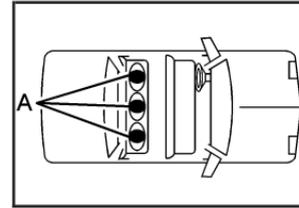


- A. Occupant prohibited
- B. Child restraint using LATCH

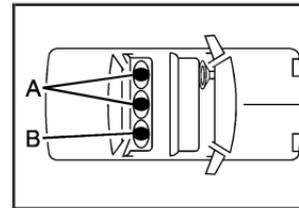


- A. Child restraint using LATCH
- B. No occupant recommended
- C. Child restraint or occupant using safety belt

## Configurations for Use of Three Child Restraints



- A. Child restraint or occupant using safety belt



- A. Child restraint or occupant using safety belt
- B. Child restraint using LATCH

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.

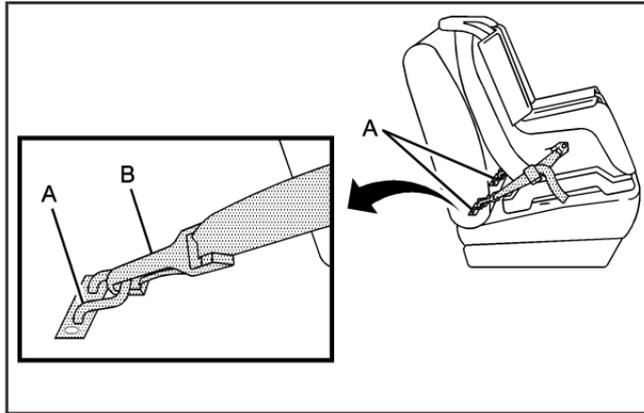
Make sure that a LATCH-compatible child restraint is properly installed using the anchors, or use the vehicle's safety belts to secure the restraint, following the instructions that came with that restraint, and also the instructions in this manual.

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.

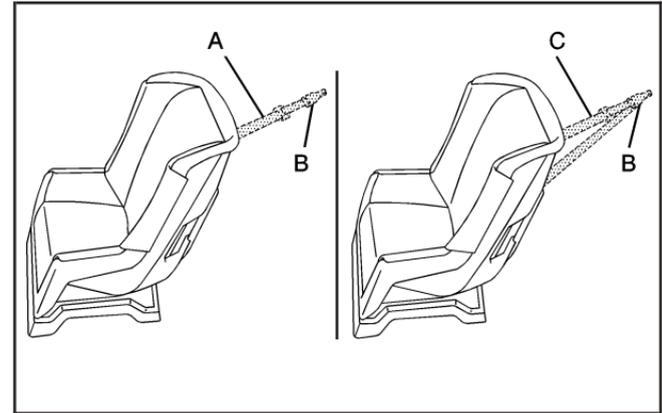
Not all vehicle seating positions or child restraints have lower anchors and attachments or top tether anchors and attachments.

## 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



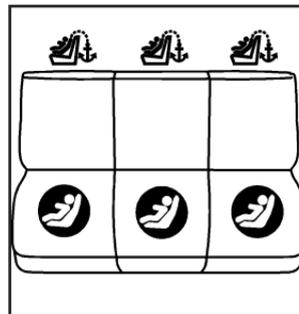
A top tether (A, C) anchors the top of the child restraint to the vehicle. A top tether anchor is built into the vehicle. The top tether attachment (B) on the child restraint connects to the top tether anchor in the vehicle in order to reduce the forward movement and rotation of the child restraint during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



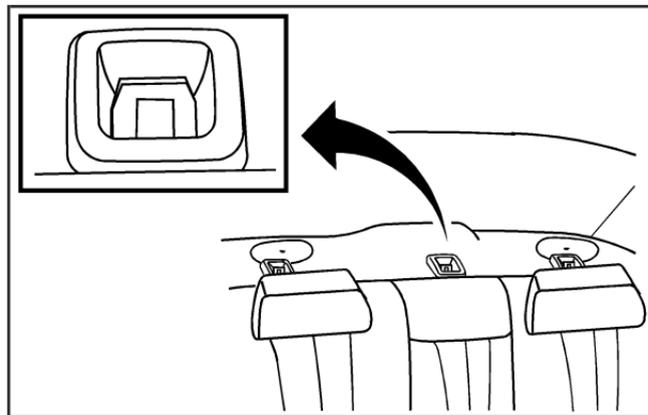
Rear Seat

 (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 rear anchor position has a label, near the crease between the seatback and the seat cushion, showing where the anchors are located.



The top tether anchors are located behind the rear seat on the filler panel.

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 49* 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:**

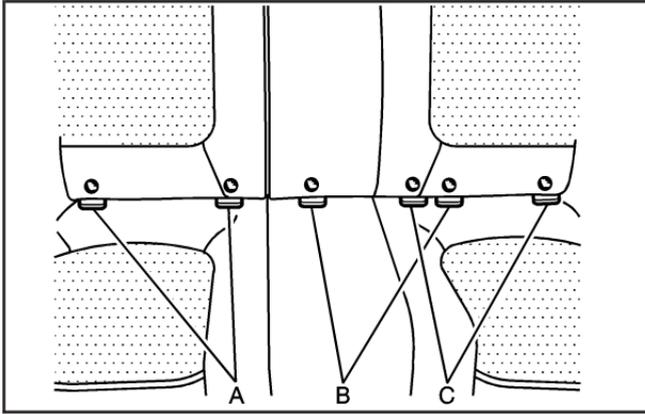
Children can be seriously injured or strangled if a shoulder belt is wrapped around their neck and the safety belt continues to tighten. Secure any unused safety belts behind the child restraint so children cannot reach them. Pull the shoulder belt all the way out of the retractor to set the lock, if 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.

If you need to secure more than one child restraint in the rear seat, see *Where to Put the Restraint on page 49*. Depending on where you place the child restraint, you may not be able to access certain safety belt assemblies or LATCH anchors for additional passengers or child restraints.

You cannot secure three child restraints using the LATCH anchors in the rear seat at the same time, but you can install two of them. If you want to do this, install one LATCH child restraint in the passenger-side position, and install the other one either in the driver-side position or in the center position. Refer to the following illustration to learn which anchors to use.



- A. Passenger Side Rear Seat Lower Anchors
- B. Center Rear Seat Lower Anchors
- C. Driver Side Rear Seat Lower Anchors

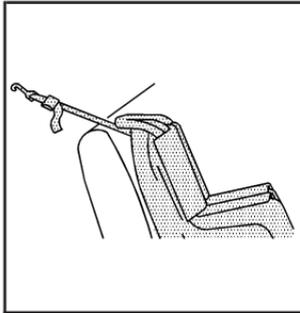
Make sure to attach the child restraint at the proper anchor location.

This system is designed to make installation of child restraints easier. When using lower anchors, do not use the vehicle's safety belts. Instead use the vehicle's anchors and child restraint attachments to secure the restraints. Some restraints also use another vehicle anchor to secure a top tether.

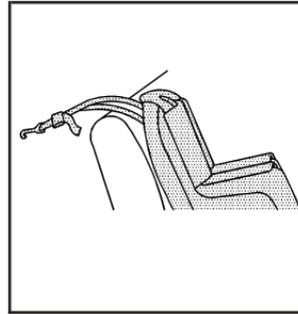
1. Attach and tighten the lower attachments to the lower anchors. If the child restraint does not have lower attachments or the desired seating position does not have lower anchors, secure the child restraint with the top tether and the safety belts. Refer to your child restraint manufacturer instructions 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:

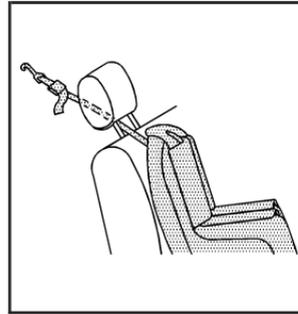
- 2.1. Find the top tether anchor.
- 2.2. If the position you are using has an adjustable head restraint, raise it. See *Head Restraints on page 13*.
- 2.3. Route, attach, and tighten the top tether according to the child restraint instructions and the following instructions:



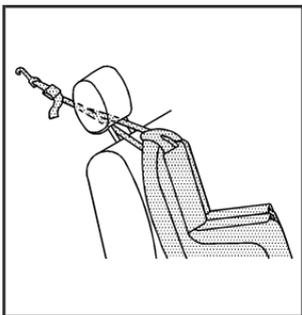
If the position you are using does not have a head restraint and you are using a single tether, route the tether over the seatback.



If the position you are using does not have a head restraint and you are using a dual tether, route the tether over the seatback.



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. See *Head Restraints on page 13*.



If the position you are using has an adjustable head restraint and you are using a dual tether route the tether under the head restraint and in between the head restraint posts. See *Head Restraints on page 13*.

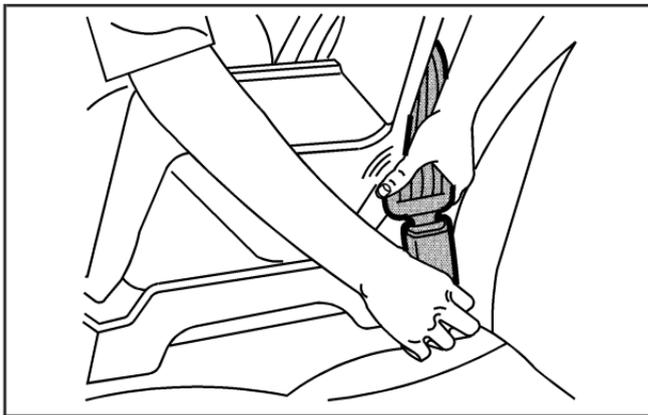
## Securing a Child Restraint in a Rear Seat Position

If your child restraint has the LATCH system, see *Lower Anchors and Tethers for Children (LATCH) on page 52*.

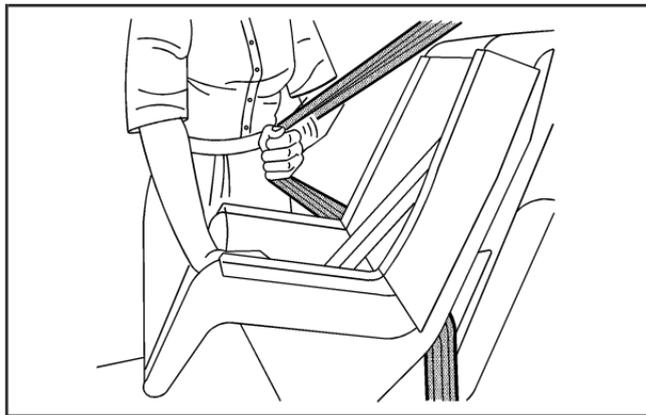
If your child restraint does not have the LATCH system, you will be using the lap-shoulder belt to secure the child restraint in this position. Be sure to follow the instructions that came with the child restraint. Secure the child in the child restraint when and as the instructions say.

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

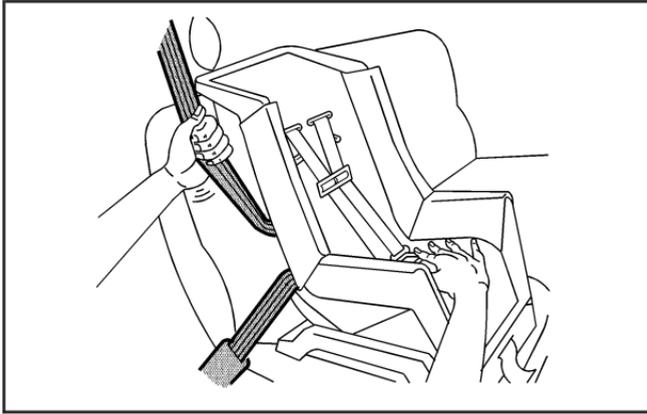
1. Put the child restraint on the seat.
2. Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint. The child restraint instructions will show you how.



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 52.
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 Right Front Seat Position

Your vehicle has airbags. A rear seat is a safer place to secure a forward-facing child restraint. See *Where to Put the Restraint* on page 49.

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 and seat-mounted side impact 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 165* 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**

**CAUTION: (Continued)**

**CAUTION: (Continued)**

**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 a rear seat, even if the airbags are off.**

**If you 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 your child restraint has the LATCH system, see *Lower Anchors and Tethers for Children (LATCH)* on page 52.

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 52 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.

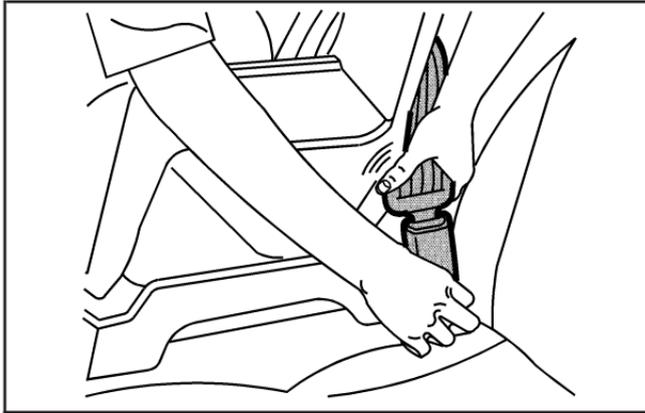
Your vehicle has airbags. See *Passenger Sensing System* on page 77. We recommend that rear-facing child restraints be secured in a rear seat, even if the airbags are off.

1. Move the seat as far back as it will go before securing the forward-facing child restraint. See *Manual Seats* on page 8 or *Power Seats* on page 9.

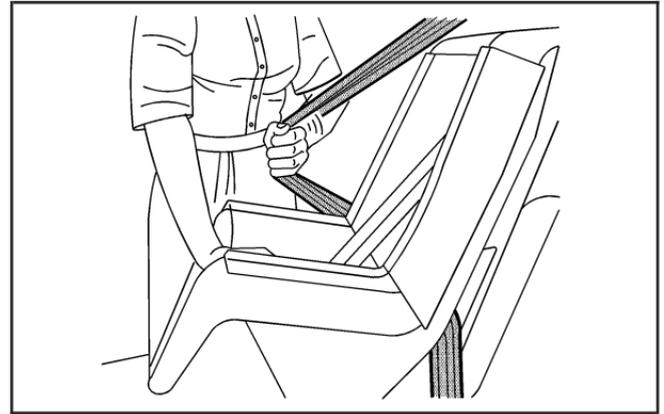
When the passenger sensing system has turned off the right front passenger's frontal airbag and seat-mounted side impact airbag, the off indicator on the passenger airbag status indicator should light and stay lit when you start the vehicle. See *Passenger Airbag Status Indicator* on page 165.

2. Put the child restraint on the seat.

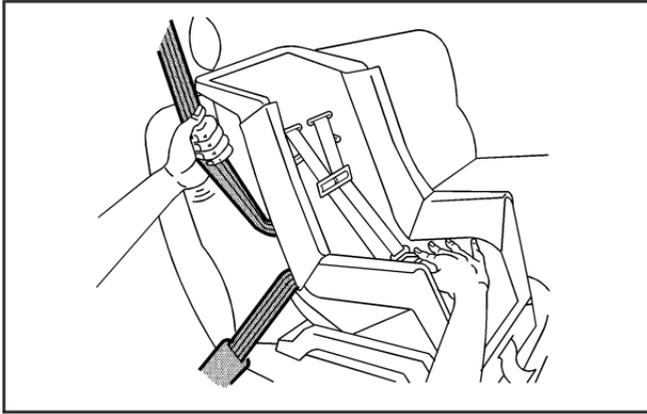
3. Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint. The child restraint instructions will show you how.



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.

If the airbags are off, the off indicator will be lit and stay lit when you start the vehicle.

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/retailer.

To remove the child restraint, 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. When the safety belt is not in use, slide the latch plate up the safety belt webbing. The latch plate should rest on the stitching on the safety belt, near the guide loop.

# Airbag System

Your vehicle has the following airbags:

- A frontal airbag for the driver.
- A frontal airbag for the right front passenger.
- A seat-mounted side impact airbag for the driver.
- A seat-mounted side impact airbag for the right front passenger.
- A roof-mounted side impact airbag for the driver and passenger directly behind the driver.
- 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.**

**⚠ CAUTION:**

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 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 39* or *Infants and Young Children on page 42*.



There is an airbag readiness light on the instrument panel cluster, 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 164* 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.



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.



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. 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.

In addition, your vehicle has "dual stage" frontal airbags, which adjust the restraint according to crash severity. Your vehicle has electronic frontal sensors, which help the sensing system distinguish between a moderate frontal impact and a more severe frontal impact. For moderate frontal impacts, these airbags inflate at a level less than full deployment. For more severe frontal impacts, full deployment occurs.

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 18 to 25 mph (29 to 40.2 km/h). 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.

The 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 frontal or near-frontal impacts, rollovers, or rear impacts. A side impact airbag is intended to deploy on the side of the vehicle that is struck, unless the passenger sensing system has turned off the passenger's seat-mounted side impact airbag. See *Passenger Sensing System on page 77* for more information.

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 in frontal and near-frontal impacts. 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.

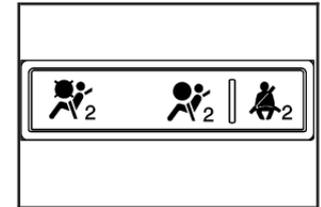
- Airbags are designed to inflate only once. After an airbag inflates, you will need some new parts for the airbag system. If you do not get them, the airbag system will not be there to help protect you in another crash. A new system will include airbag modules and possibly other parts. The service manual 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 Recording and Privacy on page 389* and *Event Data Recorders on page 389*.
- Let only qualified technicians work on the airbag systems. Improper service can mean that an airbag system will not work properly. See your dealer/retailer for service.

## Passenger Sensing System

Your vehicle has a passenger sensing system for the right front passenger's position. The passenger airbag status indicator will be visible when you start your vehicle in the instrument panel.



**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 165*.

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 children be secured in a rear seat, including: an infant or a child riding in a rear-facing child restraint; a child riding in a forward-facing child seat; an older child riding in a booster seat; and children, who are large enough, using safety belts.

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 a rear seat, even if the airbags are off.**

**CAUTION: (Continued)**

**CAUTION: (Continued)**

**If you 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 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. See *Passenger Airbag Status Indicator on page 165*.

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. See *Head Restraints on page 13*.

Remove any additional material from the seat cushion before reinstalling or securing the child 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/retailer.

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 two to three 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.



Safety belts help keep the passenger in position on the seat during vehicle maneuvers and braking, which helps the passenger sensing system maintain the passenger airbag status. See “Safety Belts” and “Child Restraints” in the Index for additional information about the importance of proper restraint use.

**⚠ 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 airbag(s). See *Airbag Readiness Light* on page 164 for more on this, including important safety information.

A thick layer of additional material, such as a blanket or cushion, or aftermarket equipment such as seat covers, seat heaters, and seat massagers can affect how well the passenger sensing system operates. You may want to consider not using seat covers or other aftermarket equipment. 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 retailer 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 387.

 **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 372*.

**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 372*.

## 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. Keep safety belts clean and dry. See *Care of Safety Belts on page 335* 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 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. 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 may also mean you may 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 an airbag inflates, you may also need to replace the driver's and right front passenger's safety belt assemblies. Be sure to do so. Then the new assemblies 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 assemblies, even if the airbags have not deployed. 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 164*.

## Section 2 Features and Controls

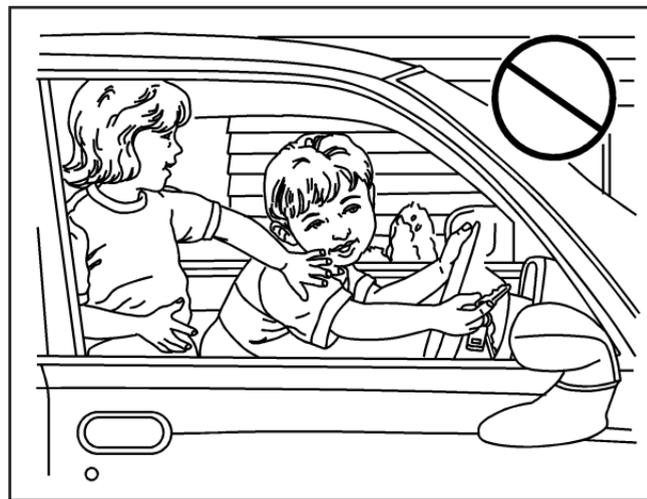
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## Keys

### CAUTION:

Leaving children in a vehicle with the ignition key is dangerous for many reasons, children or others could be badly injured or even killed. They could operate the power windows or other controls or even make the vehicle move. The windows will function with the keys in the ignition and they could be seriously injured or killed if caught in the path of a closing window. Do not leave the keys in a vehicle with children.



One key is used for the ignition and all locks.

When a new vehicle is delivered to the dealer/retailer, the key has a key tag. This tag has a bar-coded key code that tells your dealer/retailer how to make extra keys. This tag may be removed and kept by your dealer/retailer. If it has not been removed, keep the tag in a safe place. If you lose your key, your dealer/retailer can easily make another one by using the key code. See *Roadside Assistance Program on page 377* for more information.

**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.

## Remote Keyless Entry (RKE) System

Your vehicle may have a Remote Keyless Entry (RKE) system. The 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.

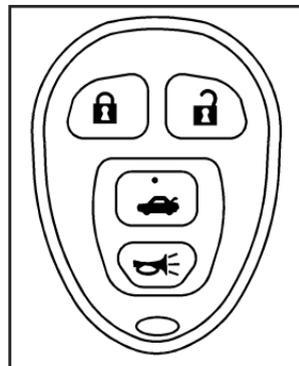
Changes or modifications to this system by other than an authorized service facility could void authorization to use this equipment.

At times you may notice a decrease in range. This is normal for any remote keyless entry 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 90.
- If you are still having trouble, see your retailer or a qualified technician for service.

## Remote Keyless Entry (RKE) System Operation

The vehicle's doors can be locked and unlocked, and the trunk can be opened from about 3 feet (1 m) up to 197 feet (60 m) away with the Remote Keyless Entry (RKE) transmitter.



Use the following functions if your vehicle has the RKE system.

 **(Lock):** Press the lock button to lock all the doors. The interior lamps will turn off after all of the doors are closed. If enabled through the Driver Information Center (DIC), the remote lock feedback can be programmed to have the horn chirp and/or the turn signals flash when the RKE transmitter is used to lock the vehicle's doors. See "LOCK HORN" and "LIGHT FLASH" under *DIC Vehicle Personalization on page 187* for more information.

Pressing the lock button may also arm the content theft-deterrent system. See *Content Theft-Deterrent on page 103*.

 **(Unlock):** Press the unlock button to unlock the driver's door. If the button is pressed again within five seconds, all remaining doors unlock. The interior lamps turn on and stay on for 20 seconds or until the ignition is turned on. If enabled through the DIC, the remote unlock feedback can be programmed to have the horn chirp and/or the turn signals flash when the RKE transmitter is used to unlock the vehicle's doors. See "UNLOCK HORN" and "LIGHT FLASH" under *DIC Vehicle Personalization on page 187* for more information.

If enabled through the DIC, and it is dark enough outside, the vehicle's high-beam headlamps, parking lamps, and back-up lamps will turn on each time the unlock button on the transmitter is pressed. These exterior lamps will stay on for 20 seconds, or until a door is opened. See "EXT (Exterior) LIGHTS" under *DIC Vehicle Personalization on page 187* for additional information.

Pressing the unlock button on the RKE transmitter will disarm the content theft-deterrent system. See *Content Theft-Deterrent on page 103*.

 **(Remote Trunk Release):** Press and hold this button for about one second to open the trunk. The trunk can be opened with the transmitter when the vehicle speed is less than 2 mph (3 km/h) or when the ignition is off.

 **(Vehicle Locator/Panic Alarm):** Press and release this button to locate your vehicle. The horn sounds three times and the headlamps and turn signals flash three times. Press and hold the button for about three seconds to initiate the panic alarm. The horn sounds and the headlamps and turn signals flash for 30 seconds. Press the button again to cancel the panic alarm.

## 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 retailer. Remember to bring any remaining transmitters with you when you go to your retailer. Each vehicle can have a maximum of four transmitters matched to it.

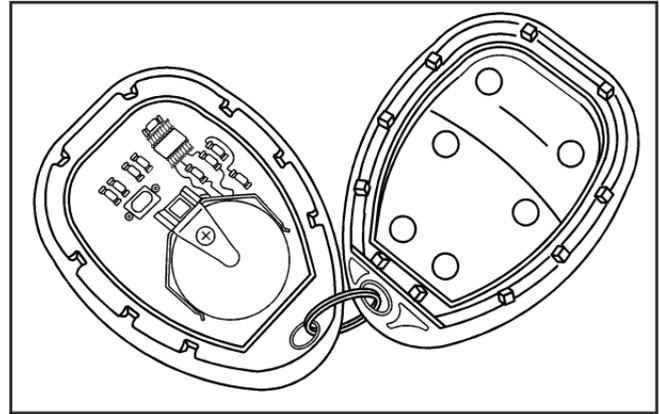
## Battery Replacement

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

The battery is weak if the transmitter does 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.

If the battery is low, a KEY FOB BATT (Battery) LOW message will display in the vehicle's DIC.

**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 RKE transmitter do the following:

1. Insert a flat object, with a thin edge, into the notch located below the vehicle locator/panic alarm button, and separate the bottom half from the top half of the transmitter.
2. Remove the battery and replace it with the new one. Make sure the positive (+) side of the battery faces up. Use one three-volt, CR2032, or equivalent, type battery.

3. Put the two halves back together. Make sure the cover is on tight, so water will not get inside the transmitter.
4. Test the operation of the transmitter with the 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.**

**CAUTION: (Continued)**

#### **CAUTION: (Continued)**

- **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.**
- **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.

From the outside, use your key or Remote Keyless Entry (RKE) transmitter, if the vehicle has one. Turn the key counterclockwise to unlock the door.

From the inside, lock and unlock the door by moving the manual lock knob down and up, or by using the power door lock switches.

## Power Door Locks

The power door lock switches are located on the driver's and front passenger's door.

Press the outboard side of the switch to unlock all doors. Press the inboard side of the switch to lock all doors.

The rear doors do not have power door lock switches. Rear seat passengers must use the manual lock knob on their doors.

## Door Ajar Reminder

If one of the doors is not fully closed while the ignition is on and the shift lever is moved out of PARK (P) or NEUTRAL (N) the following will occur:

- A chime will sound.
- The DOOR AJAR message will display through the Driver Information Center (DIC) until the door is closed. See *DIC Warnings and Messages on page 182*.

## Delayed Locking

This feature allows the driver to delay the locking of the vehicle. It will not operate with the key in the ignition. See *Lockout Protection on page 97*.

Press the driver's power door lock switch or the Remote Keyless Entry (RKE) transmitter lock button once. With the key removed from the ignition and the driver's door open, the following occurs:

- Three chimes sound to signal the delay.
- All doors will lock and the turn signals flash once five seconds after the last door has been closed.
- The horn chirps if the horn chirp feature is enabled. See *DIC Vehicle Personalization on page 187*.

If a door is opened before the five seconds has elapsed, the doors do not lock until five seconds after all doors are closed.

If the power door lock switch or the transmitter lock button is pressed twice when leaving the vehicle, the doors lock immediately.

If the power door unlock switch or the transmitter unlock button is pressed, the doors unlock immediately and do not lock automatically after the doors are closed.

This feature is turned on at the factory but may be turned off through the Driver Information Center (DIC). See *DIC Vehicle Personalization on page 187*

## **Programmable Automatic Door Locks**

Your vehicle is programmed at the factory to lock all doors automatically when the following are met:

- All doors are closed.
- The ignition is on.
- The shift lever is moved out of PARK (P).

This feature cannot be disabled.

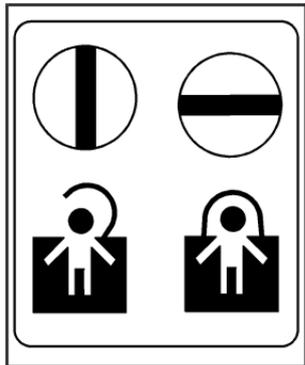
When the shift lever is moved back to PARK (P), all doors will unlock.

If someone needs to exit the vehicle once the doors are locked, have that person use the manual lock knob or power door unlock switch.

The power door unlock function can be programmed through prompts displayed on the Driver Information Center (DIC). These prompts allow you to choose unlock settings. See *DIC Vehicle Personalization on page 187*.

## Rear Door Security Locks

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



**Security Lock Label  
shown**

The rear door security locks are located on the inside edge of each rear door.

The rear doors must be open to access them. The label showing lock and unlock positions is located near the lock.

To set the locks, do the following:

1. Insert the key into the security lock slot and turn it so the slot is in the horizontal position.
2. Close the door.

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

1. Unlock the door by lifting the rear door manual lock, using the power door lock switch, or the Remote Keyless Entry (RKE) transmitter, if the vehicle has one.
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. Insert the key into the security lock slot and turn it so the slot is in the vertical position.

## Lockout Protection

This feature prevents the driver's door from being locked using the power door locks, if the key is left in the ignition and a door is open.

Press the power door lock switch to lock all the doors and then unlock the driver's door.

Press and hold the power door lock switch for more than three seconds to override this feature.

If the key is removed from the ignition, or if the manual door lock or the Remote Keyless Entry (RKE) transmitter is used, the key could still be locked inside the vehicle. Always remember to take the key with you.

## Trunk

To open the trunk from the outside, press the trunk release button on the Remote Keyless Entry (RKE) transmitter.

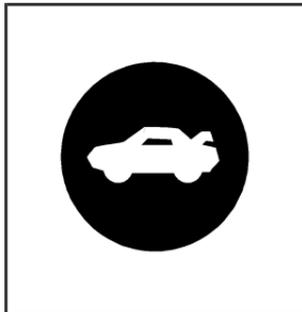
### CAUTION:

**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 123.**

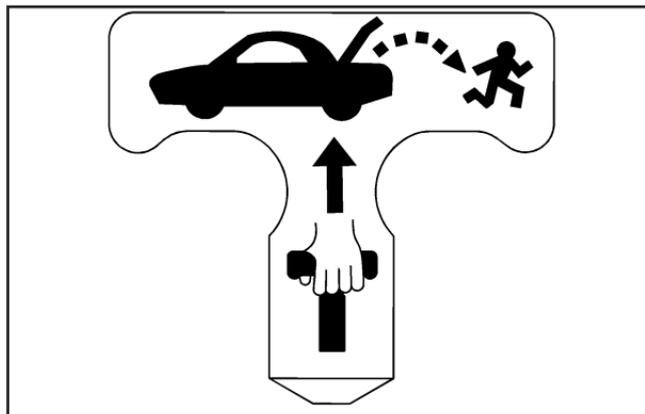
## Remote Trunk Release



Press the button located on the driver's door near the map pocket to open the trunk.

The trunk can only be opened while the vehicle is in PARK (P).

## Emergency Trunk Release Handle



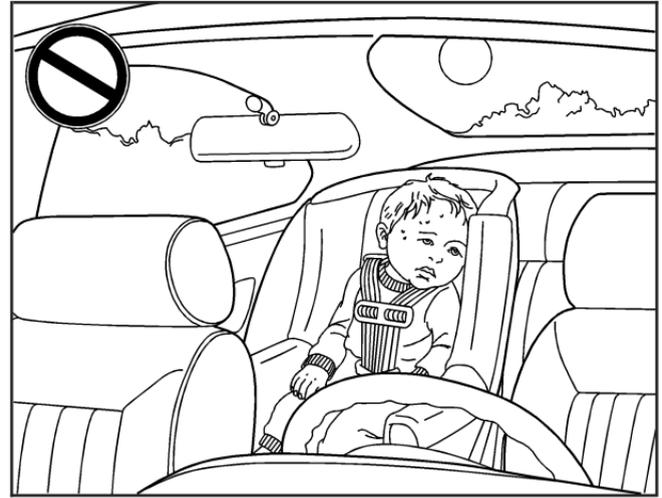
**Notice:** Do not use the emergency trunk release handle as a tie-down or anchor point when securing items in the trunk as it could damage the handle. The emergency trunk release handle is only intended to aid a person trapped in a latched trunk, enabling them to open the trunk from the inside.

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

# 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 armrest on the driver's door. In addition, each passenger door has a switch for its own window.

## Express-Down Window

The driver's window has an express-down feature. This switch is labeled AUTO. Press the front of the switch part way, and the driver's window opens a small amount. If the front of the switch is pressed all the way down and released, the window goes all the way down automatically.

To stop the window while it is lowering, pull the front of the switch momentarily. To raise the window, pull and hold the front of the switch.

## Express-Up Window

Your vehicle may have this feature on the driver's window. 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 the driver's power window for the express-up feature to work. Replace or recharge the vehicle's battery before reprogramming.

To program the driver's window, follow these steps:

1. With the ignition in ACC, ON, 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.

## Express Window Anti-Pinch Feature

If any object is in the path of the window when the express-up is active, the window stops 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 returns 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 rises 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

The driver's power window controls also include a lockout button.

 **(Window Lockout):** Press the lockout button to stop the rear passengers from using their window switches. The driver and front passenger can still operate all the windows with the lock on. When the red part of the switch is visible you have returned to normal window operation.

## Sun Visors

To block out glare, you can swing down the visors. You can also remove them from the center mount and swing them to the side, to block out glare from the side.

Your vehicle may have lighted visor vanity mirrors located on the passenger and driver's side visor. When you lift the cover, the light will turn on.

## 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.

### Content Theft-Deterrent



Your vehicle may have a content theft-deterrent alarm system.

## Arming the System

With the ignition off, you can arm the system by pressing the Remote Keyless Entry (RKE) transmitter lock button.

The system will arm thirty seconds after all the doors are closed, or sixty seconds with any door open.

If you press the lock button on the transmitter a second time while all the doors are closed, the system will arm immediately. The system will still arm in sixty seconds if a door is open. When the open door is closed, the system will arm.

The security light, located on the instrument panel cluster, comes on to indicate that arming has been initiated. Once the system is armed, the security light will flash once every three seconds.

If the security light is flashing twice per second, this means that a door is open.

If you do not want to arm the system, lock the car with the lock levers on the doors.

## Disarming the System

To disarm the system, do one of the following:

- Press the RKE transmitter unlock button.
- Turn the ignition to ON.

Once the system is disarmed, the security light will stop flashing.

## How the System Alarm is Activated

To activate the system if it is armed:

- Open the driver's door or trunk. This will cause a ten second pre-alarm chirp followed by a thirty second full alarm of horn and lights.
- Open any other door. This will immediately cause a full alarm of horn and lights for thirty seconds.
- Open the hood. If the vehicle has the remote start feature, it will activate the full alarm.

When an alarm event has finished, the system will re-arm itself automatically.

## How to Turn Off the System Alarm

To turn off the system alarm:

- Press the lock button on the RKE transmitter. The system will then re-arm itself.
- Press the unlock button on the RKE transmitter. This will also disarm the system.
- Insert the key in the ignition and turn it on. This will also disarm the system.

## How to Detect a Tamper Condition

If you hear three chirps when the unlock or lock button is pressed on the RKE transmitter, it means that the content theft security system alarm was previously triggered.

## **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.

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.

When trying to start the vehicle if the engine does not start and the security light on the instrument panel cluster comes on, 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 not damaged, try another ignition key. At this time, you may also want to check the fuse, see *Fuses on page 343*. 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/retailer who can service the PASS-Key® III+ to have a new key made. In an emergency, contact Roadside Assistance. See *Roadside Assistance Program on page 377*.

It may be possible for the PASS-Key® III+ decoder to “learn” the transponder value of a new or replacement key. Up to 10 keys may be programmed for the vehicle. The following procedure is for programming additional keys only. If your vehicle was first sold in Canada, or if all the currently programmed keys are lost or do not operate, you must see your dealer/retailer or a locksmith who can service PASS-Key® III+ to have keys made and programmed to the system.

See your dealer/retailer 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:

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

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

Your vehicle is not protected by the PASS-Key® III+ system at this time.

If you lose or damage your PASS-Key® III+ key, see your dealer/retailer or a locksmith who can service PASS-Key® III+ to have a new key made. Do not leave the key or device that disarms or deactivates the theft deterrent system in the vehicle.

# Starting and Operating Your Vehicle

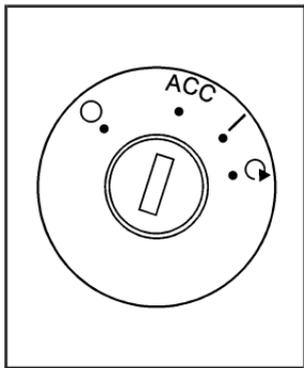
## New Vehicle Break-In

**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. Do not exceed 5,000 engine rpm. Avoid downshifting to brake, or slow, the vehicle.
- Avoid making hard stops for the first 200 miles (322 km) or so. During this time the 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 250* 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 key in the ignition switch, you can turn it 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.

○ **(OFF):** This is the only position from which you can remove the key. It also locks the ignition and transaxle. A warning chime sounds if the driver's door is opened while the ignition is off and the key is left in the ignition.

**ACC (ACCESSORY):** This position lets you use things like the radio and windshield wipers while the engine is not running.

Use this position if your vehicle must be pushed or towed, but never try to push-start your vehicle. See *Recreational Vehicle Towing* on page 247.

| **(ON):** This position unlocks the ignition. It is also the position to where the key returns after you release the switch and the engine starts. The switch will stay in this position while the engine is running. But even while the engine is not running, you can use ON to operate the electrical accessories, and to display some instrument panel warning lights.

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

⌚ **(START):** This position starts the engine. When the engine starts, release the key. The ignition switch will return to the ON position for normal driving.

## 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 sounds, when the driver's door is opened. Always remember to remove the key from the ignition and take it with you. This locks your ignition and transaxle. Also, always remember to lock the doors.

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

## Retained Accessory Power (RAP)

These vehicle accessories can be used for up to 10 minutes after the engine is turned off:

- Audio System
- Power Windows
- Heated Seats (if equipped)
- Sunroof (if equipped)

These features continue to work up to 10 minutes after the ignition is turned to LOCK/OFF.

The power windows, heated seats, and sunroof will work until any door is opened.

The radio continues to work until the driver's door is opened.

All these features operate when the key is in the ON/RUN or ACC/ACCESSORY.

## Starting the Engine (Automatic Engine Start/Stop)

The shift lever must be in PARK (P) or NEUTRAL (N) for the vehicle to start. To restart when the vehicle is 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 goes 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 key is turned to the START position, and then released when the engine begins cranking, the engine continues 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 stops 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 ACC or LOCK 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 let the cranking motor 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 retailer. If you do not, your engine might not perform properly. Any resulting damage would not be covered by your vehicle's warranty.

## Automatic Engine Start/Stop

### CAUTION:

**Exiting your vehicle, without first shifting into PARK (P), may cause the vehicle to move, you or others may be injured.**

**Because your vehicle has the Automatic Engine Start/Stop feature, your vehicle's engine might seem to be shut off, however, once the brake pedal is released, the engine could start up again.**

**Shift to PARK (P) and turn the ignition to OFF, before exiting the vehicle.**

Your vehicle has an automatic engine start/stop feature. After the engine is started and has reached operating temperature, the AUTO STOP feature may cause the engine to turn off when you apply the brakes and come to a complete stop. When you take your foot off the brake pedal or press the accelerator pedal, the engine will start. The engine will continue to run until the next AUTO STOP.

The AUTO STOP symbol on the tachometer signifies that the engine is in AUTO STOP mode. See *Auto Stop Mode on page 178* for more information. When the vehicle is turned off, the tachometer will move to OFF. If the driver's door is opened while in AUTO STOP mode, a chime will sound.

To restart the engine during the AUTO STOP, release the brake pedal or press the accelerator pedal. The engine starts immediately. The vehicle continues to run until the next stop.

There are several conditions which may prevent an AUTO STOP or cause an AUTO START.

### **The Engine Will Remain Running When:**

- The engine, transaxle, or hybrid battery is not warmed up yet.
- The outside temperature is approximately  $-4^{\circ}\text{F}$  ( $-20^{\circ}\text{C}$ ).
- When the A/C is in Normal Mode.
- A/C is in Hybrid Mode and the climate control system is working to cool the vehicle. See *Automatic Climate Control System on page 154* for more information.
- Defrost is selected.
- The shift lever is in PARK (P), NEUTRAL (N), REVERSE (R), INTERMEDIATE (I) or LOW (L).
- The hybrid battery pack charge is low.
- The 12V vehicle battery charge is low, or loads are high.
- The hood is not fully closed.

### **The Engine Will Restart When:**

- The brake pedal is released.
- The accelerator pedal is applied.
- When shifting out of DRIVE (D) to any other gear.
- If the A/C button is selected, the duration of the AUTO STOP will depend on the outside temperature. This economy mode improves fuel economy by limiting the effects of the air conditioning. The warmer it is outside, the shorter the time before the engine is restarted to provide cabin cooling.
- The climate control system is turned from Off to On (econ or normal A/C, or floor/defog/defrost) See *Automatic Climate Control System on page 154* for more information.

- The engine is required to run for either heater or climate control performance. See “Air Conditioning Engine Start/Stop” under *Automatic Climate Control System on page 154* for more information.
- The hybrid battery pack charge is low and requires recharging.
- Auto Stop time is greater than two minutes.

## Engine Coolant Heater

Your vehicle may have this feature. In very cold weather, 0°F (−18°C) or colder, the engine coolant heater can provide 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. Your vehicle may also have an internal thermostat in the plug end of the cord. This will prevent operation of the engine coolant heater when the temperature is at or above 0°F (−18°C) as noted on the cord.

## To Use the Engine Coolant Heater

1. Turn off the engine.
2. Open the hood and unwrap the electrical cord. The engine coolant heater cord is located near the air cleaner box on the passenger side of the engine compartment. See *Engine Compartment Overview on page 264* for more information on location.
3. Plug the cord into a normal, grounded 110-volt AC outlet.

### CAUTION:

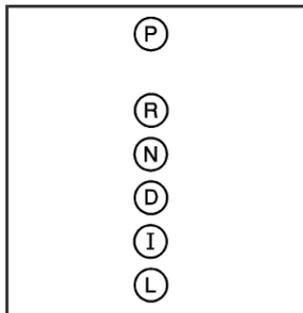
**Plugging the cord into an ungrounded outlet could cause an electrical shock. Also, the wrong kind of extension cord could overheat and cause a fire. You could be seriously injured. Plug the cord into a properly grounded three-prong 110-volt AC outlet. If the cord will not reach, use a heavy-duty three-prong 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 retailer in the area where you will be parking your vehicle. The dealer/retailer can give you the best advice for that particular area.

## Automatic Transaxle Operation

The shift lever is located on the console between the seats.



There are several different positions for the automatic transaxle.

**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 120.

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 the regular brakes first and then press the shift lever button before shifting from PARK (P) while the ignition key is in RUN. If you cannot shift out of PARK (P), ease pressure on the shift lever and push the shift lever all the way into PARK (P) while maintaining brake application. Then press the shift lever button and move the shift lever into another gear. See *Shifting Out of PARK (P) on page 122.*

**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.

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 241.*

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

 **CAUTION:**

**Shifting into a drive gear while the 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 with the automatic transaxle. It provides the best fuel economy for your vehicle. If you need more power for passing, and you are:

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

Downshifting the transaxle in slippery road conditions could result in skidding, see “Skidding” under *Loss of Control* on page 226.

**INTERMEDIATE (I):** This position is also used for normal driving. However, it reduces vehicle speed without using your brakes for slight downgrades where the vehicle would otherwise accelerate due to the steepness of the grade. If constant upshifting or downshifting occurs while driving up steep hills, this position can be used to prevent repetitive types of shifts. You might choose INTERMEDIATE (I) instead of DRIVE (D) when driving on hilly, winding roads, so that there is less shifting between gears.

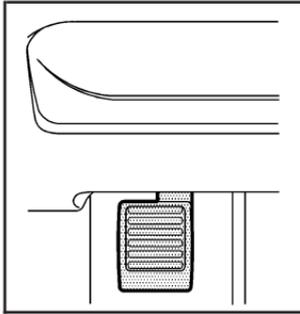
The engine will not Auto Stop when the shifter is in INTERMEDIATE (I). See *Starting the Engine (Automatic Engine Start/Stop)* on page 110 for more information.

**LOW (L):** This position reduces vehicle speed more than INTERMEDIATE (I) without actually using the brakes. It can be used on very steep hills, or in deep snow or mud. If the shift lever is put in LOW (L), the transaxle will not shift into LOW (L) until the vehicle is going slowly enough.

The engine will not Auto Stop when the shifter is in LOW (L). See *Starting the Engine (Automatic Engine Start/Stop)* on page 110 for more information.

**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.

## Parking Brake



To set the parking brake, push down the parking brake pedal with your left foot. If the ignition is on, the brake system warning light will come on. See *Brake System Warning Light* on page 168.

To release the parking brake, hold the regular brake pedal down with your right foot. Push down momentarily on the parking brake pedal with your left foot until you feel the pedal release. If the parking brake is not released when you begin to drive, the brake system warning light will be on and a chime will sound warning you that the parking brake is still on.

The PUSH PARK PEDAL message will also appear in the Driver Information Center (DIC) to remind you to release the parking brake. See *DIC Warnings and Messages* on page 182.

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

## Regenerative Braking

Your vehicle has a regenerative braking system. Regenerative braking takes some of the energy from the moving vehicle and turns it back into electrical energy. This energy is then stored back into the vehicle's hybrid battery system, contributing to increased fuel efficiency.

The system works whenever you take your foot off the accelerator pedal while your vehicle is moving in a forward gear. This causes your vehicle to slow down slightly faster. It may feel like the brake pedal is being pressed, even when it is not.

## 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.**

1. Hold the brake pedal down with your right foot and set the parking brake.
2. Move the shift lever into PARK (P) by pressing the button on the shift lever while pushing the shift lever all the way toward the front of the vehicle.
3. Turn the ignition key to OFF.
4. 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 the parking brake is firmly set before leaving it. After moving the shift lever into PARK (P), hold the regular brake pedal down. Then, see if you can move the shift lever away from PARK (P) without first pushing the shift lever button.

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

## Torque Lock

If you are parking on a hill and you do not shift the transaxle into PARK (P) properly, the weight of the vehicle can put too much force on the parking pawl in the transaxle. It could be 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 120*.

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

If torque lock does occur, you might need to have another vehicle push your vehicle a little uphill to take some of the pressure from the parking pawl in the transaxle, this should let you pull the shift lever out of PARK (P).

## Shifting Out of PARK (P)

Your vehicle has an automatic transaxle shift lock control system.

To shift out of PARK (P):

1. Apply the regular brake pedal.
2. Then press the shift lever button.
3. Move the shift lever to the desired gear.

If you are still unable to shift out of PARK (P):

1. Fully release the shift lever button.
2. While holding down the brake pedal, press the shift lever button again.
3. Move the shift lever to the desired gear.

If you still cannot move the shift lever from PARK (P), consult your dealer/retailer.

## 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:

- The 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 the 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:

There is something about your vehicle that can make it move suddenly, and you or others can be seriously injured. This can happen if the vehicle is in the Auto Stop mode, and the shift lever is in DRIVE (D). Because your vehicle has the Automatic Engine Start/Stop feature, your vehicle's engine might seem to be shut off when you come to a complete stop. However, if you then start to exit the vehicle, as soon as you take your foot off the brake pedal, the engine will start again and the vehicle can move forward. If you are going to exit your vehicle, first shift to PARK (P) and turn the ignition to LOCK. Then exit.

### 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 123*.

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 237*.

 **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 the parking brake and 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 120.

## Mirrors

### Manual Rearview Mirror

When you are sitting in a comfortable driving position, adjust the mirror so you can see clearly behind your vehicle. Hold the mirror in the center to move it up or down and side to side. The day/night adjustment allows you to adjust the mirror to avoid glare from the lamps behind you. Push the tab forward for daytime use and pull it for nighttime use.

### Manual Rearview Mirror with OnStar<sup>®</sup>

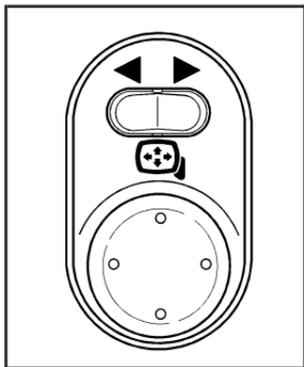
When you are sitting in a comfortable driving position, adjust the mirror so you can see clearly behind your vehicle. Hold the mirror in the center to move it up or down and side to side. The day/night adjustment allows you to adjust the mirror to avoid glare from the lamps behind you. Push the tab forward for daytime use and pull it for nighttime use.

There are also OnStar<sup>®</sup> buttons located at the bottom of the mirror face. See your dealer for more information on the system and how to subscribe to OnStar<sup>®</sup>. See *OnStar<sup>®</sup> System* on page 127 for more information about the services OnStar<sup>®</sup> provides.

## 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 housing.

## Outside Power Mirrors



The controls for the outside power mirrors are located on the inside of the vehicle near the driver's side mirror.

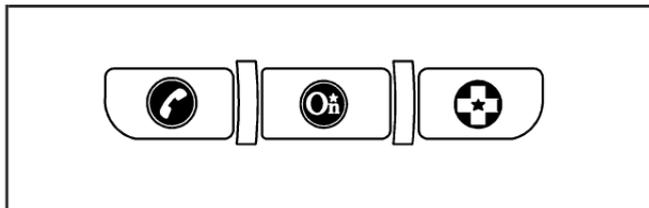
Use the selector switch located above the four-way control panel to choose either the left or right outside mirror. Then press the control pad to move the selected mirror in the desired direction.

Adjust each mirror so you can see the side of your vehicle and the area beside and behind your vehicle.

## Heated Outside Mirrors

If your vehicle has this feature, the surface of the outside mirrors will heat when the rear window defogger is activated. See "Rear Window Defogger" under *Automatic Climate Control System* on page 154 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®. 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](http://onstar.com) or [onstar.ca](http://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](http://onstar.com).

### OnStar® Services

For new vehicles 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<sup>®</sup> 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<sup>®</sup> Vehicle Diagnostics
- GM Goodwrench<sup>®</sup> On Demand Diagnostics
- OnStar<sup>®</sup> Hands-Free Calling with 30 complimentary minutes
- OnStar<sup>®</sup> Virtual Advisor (U.S. Only)

## Available Services included with Directions & Connections<sup>®</sup> Plan

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

## OnStar<sup>®</sup> Hands-Free Calling

OnStar<sup>®</sup> Hands-Free Calling allows eligible OnStar<sup>®</sup> subscribers to make and receive calls using voice commands. Hands-Free Calling is fully integrated into the vehicle, and can be used with OnStar<sup>®</sup> Pre-Paid Minute Packages. Hands-Free Calling may also be linked to a Verizon Wireless service plan in the U.S. or a Bell Mobility service plan in Canada, depending on eligibility. To find out more, refer to the OnStar<sup>®</sup> Owner's Guide in the vehicle's glove box, visit [www.onstar.com](http://www.onstar.com) or [www.onstar.ca](http://www.onstar.ca), or speak with an OnStar<sup>®</sup> advisor by pressing the OnStar<sup>®</sup> 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 (Only available in the continental U.S.).

## **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 206* 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**

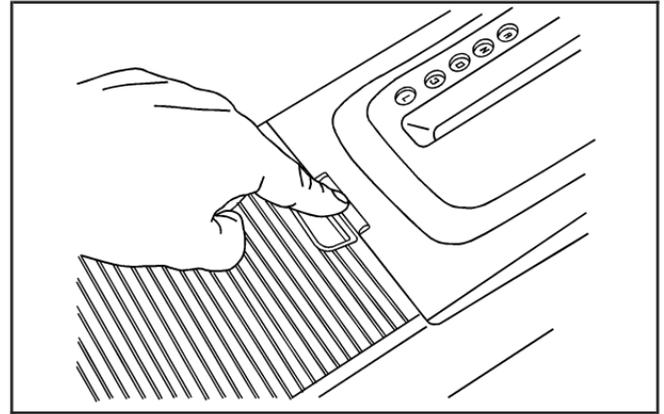
You may need to increase the volume of your radio to hear the OnStar® advisor. If the light next to the OnStar® buttons is red, this means that your system is not functioning properly and should be checked by your dealer/retailer. If the light appears clear (no light is appearing), your OnStar® subscription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

## Storage Areas

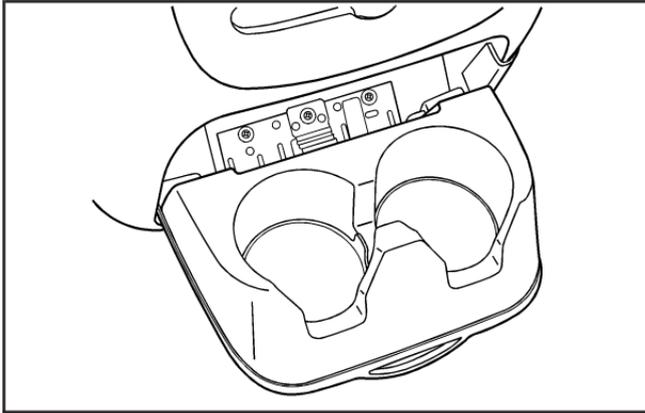
### Glove Box

Open the glove box by lifting up on the lever.  
Close the glove box with a firm push.

### Cupholder(s)



There are two removable cupholders and additional storage areas located at the rear of the shift lever. To access, push the button and the cover will slide back automatically. To close, slide the cover forward and lock into place.



Pull down the door on the back of the center console to use the rear seat cupholders.

## **Center Console Storage Area**

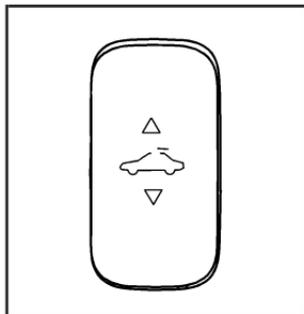
Your vehicle has a center console with two storage areas. To access the upper tray storage, lift the passenger side lever. To access the lower storage area, lift the driver side lever.

## **Convenience Net**

Your vehicle may have a convenience net located on each side of the trunk to help keep small loads, like grocery bags, in place during sharp turns or quick stops and starts.

The net is not designed for larger, heavier items.

## Sunroof



If your vehicle has a sunroof, the switch is located on the headliner between the map lamps.

The sunroof will only operate while the ignition is in ON or in ACC, or if Retained Accessory Power (RAP) is active. See *Retained Accessory Power (RAP)* on page 109.

Press the back of the switch and release it to open the sunroof to the vent position. From the vent position, press and release the back of the switch to express-open the sunroof. To stop the sunroof from express opening, press the switch again. If the sunshade is closed, it will open automatically when the sunroof opens past the vented position.

A deflector will automatically raise when the sunroof is opened. The deflector will retract when the sunroof is closed.

To close the sunroof, press the front of the switch and hold it until the sunroof is closed. The sunroof will stop if the switch is released. Close the sunshade by hand.

The sunroof glass panel cannot be opened or closed if the vehicle has an electrical failure.

**Notice:** If you force the sunshade forward of the sliding glass panel, damage will occur and the sunroof may not open or close properly. Always close the glass panel before closing the sunshade.



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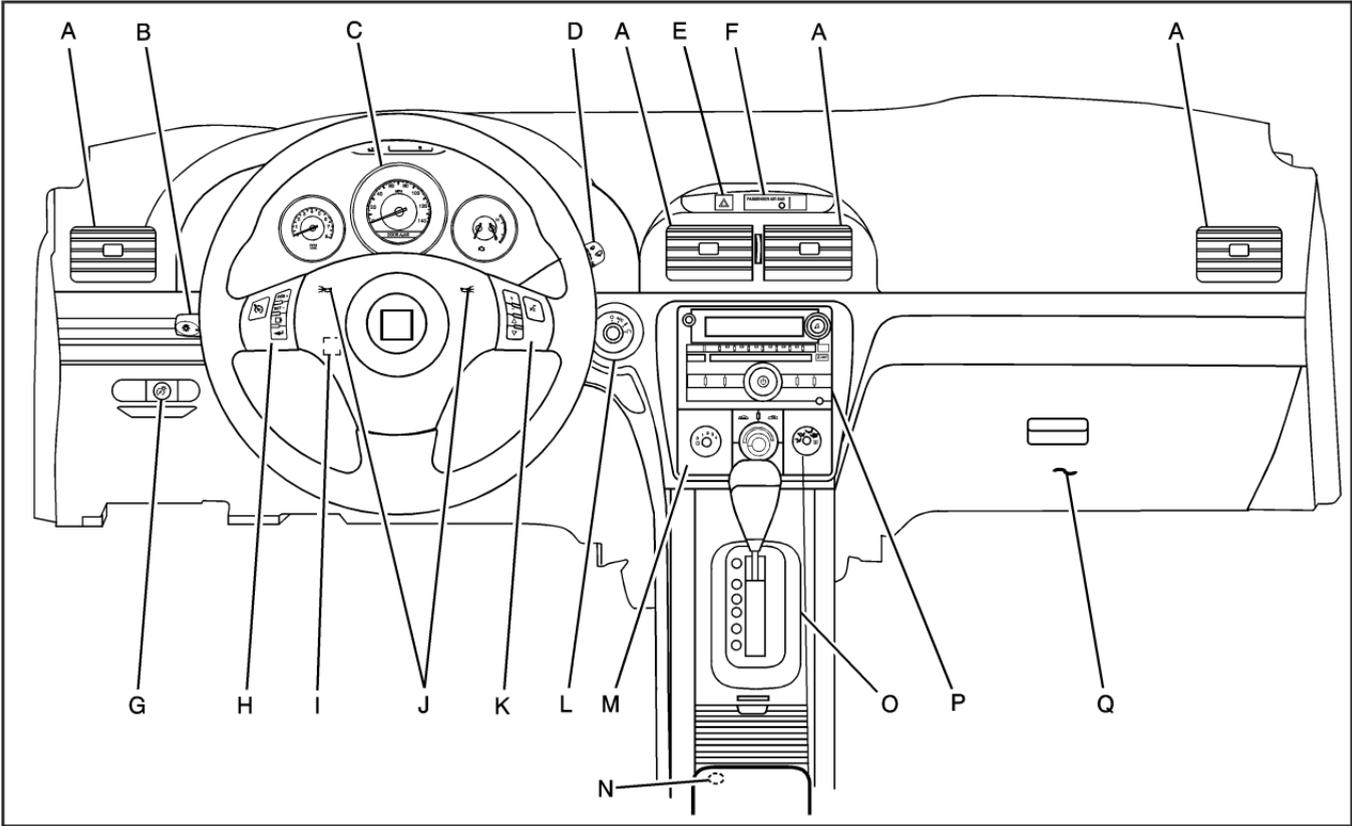
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# Instrument Panel Overview

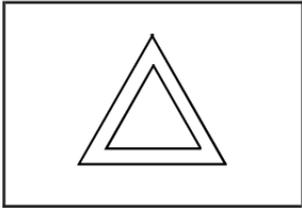


The main components of your instrument panel are the following:

- A. Air Outlets. See *Outlet Adjustment on page 160*.
- B. Turn Signal/Multifunction Lever. See *Turn Signal/Multifunction Lever on page 141*.
- C. Instrument Panel Cluster. See *Instrument Panel Cluster on page 162*.
- D. Windshield Wiper and Washer Lever. See *Windshield Wipers on page 143* and *Windshield Washer on page 144*.
- E. Hazard Warning Flashers Button. See *Hazard Warning Flashers on page 140*.
- F. Passenger Airbag Status Indicator. See *Passenger Airbag Status Indicator on page 165*.
- G. Instrument Panel Brightness Control. See *Instrument Panel Brightness on page 151*.
- H. Cruise Controls. See *Cruise Control on page 145*. Driver Information Center (DIC) Buttons. See *Driver Information Center (DIC) on page 179*.
- I. Tilt Lever. See *Tilt and Telescopic Steering Wheel on page 140*.
- J. Horn. See *Horn on page 140*.
- K. Audio Steering Wheel Controls (If Equipped). See *Audio Steering Wheel Controls on page 206*.
- L. Ignition Switch. See *Ignition Positions on page 108*.
- M. Automatic Climate Control System. See *Automatic Climate Control System on page 154*.
- N. Traction Control Button. See *Traction Control System (TCS) on page 217*. Electronic Stability Control Button. See *Electronic Stability Control on page 219*.
- O. Shift Lever. See *Automatic Transaxle Operation on page 116*.
- P. Audio System. See *Audio System(s) on page 192*.
- Q. Glove Box. See *Glove Box on page 131*.

## Hazard Warning Flashers

The hazard warning flashers let you warn the police and others that you have a problem. The front and rear turn signal lamps will flash on and off.



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

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.

While the hazard warning flashers are on, the turn signals do not work.

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

## 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.

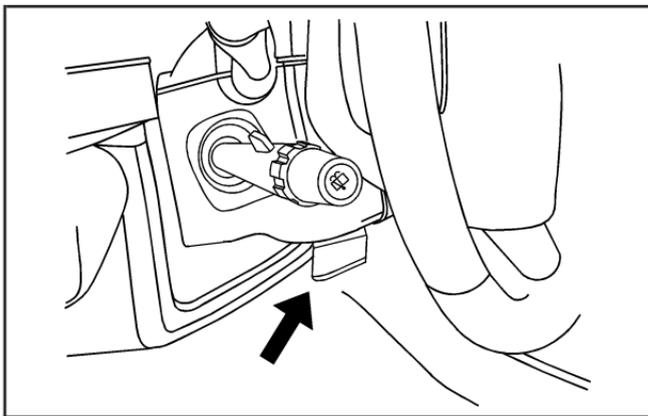
### Horn

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

### Tilt and Telescopic Steering Wheel

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

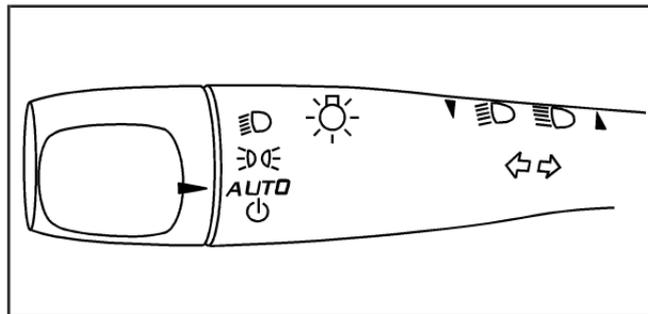
The lever that lets you tilt and telescope the steering wheel is located on the left side of the steering column.



To tilt and telescope the steering wheel, pull down the lever. Then move the steering wheel up or down or backward or forward into a comfortable position. Pull the lever up to lock the steering wheel in place.

Do not adjust the tilt and telescope lever while driving.

## Turn Signal/Multifunction Lever



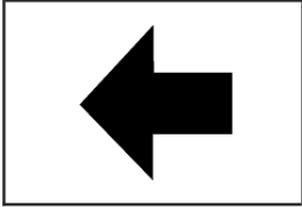
The lever on the left side of the steering column includes the following:

- ↩↪ Turn and Lane-Change Signals. See *Turn and Lane-Change Signals* on page 142.
- ☰☷ Headlamp High/Low-Beam Changer. See *Headlamp High/Low-Beam Changer* on page 142.
- Flash-to-Pass. See *Flash-to-Pass* on page 142.
- ☀ Exterior Lamp Control. See *Headlamps* on page 148.

## Turn and Lane-Change Signals

The turn signal has two upward (for right) and two downward (for left) positions. These positions let you signal a turn or a lane change.

To signal a turn, move the lever all the way up or down. When the turn is finished, the lever returns automatically to the normal position.



An arrow on the instrument panel cluster flashes in the direction of the turn or lane change.

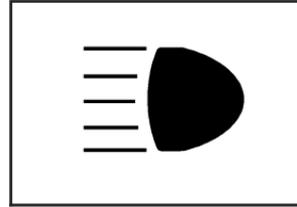
To signal a lane change, raise or lower the lever until the arrow starts to flash. Hold it there until you complete your lane change. The lever returns by itself when it is released.

If the arrows flash rapidly or do not go on at all as you signal a turn or lane change, a signal bulb could be burned out and other drivers will not see your turn signal.

Replace burned out bulbs to help avoid an accident. Also, check the appropriate fuses. See *Fuses on page 343*.

## Headlamp High/Low-Beam Changer

To change the headlamps from low beam to high beam, push the turn signal/multifunction lever toward the front of the vehicle.



This light on the instrument panel cluster comes on if the high beam lamps are turned on while the ignition is on.

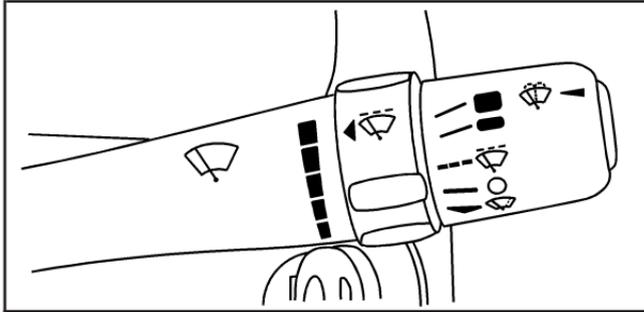
To change the headlamps from high beam to low beam, pull the turn signal lever toward the rear of the vehicle.

## Flash-to-Pass

This feature lets you use your high-beam headlamps to signal a driver in front of you that you want to pass.

To use it, pull the turn signal/multifunction lever toward you until the high-beam headlamps come on, then release the lever to turn them off.

## Windshield Wipers



Use this lever, located on the right side of the steering wheel, to operate the windshield wipers.

○ **(Off):** Move the lever to this position to turn off the windshield wipers.

⚡ **(Intermittent; Speed Sensitive Wipers):** Move the lever to this position for intermittent or speed sensitive operation. The amount of delay time varies between wiping cycles due to the delay setting selected or the speed of the vehicle.

⚡ **(Delay):** While the lever is in the intermittent position, turn the intermittent adjust band with this symbol on it up or down to select a shorter or longer delay between wiping cycles. To the left of the adjust band are bars, increasing in size from bottom to top, that indicate the frequency of the wipers. Smaller bars mean the wipers movement is less frequent. Larger bars mean the movement is more frequent.

▬ **(Low Speed):** Move the lever up to the first setting past intermittent, for steady wiping at low speed.

▬ **(High Speed):** Move the lever up to the second setting past intermittent, for wiping at a high speed.

⚡ **(Mist):** Move the lever all the way down to this position for a single wiping cycle. Hold it there until the windshield wipers start; then let go. The windshield wipers stop after one wiping cycle. If additional wiping cycles are needed, hold the lever down longer.

Damaged wiper blades can prevent you from seeing well enough to drive safely. Clear ice and snow from the wiper blades before using them to prevent damage.

If the wiper blades are frozen to the windshield, carefully loosen or thaw them. If your blades do become damaged, get new blades.

Heavy snow or ice can overload the wiper motor. A circuit breaker stops the motor until it cools. Clear away snow or ice to prevent an overload. If the motor gets stuck, turn the wipers off, clear away the snow or ice, and then turn the wipers back on.

As an added safety feature, if the wipers are on for more than 15 seconds, the vehicle's headlamps turn on automatically. They turn off 15 seconds after the wipers are turned off.

## Windshield Washer

To wash the windshield, press the button at the end of the lever until the washers begin.

### 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.**

When the button is released, the washers stop, but the wipers continue to wipe about three times or resume the previous speed.

## Cruise Control

Cruise control lets you maintain a speed of about 25 mph (40 km/h) or more without keeping your foot on the accelerator. This can really help on long trips. Cruise control does not work at speeds below 25 mph (40 km/h).

### CAUTION:

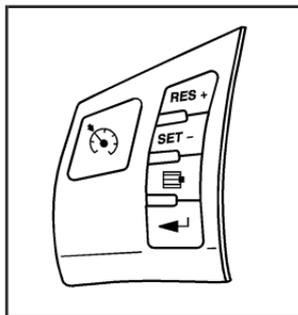
Cruise control can be dangerous where you cannot drive safely at a steady speed. So, do not use your cruise control on winding roads or in heavy traffic.

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.

## 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 the steering wheel.

 (On/Off): Press  to turn the cruise control system on and off.

**RES+ (Resume):** Press RES+ to resume a set speed and to accelerate the speed.

**SET– (Set):** Press SET– to set a speed and to decrease the speed.

To set a speed do the following:

1. Press  to turn cruise control on. The indicator light on the button comes on.
2. Get up to the desired speed.
3. Press the SET– and release it. The cruise symbol displays in the instrument panel cluster to show the system is engaged.
4. Take your foot off the accelerator pedal.

When the brakes are applied, the cruise control shuts off.

If the vehicle is in cruise control and the Traction Control System (TCS) begins to limit wheel spin, the cruise control automatically disengages. See *Traction Control System (TCS) on page 217*. When road conditions allow, the cruise control can be used again.

## Resuming a Set Speed

Suppose you set the cruise control at a desired speed and then apply the brakes. This disengages the cruise control. The cruise symbol in the instrument panel cluster also goes out indicating cruise is no longer engaged. To return to the previously set speed, you do not need to go through the set process again. Once the vehicle is at a speed of about 25 mph (40 km/h) or more, you can briefly press the RES+.

This takes the vehicle back up to the previously chosen speed and stays there.

## Increasing Speed While Using Cruise Control

There are two ways to go to a higher speed.

- If the cruise control system is already engaged, press the RES+. Hold it there until you reach the desired speed, and then release the button.
- To increase the vehicle's speed in very small amounts, briefly press the RES+ and then release it. Each time this is done, the vehicle goes about 1 mph (1.6 km/h) faster.

## **Reducing Speed While Using Cruise Control**

If the cruise control system is already engaged:

- Push and hold the SET– until the desired lower speed is reached, then release it.
- To slow down in very small amounts, briefly push the SET–. Each time this is done, the vehicle goes about 1 mph (1.6 km/h) slower.

## **Passing Another Vehicle While Using Cruise Control**

Use the accelerator pedal to increase the vehicle's speed. When you take your foot off the pedal, the vehicle slows down to the previous cruise control speed that was set earlier.

## **Using Cruise Control on Hills**

How well your cruise control works on hills depends upon the vehicle's 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 at a lower speed.

When the brakes are applied this turns off the cruise control. Many drivers find this to be too much trouble and do not use cruise control on steep hills.

## **Ending Cruise Control**

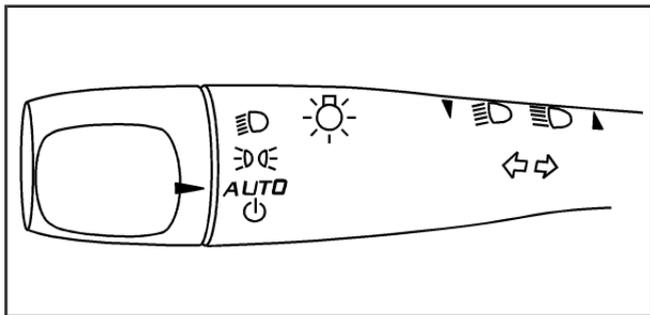
There are two ways to disengage the cruise control:

- Step lightly on the brake pedal; when cruise control disengages, the cruise symbol in the instrument panel cluster goes out.
- Press the on/off button, to turn off the cruise control system.

## **Erasing Speed Memory**

The cruise control set speed memory is erased, when the cruise control or the ignition is turned off.

## Headlamps



The band on the lever on the outboard side of the steering column operates the exterior lamps.

The exterior lamp control has the following four positions:

 **(Headlamps):** Turn the band to this position to turn on the headlamps, parking lamps, and taillamps.

 **(Parking Lamps):** Turn the band to this position to turn on the parking lamps and taillamps only.

**AUTO (Automatic Headlamp System):** Turn the band to this position to automatically turn on the Daytime Running Lamps during daytime, and the headlamps, parking lamps, and taillamps at night.

 **(Off/On):** Turn the band to this position to turn on the Automatic Headlamp System. In Canada, this position only works when a vehicle is in the PARK (P) position.

To turn on the Automatic Headlamp System, turn the switch to off/on. To turn them off, turn the switch to off/on again. This is a momentary control switch that springs back when released. The Automatic Headlamp System always turns on at the beginning of an ignition cycle.

## Headlamps on Reminder

If you open the driver's door and turn off the ignition while leaving the lamps on, you will hear a warning chime.

## Headlamps Off in PARK (P)

This feature works when the ignition is ON and it is dark outside. To turn the headlamps off when it is dark outside but keep other exterior lights on, turn the exterior lamp control to the parking lamp position. In this position, the parking lamps, sidemarker lamps, taillamps, license plate lamps and instrument panel lights are on, but the headlamps are off.

To turn on the headlamps along with the other lamps when it is dark outside, turn the exterior lamp control to the AUTO or headlamp position.

This feature will not work for Canadian vehicles.

## Delayed Headlamps

The delayed headlamps feature keeps the headlamps on for 20 seconds after the key is turned to OFF, then the headlamps automatically turn off.

To override the 20 second delayed headlamp feature while it is active turn the turn signal/multifunction lever up one position and then back to AUTO.

## 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 are helpful in many different driving conditions, but they can be especially helpful in the short periods after dawn and before sunset. Fully functional DRL are required on all vehicles first sold in Canada. The vehicle has a light sensor on top of the instrument panel that controls the DRL. Make sure it is not covered, or the head lamps will be on when they are not needed.

The DRL system makes the low-beam headlamps come on at a reduced brightness when the following conditions are met:

- The ignition is on.
- The exterior lamps control is in AUTO.
- The exterior lamps control is in the parking lamps only position (This applies only to vehicles that are first sold in Canada).
- The light sensor detects daytime light.
- The parking brake is released or the vehicle is not in PARK.

When the DRL system is on, the taillamps, sidemarker lamps, parking lamps, and instrument panel lights are not on unless you turn the exterior lamps control to the parking lamp position.

As with any vehicle, you should turn on the regular headlamp system when they are needed.

## Automatic Headlamp System

When it is dark enough outside, the automatic headlamp system turns on the headlamps at the normal brightness along with other lamps such as the taillamps, sidemarker, parking lamps, and the instrument panel lights. The radio lights will also be dim.

Your vehicle has a light sensor on top of the instrument panel that controls the automatic headlamp system. Make sure it is not covered or the automatic headlamp system will be on when it is not needed.

There is a delay in the transition between the daytime and nighttime operation of the DRL and the automatic headlamp systems so that driving under bridges or bright overhead street lights does not affect the system. The DRL

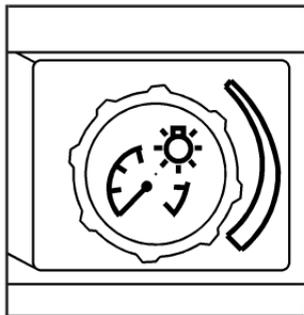
and automatic headlamp systems will only be affected when the light sensor sees a change in lighting lasting longer than this delay.

If you start your vehicle in a dark garage, the automatic headlamp system comes on immediately. Once you leave the garage, it takes about one minute for the automatic headlamp system to change to DRL if it is light outside. During that delay, the instrument panel cluster may not be as bright as usual. Make sure the instrument panel brightness control is in the full bright position. See “Instrument Panel Brightness Control” under *Instrument Panel Brightness on page 151*.

To idle your vehicle with the automatic headlamp system off, turn the ignition on and set the exterior light switch to the off/on position. For Canadian vehicles, the transmission must stay in PARK (P) for this function.

As with any vehicle, you should turn on the regular headlamps when they are needed.

## Instrument Panel Brightness



The control for this feature is located on the instrument panel to the left of the steering wheel.

Turn the knob clockwise or counterclockwise to brighten or dim the lights.

## Dome Lamp

Your vehicle might have a dome lamp without a switch. If the dome lamp has a switch, the following are the settings.

 **(Off):** Move the lever to this position to turn the lamp off, even when a door is open.

 **(Door):** Move the lever to this position so that the lamp comes on when a door is opened.

 **(On):** Move the lever to this position to turn the dome lamp on.

## Entry/Exit Lighting

The lamps inside the vehicle come on when any door is opened. These lamps fade out about 20 seconds after all of the doors have been closed or when the ignition is turned to ON. They also go on when you press the unlock symbol button or the horn symbol on the Remote Keyless Entry (RKE) system transmitter.

The lamps inside the vehicle stay on for about 20 seconds after the key is removed from the ignition to provide light as you exit.

## Parade Dimming

Parade dimming is a separate lighting mode that comes on while the parking lamps are turned on during the day. It prevents the display lights and indicator lights from being dim, while the parking lamps are used during the day.

## Overhead Console Reading Lamps

The vehicle may have reading lamps on the overhead console. These lamps come on when the doors are opened if the lamp switch is not in the OFF position. Press the side of each lamp to turn them on and off, while the doors are closed.

## Overhead Ambient Lighting

These lamps will automatically turn on and off as controlled by the light sensor located on top of the instrument panel.

## Trunk Lamp

The trunk lamp comes on when the trunk is open and turns off when it is closed.

## Battery Run-Down Protection

Your vehicle has a battery run-down feature designed to protect the vehicle's battery.

When any interior lamp (trunk, reading lamps, or dome lamp) is left on when the ignition is turned off, the battery run-down protection system automatically shuts the lamp off after 20 minutes. This prevents draining of the battery.

To reactivate the interior lamps, do one of the following:

- Open any door.
- Press any Remote Keyless Entry (RKE) transmitter button.
- Press the power door lock switch.
- Press the remote trunk release.
- Turn the lamp that was left on to off and then to on again.

## Accessory Power Outlet(s)

Accessory power outlets can be used to connect auxiliary electrical equipment such as a cellular telephone or CB radio.

There are two accessory power outlets. One accessory power outlet is inside the center storage console and the other is located on the center storage console below the climate controls.

To use an outlet, lift the protective cap. When not in use, always cover the outlet with the protective cap. The accessory power outlet is operational at all times.

**Notice:** Leaving electrical equipment plugged in for an extended period of time while the vehicle is off will drain the battery. Power is always supplied to the outlets. Always unplug electrical equipment when not in use and do not plug in equipment that exceeds the maximum 20 ampere rating.

Certain electrical accessories may not be compatible with the accessory power outlet and could result in blown vehicle or adapter fuses. If you experience a problem, see your retailer for additional information on the accessory power outlet.

**Notice:** Adding any electrical equipment to your vehicle can 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/retailer before adding electrical equipment.

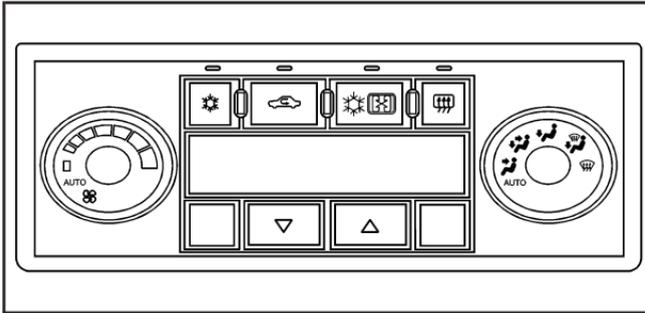
When adding electrical equipment, be sure to follow the proper installation instructions included with the equipment.

**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.

# Climate Controls

## Automatic Climate Control System

You can automatically control the heating, cooling, and ventilation in your vehicle.



## Climate Control Influence on Hybrid Operation and Fuel Economy

The climate control system is dependent upon other vehicle systems for heat and power input. Certain climate control settings can lead to higher fuel consumption and/or fewer Auto Stops.

The following are climate control settings that use more fuel:

- Normal air conditioning mode.
- The defrost mode.
- Extreme temperature settings, such as 60°F (15°C) / 90F (32°C).
- High fan speed settings.

The following can help reduce fuel consumption:

- Use of the full automatic control method as described under Automatic Operation.
- Use hybrid air conditioning, instead of the normal air conditioning.
- Select a temperature setting that is higher in hot weather and lower in cold weather.
- Only use defrost to clear the windows.

These suggestions will help to reduce fuel consumption, but may reduce overall comfort.

## Automatic Operation

**AUTO (Automatic):** Select AUTO on both the fan speed knob and the air delivery mode knob to activate the automatic system. When automatic operation is active the system controls the inside temperature and air delivery.

Use the steps below to place the entire system in full automatic control:

1. Turn the fan knob and the mode knob to the AUTO position.

The current set temperature displays. When AUTO is selected, the air conditioning operation and air inlet is automatically controlled. The air conditioning compressor runs while the outside temperature is over about 40°F (4°C). The air inlet is normally set to outside air. If it is hot outside, the air inlet can automatically switch to recirculate inside air to help quickly cool down your vehicle.

2. Set the temperature.

An initial setting of 73°F (23°C) is recommended. Allow about 20 minutes for the system to regulate. Press the  $\triangle$  or  $\nabla$  arrow temperature buttons to adjust the temperature

setting as necessary. If the temperature is set at 60°F (15°C) the system remains at the maximum cooling setting. If the temperature is set at 90°F (32°C) the system remains at the maximum heat setting. Choosing either maximum setting does not cause the vehicle to heat or cool any faster.

Be careful not to cover the sensor located on the top of the instrument panel near the windshield. This sensor regulates air temperature based on the intensity of the sun.

Also do not cover the sensor grille on the lower right side of the climate control faceplate, as this regulates the inside temperature.

To avoid blowing cold air at engine start-up in cold weather, the system delays turning on the fan until warm air is available. The length of delay depends on the engine coolant temperature. Turning the fan knob overrides this delay and changes the fan to the selected speed.

## Manual Operation

The air delivery mode or fan speed, can manually be adjusted.

### Fan Speed Knob

 **(Off):** Select this position to turn off the fan. Outside air still enters the vehicle. The direction can be changed by changing the mode position. The temperature can also be adjusted using either the up or down arrow temperature buttons.

 **(Fan):** Turn the knob with the fan symbol to manually adjust the fan speed.

  **Temperature Control:** Press the  and  arrows to increase or decrease the temperature inside the vehicle.

### Air Delivery Mode Knob

 **(Vent):** Use this mode to direct air to the instrument panel outlets.

 **(Bi-Level):** Use this mode to direct half of the air to the instrument panel outlets, and the remaining air to the floor outlets.

 **(Floor):** Use this mode to direct most of the air to the floor outlets with some air directed to the side window outlets.

The right knob can also be used to select defog or defrost modes. Information on defogging and defrosting can be found later in this section.

 **(Normal Air Conditioning):** Press this button to turn the air conditioning compressor on and off. A light above the button comes on while the air conditioning is on.

When air conditioning is selected or is in AUTO mode, the system runs the air conditioning automatically to cool and dehumidify the air entering the vehicle.

While in this mode, the hybrid system does not shut the engine down at complete stops.

On hot days, open the windows long enough to let hot inside air escape. This reduces the time it takes for your vehicle to cool down. Then keep your windows closed for the air conditioner to work its best.

On cool, but sunny days while using manual operation of the automatic system, use bi-level to deliver warm air to the floor and cooler air to the instrument panel outlets. To warm or cool the air delivered, press the temperature buttons to the desired setting.

In AUTO mode the system cools and dehumidifies the air inside the vehicle. Also while in AUTO mode, the system maximizes its performance by using recirculation as necessary.

**Heating:** On cold days when using manual operation of the automatic system, use floor mode to deliver air to the floor outlets. To warm or cool the air delivered, push the temperature buttons to the desired setting.

To use the automatic mode, turn the knob to AUTO and adjust the temperature by pressing the temperature buttons.

When the heater is in use, there might be slight noise or vibration during Auto Stops. This is due to the coolant circulation pump that continues to circulate heat through the system during the engine Auto Stop.

The heater works best if the windows are kept closed.

 **(Recirculation):** Press the button to turn on the recirculation mode. The air inside the vehicle recirculates through the climate control system and the vehicle, not from outside your vehicle. This mode is helpful when trying to limit odors from entering the vehicle and for maximum air conditioning performance in hot weather. When the button is pressed, an indicator light above the button comes on. The recirculation indicator light blinks three times if recirculation is used in a mode in which it cannot function. Only use this mode when it is needed for comfort, since window fogging rapidly occurs if the air conditioning compressor is not engaged.

Press this button to cancel the auto recirculation feature. Each time the vehicle is started, the system reverts to the auto recirculation function.

If you select recirculation while in defrost, defog or floor, the light on the button flashes three times and then goes out to indicate that this is not allowed. This is to prevent window fogging.

When the weather is cool or damp, operating the system in recirculation for extended periods of time can cause fogging of the vehicle's windows. To clear the fog, select either defog or defrost. Make sure the air conditioning is on. Allow the air conditioning to run automatically to help dehumidify the air.

 **(Hybrid Air Conditioning):** The hybrid A/C function tries to balance fuel economy and air conditioning comfort. When hybrid A/C is used in warm weather, your vehicle gets better fuel economy and/or more frequent autostops at the expense of cabin cooling performance compared to normal air conditioning.

## Maximum Air Conditioning

On hot days, open the windows to let hot inside air escape; then close them. This helps to reduce the time it takes for your vehicle to cool down. It also helps the system to operate more efficiently.

For quick cool down on hot days, do the following:

1. Select the  vent mode.
2. Select the highest fan speed.
3. Select  air conditioning.
4. Select the  recirculation mode.
5. Select the coolest temperature.

Using these settings together for long periods of time may cause the air inside of your vehicle to become too dry. To prevent this from happening, after the air in your vehicle has cooled, turn the recirculation mode off.

## 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 choose from to clear fog or frost from the windshield. Use the 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.

 **(Defog):** Turn the mode knob to this position to select the defog setting, which delivers air to the floor and windshield outlets. Use this setting to clear the windows of fog or moisture.

 **(Defrost):** Turn the mode knob to this position to defrost the windshield. The system automatically controls the fan speed if defrost is selected from the AUTO mode. If the outside temperature is 40°F (4°C) or warmer, the air conditioning compressor automatically runs to help dehumidify the air and dry the windshield. The air conditioning indicator light blinks three times if the compressor is turned off while in this mode.

The engine will not perform Auto Stops when the defrost mode is on.

## Rear Window Defogger

The rear window defogger uses a warming grid to remove fog from the rear window.

 **(Rear):** Press this button to turn the rear window defogger on or off. An indicator light above the button comes on to show that the rear window defogger is activated.

If driving below 50 mph (80 km/h), the rear window defogger turns off about 15 minutes after the button is pressed. If additional warming time is needed, press the button again.

If the vehicle's speed is maintained above 50 mph (80 km/h), the rear window defogger remains on once the button is pressed.

If your vehicle has heated outside mirrors, the surface of the outside mirrors also heat when the rear window defogger is activated. See *Outside Power Mirrors on page 126*.

**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

There are four main air outlets on the instrument panel. Use the lever located in the center of each outlet by moving it either side-to-side or up and down, to change the direction and amount of airflow in the vehicle. The center thumbwheel does not control the main outlets.

## Dedicated Rear Seat Air Outlet

For vehicles with this feature, the dedicated rear seat air outlet is located in the center of the instrument panel above the two main center outlets. This outlet is aimed to provide comfort to the rear seat passengers, especially while using air conditioning in warm weather.

Use the thumbwheel in the center of the outlet to turn the airflow on or off. This can be adjusted to improve front seat passenger comfort if there are no rear seat passengers. The direction of airflow cannot be adjusted since it is directed towards the rear seat passengers.

Do not attempt to move the horizontal vent vane, as breakage can occur.

## Operation Tips

- Clear away any ice, snow, or leaves from the air inlets at the base of the windshield that can block the flow of air into your vehicle.
- Do not use non-GM approved hood deflectors as they could 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.
- When an objectionable odor outside the vehicle is encountered, use the recirculation mode, with the temperature knob at a comfortable setting to prevent the odor from entering the vehicle through the ventilation system. This can be helpful when driving through a long tunnel with poor ventilation. However, extended usage of this mode in cold or cool weather can cause window fogging.

## Warning Lights, Gages, and Indicators

This part describes the warning lights and gages on your vehicle.

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 the 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 the details show 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.

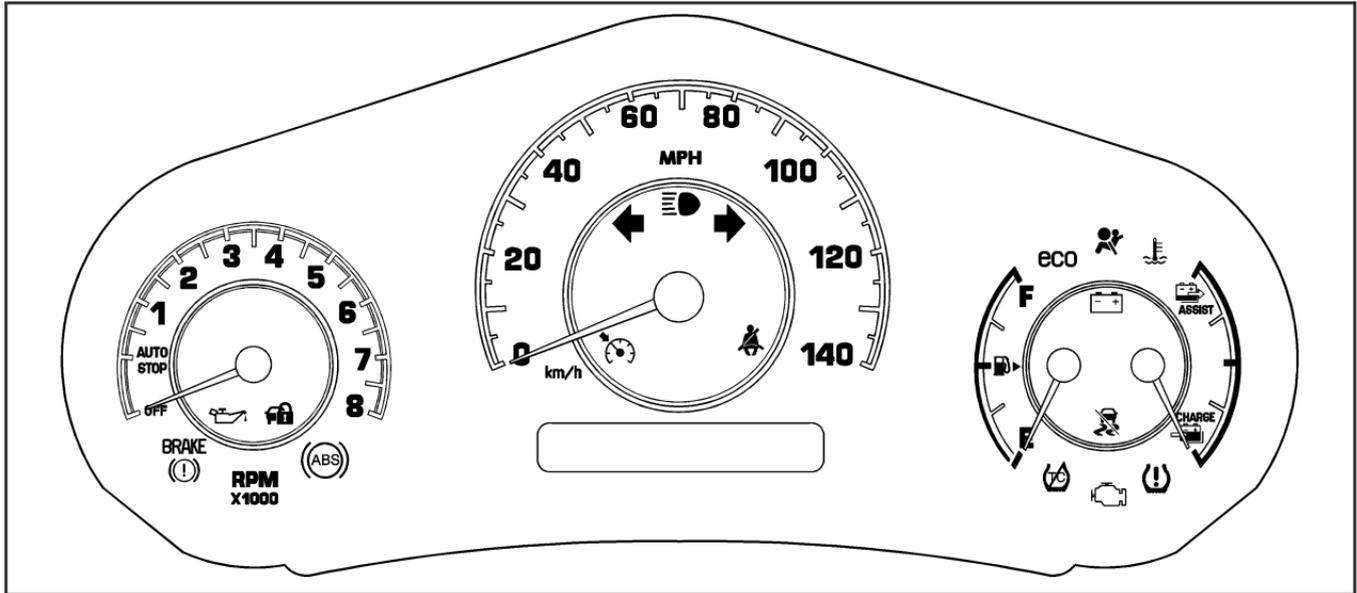
Gages can indicate when there may be or is a problem with one of your vehicle's functions. Often gages and warning lights work together to let you know when there is a problem with your vehicle.

When one of the warning lights comes on and stays on as 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. Please follow this manual's advice. Waiting to do repairs can be costly and even dangerous. So please get to know your vehicle's warning lights and gages. They can be a big help.

## Instrument Panel Cluster

Your 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 other things you will need to drive safely and economically.

Your vehicle has this instrument panel cluster, which includes indicator warning lights and gages that are explained on the following pages.



United States version shown, Canada Similar

## Speedometer and Odometer

Your speedometer lets you see your speed in miles per hour (mph) or kilometers per hour (km/h). See *DIC Vehicle Personalization on page 187* for more information.

Your odometer shows how far your vehicle has been driven, in either miles (used in the United States) or kilometers (used in Canada).

Your vehicle has a tamper resistant odometer. The digital odometer will read 999,999 if someone tries to turn it back.

You may wonder what happens if your vehicle needs a new odometer installed. If the new one can be set to the mileage total of the old odometer, then it must be. But if it can't, then it is set at zero and a label must be put on the driver's door to show the old mileage reading when the new odometer was installed.

## Trip Odometer

The trip odometer can tell you how far you have driven since you last reset it.

The trip odometer is accessed and reset through the Driver Information Center (DIC). See *DIC Operation and Displays on page 180* for more information.

## Tachometer

Your tachometer displays the engine speed in revolutions per minute (rpm).

Your vehicle has auto stop and the indicator for this is on the tachometer. For more information see *Auto Stop Mode on page 178*.

## Safety Belt Reminder Light

When the key is turned to ON or START, a chime will come on for several seconds to remind people to fasten their safety belts, unless the driver's safety belt is already buckled.



The safety belt light will also come on and stay on for several seconds, then it will flash for several more.

This chime and light is repeated if the driver remains unbuckled and the vehicle is in motion.

If the driver's belt is already buckled, neither the chime nor the light will come on.

## Passenger Safety Belt Reminder Light

Several seconds after the key is turned to ON 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 are 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 cluster, 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 sensor, the pretensioners, the airbag modules, the wiring and the crash sensing and diagnostic module. For more information on the airbag system, see *Airbag System on page 67*.



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.

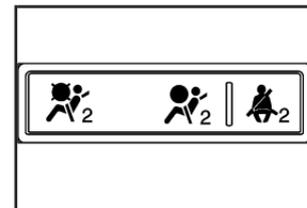
The airbag readiness light should flash for a few seconds when you turn the ignition key to ON. If the light does not come on then, have it fixed so it will be ready to warn you if there is a problem.

## Passenger Airbag Status Indicator

Your vehicle has the passenger sensing system. Your instrument panel has a passenger airbag status indicator.



United States



Canada

When the ignition key is turned to ON 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.

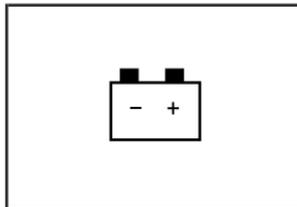
If the word OFF or the off symbol is lit on the airbag status indicator, it means that the passenger sensing system has turned off the right front passenger's frontal airbag and seat-mounted side impact airbag. See *Passenger Sensing System on page 77* for more on this, including important safety information.

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 retailer 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 164*.**

## Charging System Light



The charging system light will come on for a few seconds when you turn on the ignition as a check to indicate it is working.

If the light stays on, or comes on while you are driving and you hear a chime, there could be a problem with the electrical charging system. This could indicate that there is a loose generator drive belt or another electrical problem. Have it checked right away. Driving while this light is on could drain the battery and result in the engine and headlights suddenly shutting off.

If you must drive a short distance with this light on, turn off accessories, such as the radio, air conditioner and heater fan.

## Brake System Warning Light

Your vehicle's hydraulic brake system is divided into two parts. If one part is not 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 ignition key to 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.

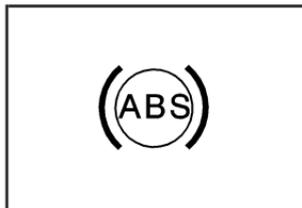
The Driver Information Center (DIC) may display a BRAKE FLUID message. See *DIC Warnings and Messages on page 182* for more information.

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. Try turning off and restarting the vehicle one or two times, if the light is still on, have the vehicle towed for service. See *Towing Your Vehicle on page 247*.

## 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.**

## Antilock Brake System Warning Light



Your vehicle may have the Antilock Brake System (ABS).

This light will come on when your engine is started and may stay on for several seconds. This is normal.

If the light stays on, turn the ignition to off. If the light comes on and the chime sounds 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 antilock brakes. If the regular brake system warning light is also on, you do not have antilock brakes and there is a problem with your regular brakes. See *Brake System Warning Light on page 168* earlier in this section.

The ABS warning light will come on briefly when you turn the ignition key to ON. This is normal. 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.

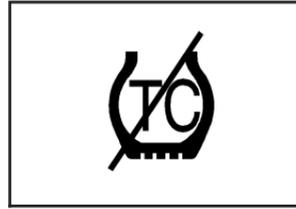
This light will also come on when one or more of your tires are significantly underinflated.

A CHECK TIRE PRESS DIC message will accompany the light, see *DIC Warnings and Messages on page 182* for more information.

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 298* for more information.

This light will flash for 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 305* for more information.

## Traction Control System (TCS) Warning Light



If your vehicle has the Traction Control System (TCS), this light may come on for the following reasons:

- If you turn the system off by pressing the TC (traction control) button located on the center console, the light will come on and stay on. To turn the system back on, press the button again and the warning light should go out.
- If there is a brake system problem that is specifically related to traction control, the TCS will turn off and the warning light will come on.

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.

## Electronic Stability Control Indicator Light

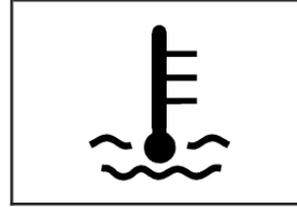


Your vehicle may have the Electronic Stability Control (ESC) system.

You may feel or hear the system working, this is normal. See *Electronic Stability Control on page 219* for more information.

When the ESC indicator light is on and either the SERVICE ESC or ESC OFF Driver Information Center (DIC) message is displayed, the system will not assist the driver to maintain directional control of the vehicle. Adjust your driving accordingly. See *DIC Warnings and Messages on page 182* for more information.

## Engine Coolant Temperature Warning Light



This light indicates that the engine coolant has overheated or the radiator cooling fan is not working.

This light will come on briefly when you turn on the ignition as a check to show you it is working.

If the light comes on and the vehicle has been operating under normal driving conditions, pull off the road, stop the vehicle, and turn off the engine as soon as possible.

See *Cooling System on page 278* 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 make sure 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 can 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 a while, the emission controls might not work as well, your vehicle's fuel economy might not be as good, and the engine might not run as smoothly. This could lead to costly repairs that might not be covered by your warranty.

**Notice:** Modifications made to the engine, transmission, 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 can cause this light to come on. Modifications to these systems could lead to costly repairs not covered by your warranty. This could also result in a failure to pass a required Emission Inspection/Maintenance test. See *Accessories and Modifications on page 253*.

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 could damage the emission control system on your vehicle. Diagnosis and service might be required.
- **Light On Steady** — An emission control system malfunction has been detected on your vehicle. Diagnosis and service might be required.

## If the Light is Flashing

The following can prevent more serious damage to your vehicle:

- Reduce vehicle speed.
- Avoid hard accelerations.
- Avoid steep uphill grades.

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 the 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/retailer for service as soon as possible.

## If the Light Is On Steady

You might 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 258*. The diagnostic system can determine if the fuel cap has been left off or improperly installed. A loose or missing fuel cap allows 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 vehicle's electrical system might be wet. The condition is usually 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 255*. Poor fuel quality causes the engine not to run as efficiently as designed. You might 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 might 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/retailer can check the vehicle. Your dealer/retailer has the proper test equipment and diagnostic tools to fix any mechanical or electrical problems that might have developed.

## Emissions Inspection and Maintenance Programs

Some state/provincial and local governments have or might 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 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 the battery or if the battery has run down. The diagnostic system is designed to evaluate critical emission control systems during normal driving. This can 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/retailer can prepare the vehicle for inspection.

## Oil Pressure Light



If your vehicle has low engine oil pressure, this light will stay on after you start your engine, or come on and you will hear a chime when you are driving.

This indicates that your engine is not receiving enough oil. The engine could be low on oil, or could have some other oil problem. Have it fixed immediately.

This light will come on briefly when you turn on the ignition as a check to show you it is working. If it does not come on with the ignition on, you may have a problem with the bulb. Have it fixed right away.

### 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.**

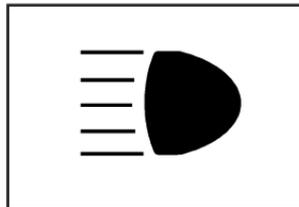
***Notice:*** Lack of proper engine oil maintenance may damage the engine. The repairs would not be covered by your warranty. Always follow the maintenance schedule in this manual for changing engine oil.

## Security Light



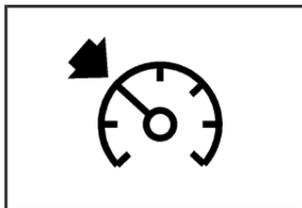
For information regarding this light, see *Theft-Deterrent Systems* on page 103.

## Highbeam On Light



This light comes on when the high-beam headlamps are in use.

## Cruise Control Light

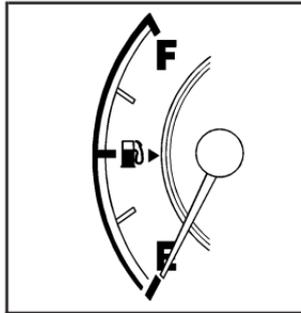


This light comes on whenever you set the cruise control.

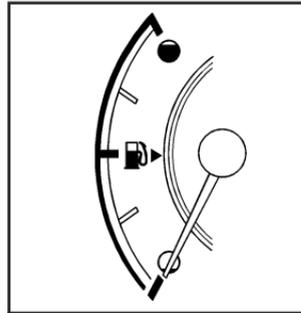
See *Headlamp High/Low-Beam Changer* on page 142 for more information.

The light goes out when the cruise control is turned off. See *Cruise Control* on page 145 for more information.

## Fuel Gage



United States



Canada

Your fuel gage tells you about how much fuel you have left, when the ignition is on. When the indicator nears empty, a LOW FUEL message will appear on the Driver Information Center (DIC). See *DIC Warnings and Messages on page 182* for more information. You still have a little fuel left, but you should get more soon. The arrow on the fuel gage points to side of the vehicle with the fuel door.

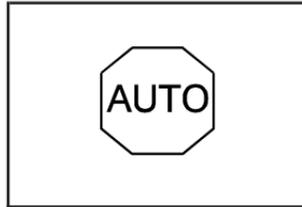
Here are four things that some owners ask about. These are normal and do not indicate a problem with your fuel gage:

- At the service station, the gas pump shuts off before the gage reads full.
- It takes a little more or less fuel to fill up than the gage indicated. For example, the gage may have indicated the tank was half full, but it actually took a little more or less than half the tank's capacity to fill the tank.
- The indicator moves a little when you turn a corner or speed up.
- The gage goes back to empty when you turn off the ignition.

## Auto Stop Mode



United States

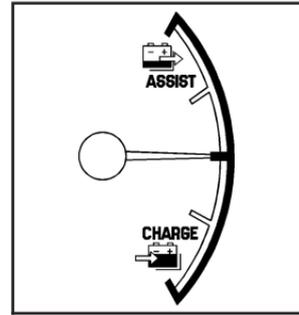


Canada

This mark on the tachometer shows that the engine is in Auto Stop mode which is a fuel saving operation.

When the ignition key is turned off, the tachometer needle will drop to OFF. If the driver's door is opened while in Auto Stop, a chime will sound.

## Charge/Assist Gage



The charge/assist gage displays the charge (current) into and out of the battery.

When the electric motor is assisting the engine as in a maximum acceleration, the needle will move to the Assist range. When the electric motor operates as a generator to perform regenerative braking while decelerating, the needle will move to the Charge range. See *Regenerative Braking on page 119* for more information. The needle will also move into the Charge region if the hybrid control system deems it is an efficient time to charge the hybrid battery. If the hybrid battery or other hybrid components are very hot or cold, the Charge and Assist functions may be suspended until the component temperatures are normal.

## Fuel Economy Light



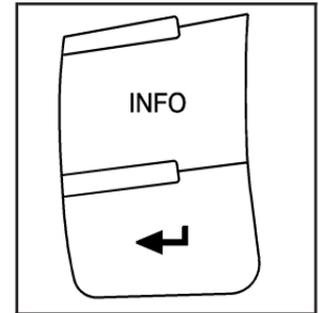
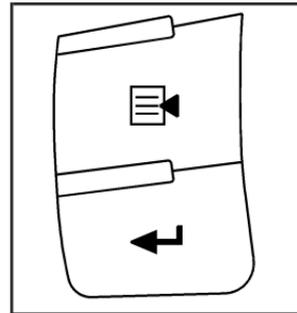
If enabled, this light will come on briefly when the vehicle is started.

This light will also come on when the vehicle is operating at a fuel efficient point.

This light can be disabled by using the Driver Information Center (DIC) buttons. With the engine off and the key turned to accessory, set the DIC to the outside air temperature and odometer mode. Press and hold the reset button for several seconds. The light will come on solid and then flash several times and turn off to indicate it is disabled. Repeat the procedure to enable the light. See *DIC Warnings and Messages on page 182* for more information.

## Driver Information Center (DIC)

Your vehicle has a Driver Information Center (DIC). The DIC display gives you the status of many of your vehicle's systems. The DIC is also used to display driver personalization menu modes and warning/status messages. All messages will appear in the DIC display, located at the bottom of the instrument panel cluster.



The DIC buttons are located on the left side of the steering wheel. Your vehicle will have one of the buttons shown above.

 **/INFO (Information):** Press this button to scroll through the vehicle information mode displays.

 **(Reset):** Press this button to reset some vehicle information mode displays, select a personalization menu mode setting, or acknowledge a warning message.

Press and hold the information and reset buttons at the same time for one second, then release the buttons to enter the personalization menu. See *DIC Vehicle Personalization on page 187* for more information.

## DIC Operation and Displays

The DIC comes on when the ignition is on. The DIC has different modes which can be accessed by pressing the DIC buttons. The button functions are detailed in the following.

## Information Modes

 **/INFO (Information):** Press this button to scroll through the following vehicle information modes:

### Outside Air Temperature and Odometer

Press the information button until the outside air temperature and the odometer display. This mode shows the temperature outside of the vehicle in either degrees Fahrenheit (°F) or degrees Celsius (°C) and the total distance the vehicle has been driven in either miles (mi) or kilometers (km). The outside air temperature appears on the left side of the DIC display and the odometer appears on the right side of the display.

To change the DIC display to English or metric units, see “UNITS” under *DIC Vehicle Personalization on page 187*.

## **TRIP A or TRIP B**

Press the information button until TRIP A or TRIP B displays. These modes 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.

To reset the trip odometer to zero, press and hold the reset button for a few seconds while the desired trip odometer is displayed.

## **FUEL RANGE**

Press the information button until FUEL RANGE displays. This mode shows the remaining distance you can drive without refueling in either miles (mi) or kilometers (km). It is based on fuel economy and the fuel remaining in the tank.

When the fuel level is low, FUEL RANGE LOW displays.

The fuel economy data used to determine fuel range is an average of recent driving conditions. As your driving conditions change, this data is gradually updated. The FUEL RANGE mode cannot be reset.

## **MPG (L/100 KM) AVG (Average)**

Press the information button until MPG (L/100 KM) AVG displays. This mode shows how many miles per gallon (mpg) or liters per 100 kilometers (L/100 km) your vehicle is getting based on current and past driving conditions.

To reset the average fuel economy, press and hold the reset button while MPG (L/100 KM) AVG is displayed. Average fuel economy is then calculated starting from that point. If the average fuel economy is not reset, it is continually updated each time you drive.

## **MPG (L/100 KM) INST (Instantaneous)**

Press the information button until MPG (L/100 KM) INST displays. This mode shows the current fuel economy at a particular moment and changes frequently as driving conditions change. This mode shows the instantaneous fuel economy in miles per gallon (mpg) or liters per 100 kilometers (L/100 km). Unlike average fuel economy, this screen cannot be reset.

Under most coast conditions or at an idle stop, AUTOSTOP displays. This means that the electric motor is on, the gas engine is off, and the engine is not using any fuel.

## **AV (Average) SPEED**

Press the information button until AV SPEED displays. This mode shows the vehicle's average speed in miles per hour (mph) or kilometers per hour (km/h).

To reset the average vehicle speed, press and hold the reset button while AV SPEED is displayed.

## **OIL LIFE**

Press the information button until OIL LIFE displays. The engine oil life system shows an estimate of the oil's remaining useful life. It shows 100% when the system is reset after an oil change. It alerts you to change the oil on a schedule consistent with your driving conditions.

In addition to the engine oil life system monitoring the oil life, additional maintenance is recommended in the Maintenance Schedule in this manual. See *Engine Oil on page 265* and *Scheduled Maintenance on page 356*.

Always reset the engine oil life system after an oil change. See "How to Reset the Engine Oil Life System" under *Engine Oil Life System on page 268*.

## **COOLANT**

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

## **DIC Warnings and Messages**

These messages appear if there is a problem detected in one of your vehicle's systems.

A message clears when the vehicle's condition is no longer present. To acknowledge a message and clear it from the display, press and hold any of the DIC buttons. If the condition is still present, the warning message comes back on the next time the vehicle is turned off and back on. With most messages, a warning chime sounds when the message displays. Your vehicle may have other warning messages.

## **AUTO (Automatic) LIGHTS OFF**

This message displays if the automatic headlamp system is disabled with the headlamp switch. See *Automatic Headlamp System on page 150* for more information.

## **AUTO (Automatic) LIGHTS ON**

This message displays if the automatic headlamp system is enabled with the headlamp switch. See *Automatic Headlamp System on page 150* for more information.

## **BRAKE FLUID**

This message displays, while the ignition is on, when the brake fluid level is low. The brake system warning light on the instrument panel cluster also comes on. See *Brake System Warning Light on page 168* for more information. Have the brake system serviced by your retailer as soon as possible.

## **CHANGE OIL SOON**

This message displays when the life of the engine oil has expired and it should be changed.

When this message is acknowledged and cleared from the display, the engine oil life system must still be reset separately. See *Engine Oil Life System on page 268* and *Scheduled Maintenance on page 356* for more information.

## **CHECK GAS CAP**

This message displays if the fuel cap has not been fully tightened. Recheck the fuel cap to make sure that it is on properly. A few driving trips with the cap properly installed should turn the message off.

## **CHECK TIRE PRESS (Pressure)**

This message displays when the tire pressure in one or more of the tires needs to be checked. 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 298*, *Loading Your Vehicle on page 242*, and *Inflation - Tire Pressure on page 304*. If the tire pressure is low, the low tire pressure warning light comes on. See *Low Tire Pressure Warning Light on page 170*.

## **CRUISE ENGAGED**

This message displays when the cruise control system is active. See *Cruise Control on page 145* for more information.

## **DOOR AJAR**

This message displays if one or more of the vehicle's doors are not closed properly. Make sure that the door(s) are closed completely.

## **ENGINE DISABLED**

This message displays if the starting of the engine is disabled. Have your vehicle serviced by your retailer immediately.

## **ENG (Engine) PWR (Power) REDUCED**

This message displays when the vehicle's engine power is reduced. 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 retailer for service as soon as possible.

## **ESC (Electronic Stability Control) ACTIVE**

If your vehicle has Electronic Stability Control (ESC), this message displays when ESC is assisting you with directional control of the vehicle. You may feel or hear the system working and see this message displayed in the DIC. Slippery road conditions may exist when this message is displayed, so adjust your driving accordingly. This message may stay on for a few seconds after ESC stops assisting you with directional control of the vehicle. This is normal when the system is operating. See *Electronic Stability Control on page 219* for more information.

## **ESC (Electronic Stability Control) OFF**

If your vehicle has Electronic Stability Control (ESC), this message displays and the ESC light on the instrument panel cluster comes on solid when ESC is turned off. Adjust your driving accordingly. See *Electronic Stability Control on page 219* and *Electronic Stability Control Indicator Light on page 171* for more information.

## HOOD AJAR

This message displays if the hood is not fully closed. Make sure that the hood is closed completely. The vehicle will not auto stop when the hood is ajar.

## ICE POSSIBLE

This message displays when the outside air temperature is cold enough to create icy road conditions. Adjust your driving accordingly.

## KEY FOB BATT (Battery) LOW

This message displays if the Remote Keyless Entry (RKE) transmitter battery is low. Replace the battery in the transmitter. See “Battery Replacement” under *Remote Keyless Entry (RKE) System Operation on page 90*.

## LOW FUEL

This message displays when your vehicle is low on fuel. Refill the fuel tank as soon as possible. See *Fuel Gage on page 177*, *Fuel on page 255*, and *Filling the Tank on page 258* for more information.

## LOW TRACTION

If your vehicle has the Traction Control System (TCS), this message displays when the system is actively limiting wheel spin. Slippery road conditions may exist if this message is displayed, so adjust your driving accordingly. This message stays on for a few seconds after the system stops limiting wheel spin. See *Traction Control System (TCS) on page 217* for more information.

## LOW WASHER FLUID

This message displays when the vehicle’s windshield washer fluid is low. Fill the windshield washer fluid reservoir to the proper level as soon as possible. See *Windshield Washer Fluid on page 282*.

## POWER STEERING

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

## PUSH PARK PEDAL

This message displays if the parking brake is left engaged. See *Parking Brake on page 119* for more information.

## SERVICE AIR BAG

This message displays when there is a problem with the airbag system. Have your vehicle serviced by your retailer immediately.

## SERVICE ESC (ELECTRONIC STABILITY CONTROL)

If your vehicle has Electronic Stability Control (ESC), this message displays and a chime sounds if there has been a problem detected with ESC. The ESC light also appears on the instrument panel cluster. This light stays on solid as long as the detected problem remains present. When this message displays, the system is not working. Adjust your driving accordingly. See *Electronic Stability Control on page 219* and *Electronic Stability Control Indicator Light on page 171* for more information.

If this message turns 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 and then back on. If this message still stays on or turns back on again while you are driving, your vehicle needs service. Have the ESC inspected by your retailer as soon as possible.

## SERVICE HYBRID

This message displays if the hybrid components need to be serviced. Have your vehicle serviced by your retailer.

## SERVICE TRACTION

If your vehicle has the Traction Control System (TCS), this message displays and a chime sounds when the system is not functioning properly. The TCS light also appears on the instrument panel cluster. This light stays on solid as long as the detected problem remains present. When this message displays, the system is not working. Adjust your driving accordingly. See *Traction Control System (TCS) on page 217* and *Traction Control System (TCS) Warning Light on page 170* for more information. Have the system serviced by your retailer as soon as possible.

## SRVC (Service) HILL START

This message displays if there is a problem with the hill start assist function. Have your vehicle serviced by your retailer.

## TRACTION OFF

If your vehicle has the Traction Control System (TCS), this message displays and the TCS light on the instrument panel cluster comes on solid when the system is turned off. Adjust your driving accordingly. See *Traction Control System (TCS) on page 217* and *Traction Control System (TCS) Warning Light on page 170* for more information.

## TRUNK AJAR

This message displays when the trunk is not closed completely. Make sure that the trunk is closed completely. See *Trunk on page 97* for more information.

## DIC Vehicle Personalization

Your vehicle has personalization capabilities that allow you to program certain features to a preferred setting. All of the features listed may not be available on your vehicle. Only the features available will be displayed on the DIC.

The default settings for the features were set when your vehicle left the factory, but may have been changed from their default state since that time.

To change feature settings, use the following procedure:

## Entering Personalization Menu

1. Turn the ignition on while the vehicle is stopped.  
To avoid excessive drain on the battery, it is recommended that the headlamps are turned off.
2. Press and hold the information and reset buttons at the same time for one second, then release to enter the personalization menu.  
If the vehicle speed is greater than 2 mph (3 km/h), only the UNITS menu will be accessible.
3. Press the information button to scroll through the available personalization menu modes.  
Press the reset button to scroll through the available settings for each mode.  
If you do not make a selection within ten seconds, the display will go back to the previous information displayed.

## Personalization Menu Modes

### OIL LIFE RESET

When this feature is displayed, you can reset the engine oil life system. To reset the system, see *Engine Oil Life System on page 268*. See “OIL LIFE” under *DIC Operation and Displays on page 180* for more information.

### UNITS

This feature allows you to select the units of measurement in which the DIC will display the vehicle information. When UNITS appears on the display, press and hold the reset button for at least one second to scroll through the available settings:

**ENGLISH (default in United States):** All information will be displayed in English units.

**METRIC (default in Canada):** All information will be displayed in metric units.

Choose one of the available settings and press the information button to select it and move on to the next feature.

### LOCK HORN

If your vehicle has Remote Keyless Entry (RKE), this feature, which allows the vehicle’s horn to chirp every time the lock button on the RKE transmitter is pressed, can be enabled or disabled. When LOCK HORN appears on the display, press and hold the reset button for at least one second to scroll through the available settings:

**OFF (default):** The horn will not chirp on the first press of the lock button on the RKE transmitter. The horn will still chirp on the second press.

**ON:** The horn will chirp on the first press of the lock button on the RKE transmitter.

See *Remote Keyless Entry (RKE) System Operation on page 90* for more information.

Choose one of the available settings and press the information button to select it and move on to the next feature.

## UNLOCK HORN

If your vehicle has Remote Keyless Entry (RKE), this feature, which allows the vehicle's horn to chirp on the first press of the unlock button on the RKE transmitter, can be enabled or disabled. When UNLOCK HORN appears on the display, press and hold the reset button for at least one second to scroll through the available settings:

**OFF (default):** The horn will not chirp when the unlock button on the RKE transmitter is pressed.

**ON:** The horn will chirp on the first press of the unlock button on the RKE transmitter.

See *Remote Keyless Entry (RKE) System Operation on page 90* for more information.

Choose one of the available settings and press the information button to select it and move on to the next feature.

## LIGHT FLASH

If your vehicle has Remote Keyless Entry (RKE), this feature, which allows the vehicle's exterior hazard/turn signal lighting to flash every time the lock, unlock, or trunk release buttons on the RKE transmitter are pressed, can be enabled or disabled. When LIGHT FLASH appears on the display, press and hold the reset button for at least one second to scroll through the available settings:

**OFF:** The exterior hazard/turn signal lighting will not flash when the lock, unlock, or trunk release buttons on the RKE transmitter are pressed.

**ON (default):** The exterior hazard/turn signal lighting will flash when the lock, unlock, or trunk release buttons on the RKE transmitter are pressed.

See *Remote Keyless Entry (RKE) System Operation on page 90* for more information.

Choose one of the available settings and press the information button to select it and move on to the next feature.

## DELAY LOCK

This feature, which delays the actual locking of the vehicle, can be enabled or disabled. When DELAY LOCK appears on the display, press and hold the reset button for at least one second to scroll through the available settings:

**ON (default):** The doors will not lock until five seconds after the last door is closed. You can temporarily override delayed locking by pressing the power lock switch or the lock button on the Remote Keyless Entry (RKE) transmitter a second time.

**OFF:** The doors will lock immediately when pressing the power lock switch or the lock button on the RKE transmitter.

See *Power Door Locks on page 94*, *Delayed Locking on page 94*, and *Remote Keyless Entry (RKE) System Operation on page 90* for more information.

Choose one of the available settings and press the information button to select it and move on to the next feature.

## AUTO UNLK (Unlock)

This feature, which allows the vehicle to automatically unlock certain doors, can be enabled or disabled. When AUTO UNLK appears on the display, press and hold the reset button for at least one second to scroll through the available settings:

**ALL (default):** All of the doors will automatically unlock.

**DRIVER:** The driver's door will automatically unlock.

**NONE:** None of the doors will automatically unlock. You will need to manually unlock the doors.

See *Programmable Automatic Door Locks on page 95* for more information.

Choose one of the available settings and press the information button to select it and move on to the next feature.

## UNLK (Unlock)

This screen displays only if DRIVER or ALL is selected for the AUTO UNLK feature. This feature determines when the automatic door unlocking will occur. When UNLK appears on the display, press and hold the reset button for at least one second to scroll through the available settings:

**KEY OFF:** The door(s) will unlock when the key is turned off.

**SHIFT TO P (Park) (default):** The door(s) will unlock when the vehicle is shifted into PARK (P).

See *Programmable Automatic Door Locks on page 95* for more information.

Choose one of the available settings and press the information button to select it and move on to the next feature.

## EXT (Exterior) LIGHTS

If your vehicle has Remote Keyless Entry (RKE), this feature, which allows the vehicle's exterior perimeter lighting to turn on each time the unlock button on the RKE transmitter is pressed, can be enabled or disabled. When EXT LIGHTS appears on the display, press and hold the reset button for at least one second to scroll through the available settings:

**OFF:** The exterior perimeter lighting will not turn on when the unlock button on the RKE transmitter is pressed.

**ON (default):** The exterior perimeter lighting will turn on when the unlock button on the RKE transmitter is pressed.

See *Remote Keyless Entry (RKE) System Operation on page 90* for more information.

Choose one of the available settings and press the information button to select it and move on to the next feature.

## LANGUAGE

This feature allows you to select the language in which the DIC will display. When LANGUAGE appears on the display, press and hold the reset button for at least one second to scroll through the available settings:

**ENGLISH (default):** The DIC will display all information in English.

**FRENCH:** The DIC will display all information in French.

**SPANISH:** The DIC will display all information in Spanish.

**GERMAN:** The DIC will display all information in German.

Choose one of the available settings and press the information button to select it and exit out of the personalization menu mode.

## Exiting Personalization Menu

The personalization menu will be exited when any of the following conditions occur:

- A ten second time period has elapsed.
- The ignition is turned off.
- The end of the personalization menu list is reached.

## Audio System(s)

Determine which radio your vehicle has and then read the pages following to familiarize yourself with its features.

### CAUTION:

**This system provides you with 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. See *Defensive Driving on page 210*. 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/retailer. 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 109* for more information.

## Setting the Time

Your vehicle has a radio with a ⌚ (clock) button for setting the time and date.

To set the time and date, follow these instructions:

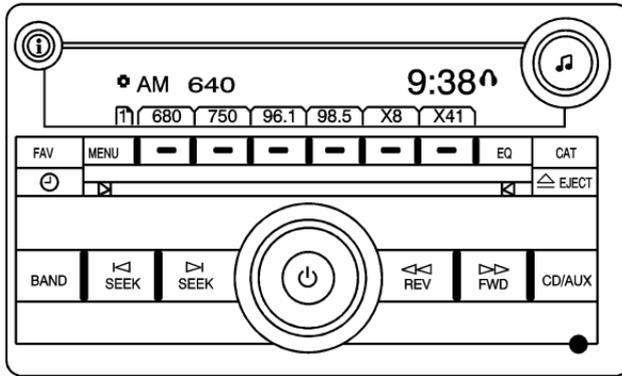
1. Turn the radio on.
2. Press the ⌚ button and the HR, MIN, MM, DD, YYYY (hour, minute, month, day, and year) displays.
3. Press the pushbutton located under any one of the labels to be changed. Every time the pushbutton is pressed again, the time or the date if selected, increases by one.
  - Another way to increase the time or date, is to press the right ▷ SEEK arrow or ▷▷ FWD (forward) button.
  - To decrease the time or date, press the left ◀◀ REV (reverse) button, or turn the 🎵 knob, located on the upper right side of the radio.

The date does not automatically display. To see the date press the ⌚ (clock) button while the radio is on. The date with display times out after a few seconds and goes back to the normal radio and time display.

To change the time default setting from 12 hour to 24 hour or to change the date default setting from month/day/year to day/month/year, follow these instructions:

1. Press the ⌚ button and then the pushbutton located under the forward arrow label. Once the time 12H and 24H, and the date MM/DD/YYYY (month, day, and year) and DD/MM/YYYY (day, month, and year) displays.
2. Press the pushbutton located under the desired option.
3. Press the ⌚ button again to apply the selected default, or let the screen time out.

## Radio with CD (MP3)



## 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.

## Playing the Radio

**⏻ (Power/Volume):** Press the ⏻ (power) knob to turn the system on and off.

Turn the ⏻ (volume) knob clockwise or counterclockwise to increase or decrease the volume.

**Speed Compensated Volume (SCV):** The radio has 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 label on the radio display.
4. Press the pushbutton under the desired Speed Compensated Volume setting (OFF, Low, Med, 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.

## Finding a Station

**BAND:** Press this button to switch between AM or FM. The display shows the selection.

**♪ (Tune):** Turn this knob to select radio stations.

**⏪ SEEK ⏩ :** Press the SEEK arrows to go to the previous or to the next station and stay there.

To scan stations, press and hold either SEEK arrow for a few 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 seeks and scans stations only with a strong signal that are in the selected band.

**i (Information) (MP3 and RDS Features):** Press this button to display additional text information related to the current FM-RDS or MP3 song. A choice of additional information such as: Channel, Song, Artist, and CAT (category) can appear. Continue pressing this button to highlight the desired label, or press the pushbutton positioned under any one of the labels and the information about that label displays.

While 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 parked. 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 210*.

**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 or FM 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 again, the station that was set, returns.
4. Repeat the steps for each 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  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  knob clockwise or counterclockwise to adjust the highlighted setting. The highlighted setting can also be adjusted by pressing either SEEK arrow,  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  knob for more than two seconds until a beep sounds.

**EQ (Equalization):** Press this button to select preset equalization settings.

To return to the manual mode, press the EQ button until Manual displays or start to manually adjust the bass, midrange, or treble by pressing the  knob.

## Adjusting the Speakers (Balance/Fade)

**BAL/FADE (Balance/Fade):** To adjust balance or fade, press the  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  knob clockwise or counterclockwise to adjust the highlighted setting. The highlighted setting can also be adjusted by pressing either SEEK arrow,  FWD or  REV button 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  knob for more than two seconds until a beep sounds.

## Category (CAT) Button Option

**CAT (Category):** The CAT button does not function in this Hybrid vehicle.

## Radio Messages

**Calibration Error:** The audio system has been calibrated for your vehicle from the factory. If Calibration Error displays, it means that the radio has not been configured properly for your vehicle and it must be returned to your dealer/retailer for service.

**Locked:** This message is displayed when the THEFTLOCK® system has locked up the radio. Take the vehicle to your dealer/retailer for service.

If any error occurs repeatedly or if an error cannot be corrected, contact your dealer/retailer.

## Playing an MP3 CD-R or CD-RW Disc

If your radio system has a single CD (MP3) player, it is capable of playing an MP3 CD-R or CD-RW disc. For more information on how to play an MP3 CD-R or CD-RW disc, see *Using an MP3 on page 200* later in this section.

## CD Messages

**CHECK DISC:** If this message displays and/or the CD ejects, it could be for one of the following reasons:

- 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/retailer. If the radio displays an error message, write it down and provide it to your dealer/retailer while 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 210* 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 a device is connected, press the radio CD/AUX button to begin playing audio from the device over the vehicle speakers.

 **(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 if the volume is not loud or soft enough.

**BAND:** Press this button to listen to the radio while a portable audio device is playing. The portable audio device continues playing, so you might want to stop it or turn it off.

**CD/AUX (CD/Auxiliary):** Press this button to play a CD while 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 Input Device Found displays.

## Using an MP3

### MP3 CD-R or CD-RW Disc

The radio plays MP3 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 are available for display by the radio when 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 files. By default the radio reads only the uncompressed audio and ignore the MP3 files. Pressing the CAT button toggles between compressed and uncompressed audio format.

## MP3 Format

If you burn your own MP3 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.
  - The CD player is able to read and play a maximum of 50 folders, 50 playlists, and 255 files.
  - 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 might 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.

Playlists can be changed by using the previous and next folder buttons, the tune knob, or the SEEK arrows. You can also play an MP3 CD-R or CD-RW that was recorded using no file folders. If a CD-R or CD-RW 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 are not accessible.

### **Root Directory**

The root directory of the CD-R or CD-RW is treated as a folder. If the root directory has compressed audio files, the directory is displayed 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 a CD contains only compressed files, the files are located under the root folder. The next and previous folder function does not function on a CD that was recorded without folders or playlists. When displaying the name of the folder the radio displays ROOT.

When the CD 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 go 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 or CD-RW are played 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.
- 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 you have chosen the folder mode 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 32 characters or four pages are shortened. The display does not show parts of words on the last page of text and the extension of the filename does not display.

## Preprogrammed Playlists

Preprogrammed playlists that were created using WinAmp™, MusicMatch™, or Real Jukebox™ software can be accessed, however, there is no playlist editing capability using the radio. These playlists are treated as special folders containing compressed audio song files.

## Playing an MP3

Insert a CD-R or CD-RW partway into the slot, label side up. The player pulls it in, and the CD-R or CD-RW should begin playing.

If the ignition or radio is turned off while a CD-R or CD-RW is in the player, it stays in the player. When the ignition or radio is turned on, the CD-R or CD-RW 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.

 **EJECT:** Press the CD eject button to eject CD-R(s) or CD-RW(s). To eject the CD-R or CD-RW 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 or CD-RW can be removed. If the CD-R or CD-RW is not removed, after several seconds, the CD-R or CD-RW automatically pulls back into the player and begins playing.

 **(Tune):** Turn this knob to select MP3 files on the CD-R or CD-RW currently playing.

 **SEEK**  : Press the left SEEK arrow to go to the start of the current MP3 file, if more than 10 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. Sound is heard 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. Sound is heard 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 or CD-RW can be listened to in random, rather than sequential order. To play MP3 files from a CD-R or CD-RW 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.

 **(Music Navigator):** Use the music navigator feature to play MP3 files on the CD-R or CD-RW 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 can take several minutes to scan the disc depending on the number of MP3 files recorded to the CD-R or CD-RW. The radio can begin playing while it is scanning the disc in the background. When the scan is finished, the CD-R or CD-RW 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 are played, the player moves to the next artist in alphabetical order on the CD-R or CD-RW and begins playing MP3 files by that artist. To listen to MP3 files by another artist, press the pushbutton located below either arrow button. The disc 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 is displayed on the second line between the arrows and songs from the current album begins to play. Once all songs from that album are played, the player moves to the next album in alphabetical order on the CD-R or CD-RW and begins playing MP3 files from that album.

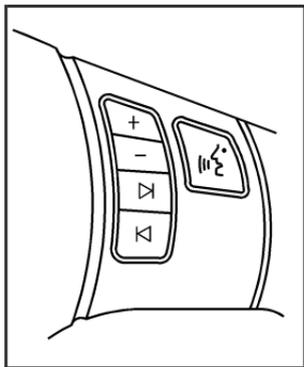
To exit the music navigator mode, press the pushbutton below the Back label to return to normal MP3 playback.

## Theft-Deterrent Feature

THEFTLOCK<sup>®</sup> 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 does not operate and LOCKED displays.

With THEFTLOCK<sup>®</sup> activated, the radio cannot operate if stolen.

## Audio Steering Wheel Controls



Radio controls are located on the right side of the steering wheel. If your vehicle has this feature, some audio controls can be adjusted at this location.

They include the following:

**+ - (Volume):** Press the plus or minus button to increase or to decrease the volume.

**◀ ▶ :** Press the seek arrows to go to the previous or the next stored radio station and stay there. Press and hold the seek arrows briefly to reverse back to the previous station or to advance to the next station, with a strong signal in the selected band.

While a CD is playing, press the seek arrows to go to the previous or to the next track. Press and hold the seek arrows briefly to continue reversing back or advancing ahead to other tracks within the disc.

**⏸ (Mute/Voice Activation):** Press this button to mute the system. Press this button again to turn the sound on. If your vehicle has OnStar<sup>®</sup>, press and hold this button for two seconds to activate voice on the OnStar<sup>®</sup> system. See the *OnStar<sup>®</sup> System on page 127* in this manual for more information.

## Radio Reception

You might 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 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 gives the best sound, but FM signals 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.

## 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 does 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 integrated with the rear window defogger, located in the rear window. Make sure that the inside surface of the rear window is not scratched and that the lines on the glass are not damaged. If the inside surface is damaged, it could interfere with radio reception. Also, for proper radio reception, the antenna connector at the top-center of the rear window needs to be properly attached to the post on the glass.

**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 backglass 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.

Because this antenna is built into the rear window, there is a reduced risk of damage caused by car washes and vandals.

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 and the grid line must be repaired.

If adding a cellular telephone to your vehicle, and the antenna needs to be attached to the glass, make sure that you do not damage the grid lines for the AM-FM antenna. There is enough space between the lines to attach a cellular telephone antenna without interfering with radio reception.

## Section 4 Driving Your Vehicle

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# 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 17.

### 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.

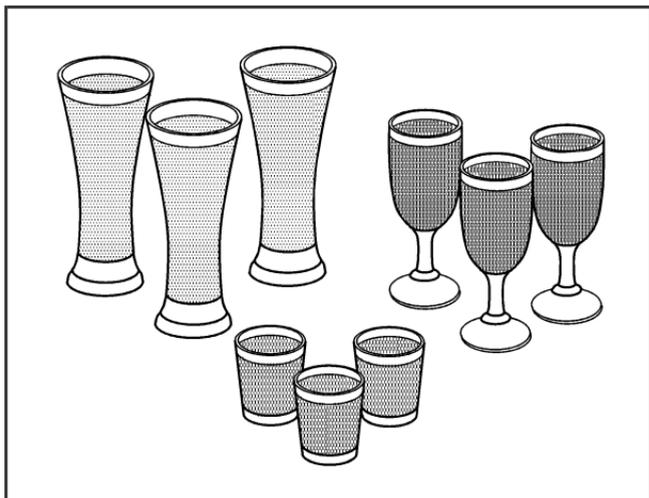
Many adults — by some estimates, nearly half the adult population — choose never to drink alcohol, so they never drive after drinking. For persons under 21, it is against the law in every U.S. state to drink alcohol. There are good medical, psychological, and developmental reasons for these laws.

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 217 and *Electronic Stability Control* on page 219.

Adding non-Saturn accessories can affect your vehicle's performance. See *Accessories and Modifications* on page 253.

## Braking

See *Brake System Warning Light* on page 168.

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.

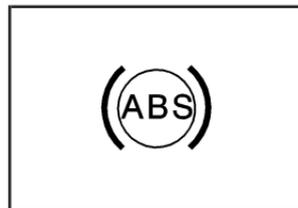
If your vehicle's engine ever stops while you are driving, brake normally but do not pump the brakes. If you do, the pedal may get harder to push down. If the engine stops, you will still have some power brake assist. But you will use it when you brake. Once the power assist is used up, it may take longer to stop and the brake pedal will be harder to push.

Adding non-Saturn accessories can affect your vehicle's performance. See *Accessories and Modifications on page 253*.

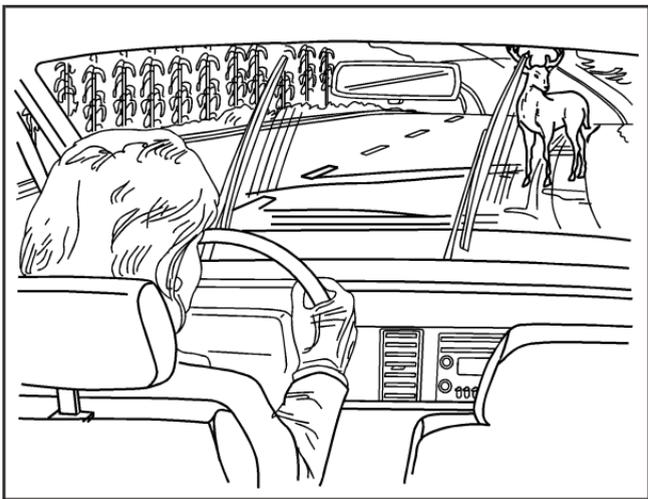
## Antilock Brake System (ABS)

Your vehicle has the Antilock Brake System (ABS), an advanced electronic braking system that will help prevent a braking skid.

When you start the engine and begin to drive away, ABS will check itself. You might hear a momentary motor or clicking noise while this test is going on, and you might even notice that the brake pedal moves a little. This is normal.



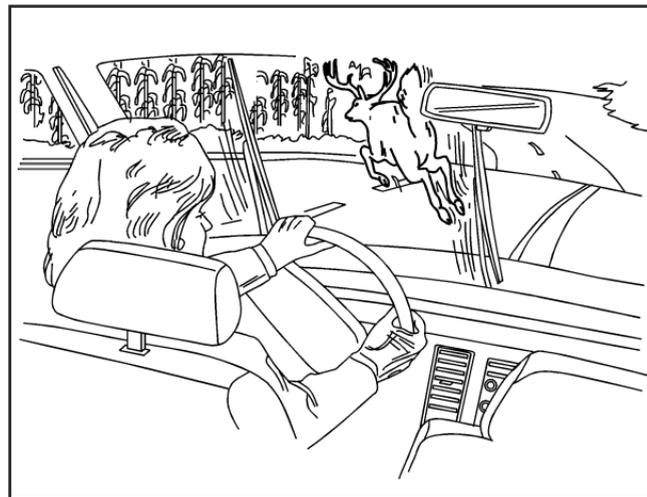
If there is a problem with ABS, this warning light will stay on. See *Antilock Brake System Warning Light on page 169*.



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 wheel.

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, the 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 the 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 antilock work for you. You might hear the antilock pump or motor operate, and feel the brake pedal pulsate, but this is normal.

### **Braking in Emergencies**

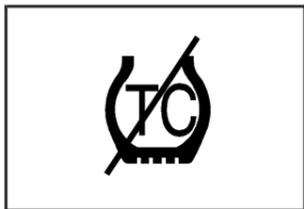
With ABS, you can steer and brake at the same time. In many emergencies, steering can help you more than even the very best braking.

## **Traction Control System (TCS)**

Your vehicle may have a Traction Control System (TCS) that limits wheel spin. This is especially useful in slippery road conditions. The system operates only if it senses that one or both of the front wheels are spinning or beginning to lose traction. When this happens, the system reduces engine power and may also upshift the transmission to limit wheel spin. You may feel or hear the system working, but this is normal. Also, the traction control system activates the appropriate corner brakes to gain even quicker control to limit wheel spin. The LOW TRACTION message will appear on the Driver Information Center (DIC) when the traction control system is limiting wheel spin.

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 145*.

The TCS operates in all transmission shift lever positions except PARK (P), NEUTRAL (N) or REVERSE (R). But the system can upshift the transmission only as high as the shift lever position you've chosen, so you should use the lower gears only when necessary. See *Automatic Transaxle Operation on page 116*.



This light is located on the instrument panel cluster.

When the system is on, this warning light will come on to let you know if there's a problem, or if the system has been turned off. When this light is on, the system will not limit wheel spin. Adjust your driving accordingly.

To limit wheel spin, especially in slippery road conditions, you should always leave the TCS on. But you can turn the system off if you prefer.

To turn the system on or off, press the traction control button (TC) located on the center console. In order to effectively “rock” the vehicle, you will need to turn off TCS.

If you press the TC button once, the TCS will turn off, the TRACTION OFF message will display and the TCS warning light will come on. The StabiliTrak<sup>®</sup> system will stay on. Press the TC button again to turn the system back on. The TCS warning light will go off. If you press and hold the TC button, the StabiliTrak<sup>®</sup> system and the traction control system will turn off. Press the TC button again to turn StabiliTrak<sup>®</sup> and the traction control system back on. For more information, see *Electronic Stability Control on page 219*.

When you turn the system off, the TCS warning light will come on and stay on. If the Traction Control System is limiting wheel spin when you press the button to turn the system off, the warning light will come on – but the system won't turn off right away. It will wait until there's no longer a current need to limit wheel spin.

Adding non-dealer/non-retailer accessories can affect your vehicle's performance. See *Accessories and Modifications on page 253* for more information.

## Electronic Stability Control

Your vehicle may have an Electronic Stability Control (ESC) system which combines antilock brake, traction and stability control systems and helps the driver maintain directional control of the vehicle in most driving conditions.

When you first start your vehicle and begin to drive away, the system performs several diagnostic checks to ensure there are no problems. You may hear or feel the system working. This is normal and does not mean there is a problem with your vehicle. The system should initialize before the vehicle reaches 20 mph (32 km/h). In some cases, it may take approximately two miles of driving before the system initializes.



The ESC light is located on the instrument panel cluster.

If the system fails to turn on or activate, the ESC light will be on solid, and the ESC OFF or SERVICE ESC message will be displayed in the DIC. If the vehicle has gone through heavy acceleration or braking during the first two miles after starting your vehicle, these messages and the ESC light may also appear. If this is the case, your vehicle does not need servicing. Turn your vehicle off and back on again to reset the system. If the SERVICE ESC message appears on the Driver Information Center (DIC), and your vehicle hasn't gone through hard acceleration or braking in the first two miles, your vehicle should be taken in for service.

When the ESC off light is on and either the SERVICE ESC or ESC OFF message is displayed, the system will not assist the driver to maintain directional control of the vehicle. Adjust your driving accordingly. See *DIC Warnings and Messages on page 182*

The traction control part of ESC can be turned off or back on by pressing the ESC button. To disable both traction control and ESC, press and hold the button briefly.

When the system is turned off, the TRACTION OFF message will first appear followed by the ESC OFF message. The ESC OFF and TCS OFF indicator lights will also appear to warn the driver that both traction control and ESC are disabled.

It is recommended to leave the system on for normal driving conditions, but it may be necessary to turn the system off if your vehicle is stuck in sand, mud, ice or snow, and you want to “rock” your vehicle to attempt to free it. It may also be necessary to turn off the system when driving in extreme off-road conditions where high wheel spin is required. See *If Your Vehicle is Stuck in Sand, Mud, Ice, or Snow on page 241*.

ESC may also turn off automatically if it determines that a problem exists with the system. The ESC OFF and SERVICE ESC messages and the ESC OFF light will be on solid to warn the driver that ESC is disabled and requires service. If the problem does not clear itself after restarting the vehicle, you should see your retailer for service. See *DIC Warnings and Messages on page 182*.

Adding non-dealer/non-retailer accessories can affect your vehicle’s performance. See *Accessories and Modifications on page 253*.

## Traction Control Operation

The traction control system is part of the ESC system. Traction control limits wheel spin by reducing engine power to the wheels (engine speed management) and by applying brakes to each individual wheel (brake-traction control) as necessary.

The traction control system is enabled automatically when you start your vehicle, and it will activate and display the LOW TRACTION message if it senses that any of the wheels are spinning or beginning to lose traction while driving. If you turn off traction control, the TCS OFF warning light will come on and the TRACTION OFF message will be displayed. The ESC system will remain operational unless it is turned off. For more information on the traction active message, see *Driver Information Center (DIC) on page 179*.

**Notice:** If you allow the wheel(s) of one axle to spin excessively while the ESC, ABS and brake warning lights and the SERVICE ESC message are displayed, you could damage the transfer case. The repairs would not be covered by your warranty. Reduce engine power and do not spin the wheel(s) excessively while these lights and this message are displayed.

The traction control system may activate on dry or rough roads or under conditions such as heavy acceleration while turning or abrupt upshifts/downshifts of the transmission. When this happens, you may notice a reduction in acceleration, or may hear a noise or vibration. This is normal.

If your vehicle is in cruise control when the system activates, the ESC ACTIVE message will appear and the cruise control will automatically disengage. When road conditions allow you to use cruise again, you may re-engage the cruise control. See *Cruise Control on page 145*.

ESC may also turn off automatically if it determines that a problem exists with the system. If the problem does not clear itself after restarting the vehicle, you should see your retailer for service.

Adding non-dealer/non-retailer accessories can affect your vehicle's performance. See *Accessories and Modifications on page 253* for more information.

## Steering

If the engine stalls while you are driving, the power steering assist system will continue to operate until you are able to stop your vehicle. If you lose power steering assist because the electric power steering system is not functioning, you can steer, but it will take more effort.

If you turn the steering wheel in either direction several times until it stops, or hold the steering wheel in the stopped position for an extended amount of time, you may notice a reduced amount of power steering assist. The normal amount of power steering assist should return shortly after a few normal steering movements.

The electric power steering system does not require regular maintenance. If you suspect steering system problems, contact your dealer/retailer for service repairs. See *DIC Warnings and Messages on page 182*.

## 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 the 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 217 and *Electronic Stability Control* on page 219.

What should you do if this ever happens? Ease up on the brake or accelerator pedal, steer the vehicle the way you want it to go, and slow down.

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 the front wheels are straight ahead.

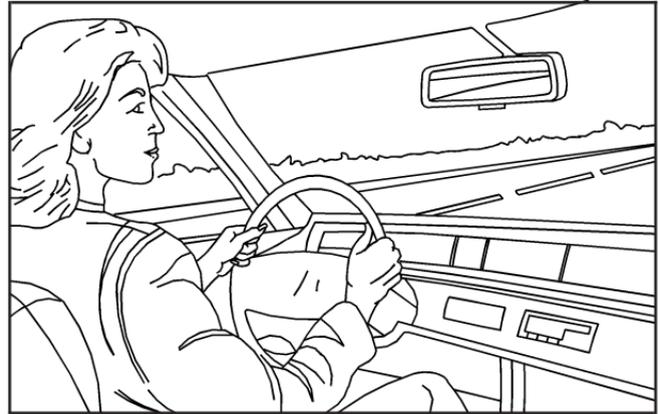
Try to adjust your speed so you can “drive” through the curve. Maintain a reasonable, steady speed. Wait to accelerate until you are out of the curve, and then accelerate gently into the straightaway.

Adding non-dealer/non-retailer accessories can affect your vehicle’s performance. See *Accessories and Modifications* on page 253.

## 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 the brakes. See *Braking on page 214*. 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.

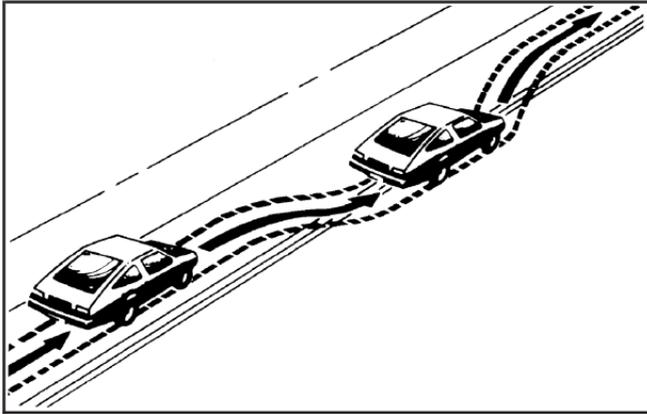


An emergency like this requires close attention and a quick decision. If you are holding the steering wheel at the recommended 9 and 3 o'clock positions, you can turn it a full 180 degrees very quickly without removing either hand. But you have to act fast, steer quickly, and just as quickly straighten 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 vehicle's 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 the 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 an outside convex mirror makes the vehicle you just passed seem 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 might 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, the 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.

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, 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 might 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 might 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 the brake pedal lightly until the 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 the engine's air intake and badly damage the 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.**

**CAUTION: (Continued)**

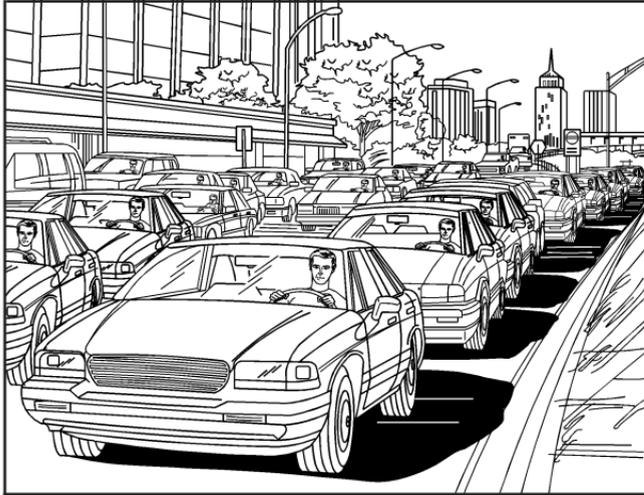
### CAUTION: (Continued)

**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 298*.

## City Driving

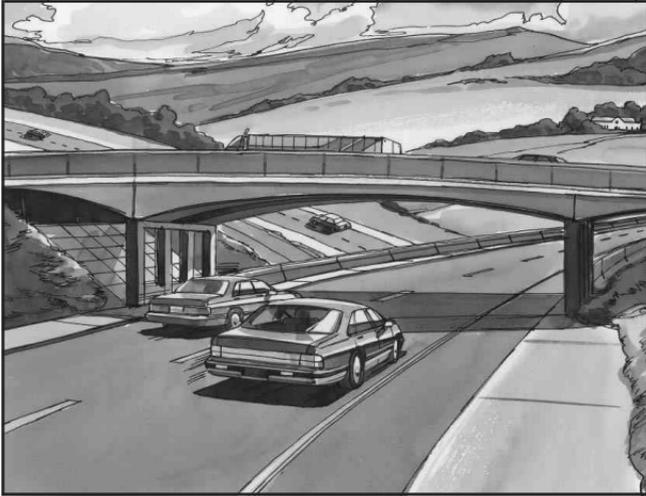


One of the biggest problems with city streets is the amount of traffic on them. You will want to watch out for what the other drivers are doing and pay attention to traffic signals.

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 232.
- 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 at dealers/retailers all across the United States and Canada. They are 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, the 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 the engine assist the brakes on a steep downhill slope.**

 **CAUTION:**

**Coasting downhill in NEUTRAL (N) or with the ignition off is dangerous. The 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 the 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.
- 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 might want to put winter emergency supplies in your trunk.

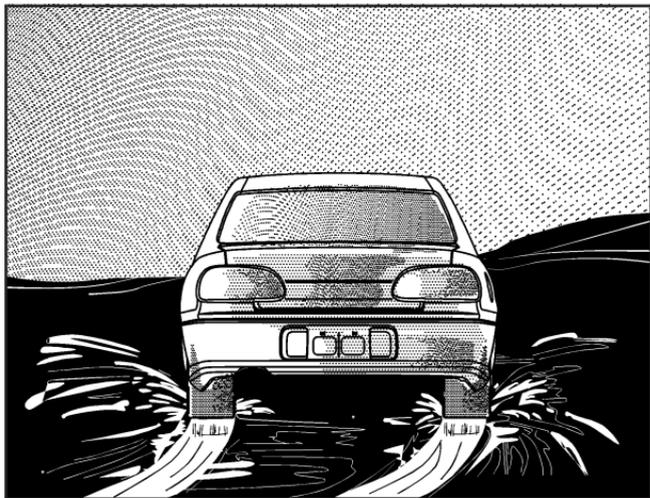
Include an ice scraper, a small brush or broom, a supply of windshield washer fluid, a rag, some winter outer clothing, a small shovel, a flashlight, a red cloth, and a couple of reflective warning triangles. And, if you will be driving under severe conditions, include a small bag of sand, a piece of old carpet, or a couple of burlap bags to help provide traction. Be sure you properly secure these items in your vehicle.

Also see *Tires* on page 298.

## 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 have a lot less traction, or grip, and 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 can 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.

If you have the Traction Control System (TCS), it will improve your ability to accelerate when driving on a slippery road. But you can turn the TCS off if you ever need to. You should turn the TCS off if your vehicle ever gets stuck in sand, mud, ice, or snow. See *If Your Vehicle is Stuck in Sand, Mud, Ice, or Snow on page 241*. Even if you have TCS, slow down and adjust your driving to the road conditions. Under certain conditions, you might 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 217* and *Electronic Stability Control on page 219*.

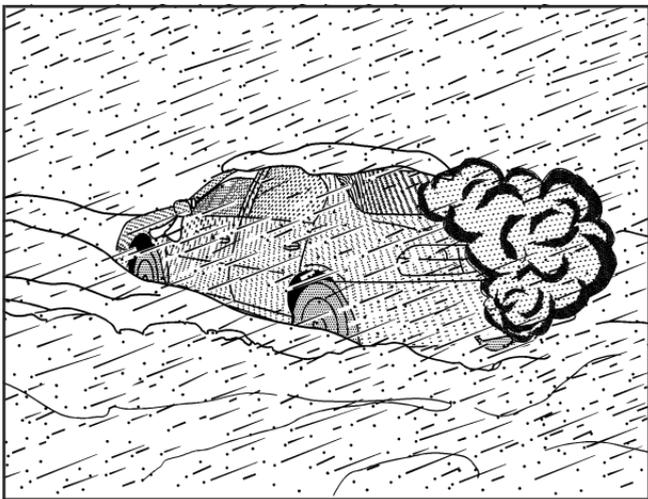
The Antilock Brake System (ABS) improves your vehicle's stability when you make a hard stop on a slippery road. Even though you have ABS, begin stopping sooner than you would on dry pavement. See *Antilock Brake System (ABS)* on page 215.

- 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 can 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 can 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 the hazard warning 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 the 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 the 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 242.

For information about using tire chains on your vehicle, see *Tire Chains* on page 319.

## Rocking Your Vehicle to Get It Out

First, turn the steering wheel left and right to clear the area around the front wheels. Turn off any traction or stability system. See *Traction Control System (TCS) on page 217* and *Electronic Stability Control on page 219*. Then shift back and forth between REVERSE (R) and a forward gear, spinning the wheels as little as possible. To prevent transmission wear, wait until the wheels stop spinning before shifting gears. Release the accelerator pedal while you shift, and press lightly on the accelerator pedal when the transmission is in gear. By slowly spinning the wheels in the forward and reverse directions, you will cause a rocking motion that could free your vehicle. If that does not get your vehicle out after a few tries, it might need to be towed out. If your vehicle does need to be towed out, see *Towing Your Vehicle on page 247*.

## 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/Tire label. Two labels on your vehicle show how much weight it may properly carry, the Tire and Loading Information label and the Vehicle 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

The diagram shows a rectangular label with a tire icon on the left. Callout A points to the tire icon. Callout B points to the title 'TIRE AND LOADING INFORMATION'. Callout C points to the 'ORIGINAL SIZE' column in the table below. Callout D points to the 'COLD TIRE PRESSURE' column in the table below.

TIRE AND LOADING INFORMATION			
SEATING CAPACITY	TOTAL	FRONT	REAR
The combined weight of occupants and cargo should never exceed XXX kg or XXX lbs.			
TIRE	ORIGINAL SIZE	COLD TIRE PRESSURE	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION
FRONT			
REAR			
SPARE			

**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 lists 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 lists 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 298* and *Inflation - Tire Pressure on page 304*.

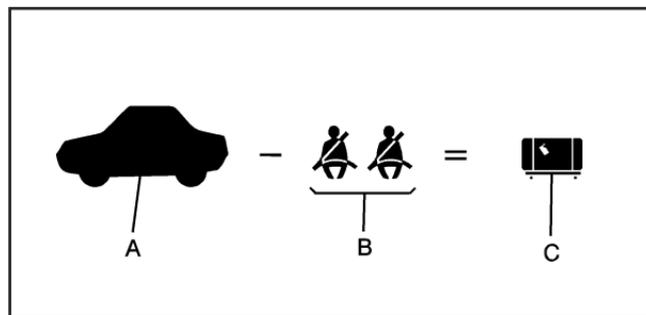
There is also important loading information on the Certification label. It tells you the Gross Vehicle Weight Rating (GVWR) and the Gross Axle Weight Rating (GAWR) for the front and rear axle, see "Certification Label" later in this section.

### 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.

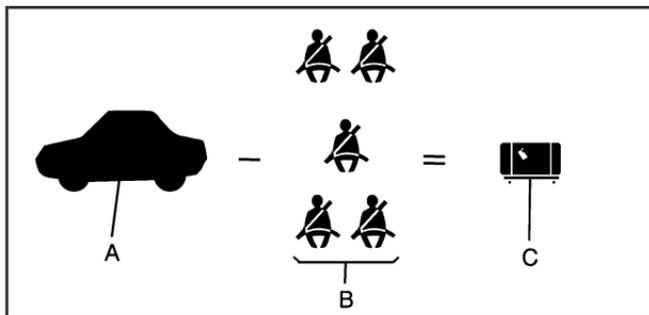
4. The resulting figure equals the available amount of cargo and luggage load capacity. For example, if the “XXX” amount equals 1400 lbs and there will be five 150 lb passengers in your vehicle, the amount of available cargo and luggage load capacity is 650 lbs ( $1400 - 750 (5 \times 150) = 650$  lbs).
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 for your vehicle.

Your vehicle is not designed nor intended to tow any trailer.



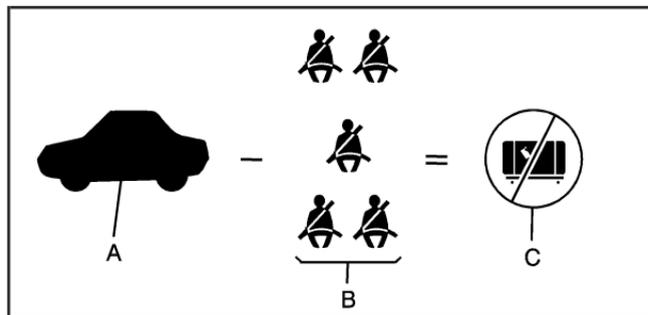
**Example 1**

Item	Description	Total
A	Maximum Vehicle Capacity Weight for Example 1 =	1,000 lbs (453 kg)
B	Subtract Occupant Weight 150 lbs (68 kg) $\times 2 =$	300 lbs (136 kg)
C	Available Occupant and Cargo Weight =	700 lbs (317 kg)



**Example 2**

Item	Description	Total
A	Maximum 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	Maximum 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 maximum vehicle capacity weight and seating positions. The combined weight of the driver, passengers, and cargo should never exceed your vehicle's maximum vehicle capacity weight.

## Certification Label

MFD BY GENERAL MOTORS CORP

DATE	GVWR	GAWR FRT	GAWR RR
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY, BUMPER, AND THEFT PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

200   TYPE PASS CAR

**EXAMPLE**

A vehicle specific Certification label is found on the rear edge of the driver's door.

The 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.

## 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 things like suitcases, tools, packages, or anything else are put inside the vehicle, 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.**
- **Do not leave a seat folded down unless you need to.**

## Towing

### Towing Your Vehicle

Consult your retailer or a professional towing service if you need to have your disabled vehicle towed. See *Roadside Assistance Program on page 377*.

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.

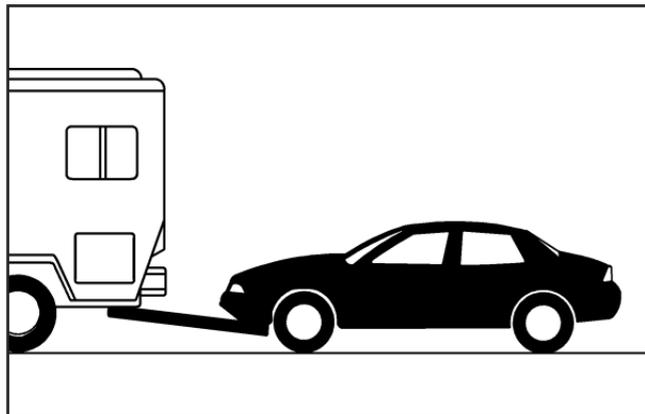
With the proper preparation and equipment, many vehicles can be towed in these ways. See “Dinghy Towing” and “Dolly Towing,” following.

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/retailer 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 233.

## Dinghy Towing

When dinghy towing, the vehicle should be run at the beginning of each day and at each RV fuel stop for about five minutes. This will ensure proper lubrication of transmission components.



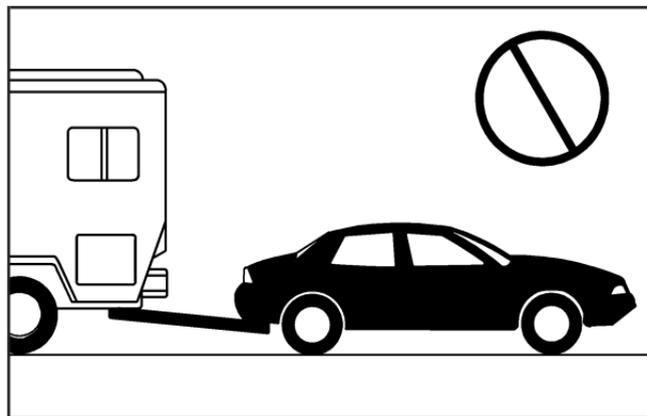
You may dinghy tow your vehicle from the front following these steps:

1. Position the vehicle to tow and then secure it.
2. Turn the ignition to OFF.
3. Set the parking brake.

4. To prevent the battery from draining while the vehicle is being towed, remove the following fuse from the instrument panel fuse block: (IGN SENSOR). See *Instrument Panel Fuse Block* on page 343 for more information.
5. Turn the ignition key to ACC.
6. Shift your transmission to NEUTRAL (N).
7. Release the parking brake.

Remember to reinstall the IGN SENSOR fuse once you have reached your destination.

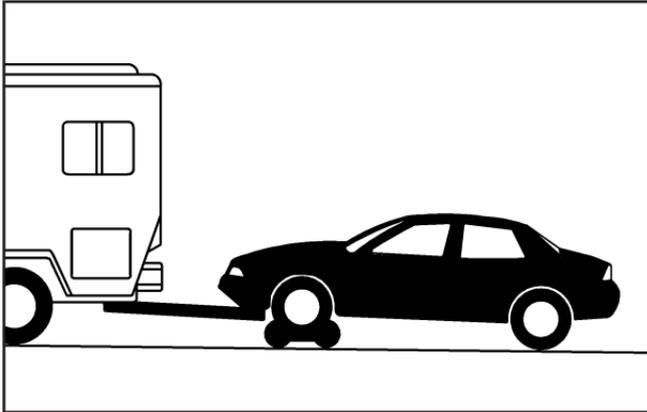
**Notice:** If you exceed 65 mph (105 km/h) while towing your vehicle, it could be damaged. Never exceed 65 mph (105 km/h) while towing your vehicle.



**Notice:** Towing your vehicle from the rear could damage it. Also, repairs would not be covered by the warranty. Never have your vehicle towed from the rear.

## Dolly Towing

To tow your vehicle with two wheels on the ground and a dolly:



1. Put the front wheels on a dolly.
2. Put the gear shift lever in PARK (P).

3. Set the parking brake and then remove the ignition key.
4. Clamp the steering wheel in a straight-ahead position.
5. Release the parking brake.

## Towing a Trailer

Your vehicle is neither designed nor intended to tow a trailer.

## Section 5 Service and Appearance Care

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## Service

Your Saturn retailer knows your vehicle best and wants you to be happy with it. We hope you will go to your retailer for all your service needs. You will get genuine Saturn parts and Saturn-trained and supported service people.

We hope you will want to keep your Saturn vehicle all Saturn.

Genuine Saturn parts have one of these marks.

***ACDelco***<sup>®</sup>

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## Accessories and Modifications

When you add non-Saturn 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.

Saturn accessories are designed to complement and function with other systems on your vehicle. Your Saturn retailer can accessorize your vehicle using genuine Saturn accessories. When you go to your Saturn retailer and ask for Saturn accessories, you will know that Saturn-trained and supported service technicians will perform the work using genuine Saturn 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:

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

### 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.**
- **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.**

## 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 retailer 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 the engine clean and maintain optimum vehicle performance, Saturn recommends the use of gasoline advertised as TOP TIER Detergent Gasoline.

## Gasoline Octane

Use regular unleaded gasoline with a posted octane rating of 87 or higher. If the octane rating is less than 87, you might notice an audible knocking noise when you drive, commonly referred to as spark knock. If this occurs, use a gasoline rated at 87 octane or higher as soon as possible. If you are using gasoline rated at 87 octane or higher and you hear heavy knocking, the 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). Saturn recommends against the use of gasolines containing MMT. See *Additives on page 256* 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 172. If this occurs, return to your authorized Saturn retailer 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 retailer 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. We recommend 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 the fuel system and also damage 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. We recommend 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 retailer for service.

## Fuels in Foreign Countries

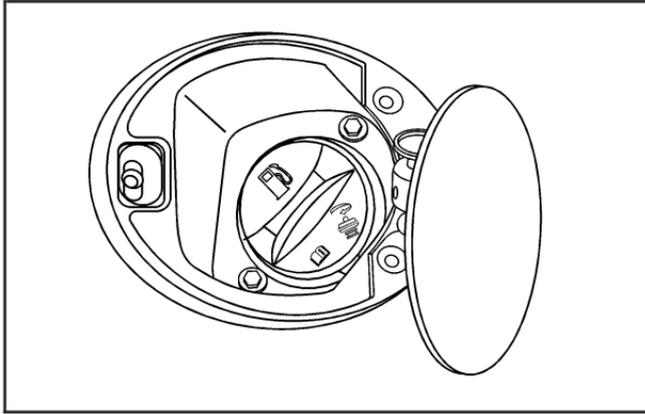
If you plan on driving in another country outside the United States or Canada, the proper fuel might be hard to find. Never use leaded gasoline or any other fuel not recommended in the previous text on fuel. Costly repairs caused by use of improper fuel would not be covered by your warranty.

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.

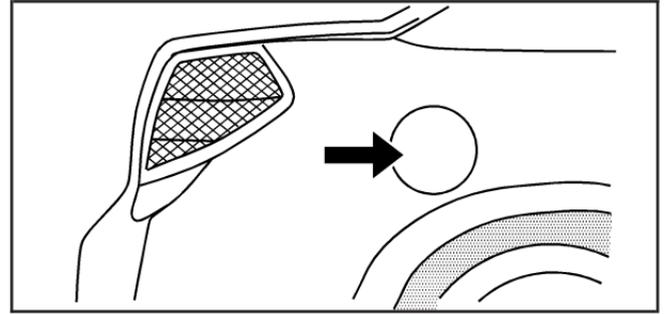
## Filling the Tank

### 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. Do not use cellular phones. 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. Do not re-enter the vehicle while pumping fuel. 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 passenger'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 to the left (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:**

**Fuel can spray out on you if you open the fuel cap too quickly. If you spill fuel and then something ignites it, you could be badly burned. 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 335*.

When replacing the fuel cap, turn it to the right (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 172*.

If your vehicle has a Driver Information Center (DIC), the CHECK GAS CAP message will be displayed if the fuel cap is not properly installed.

 **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/ retailer 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 172*.

## 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.

CAUTION: (Continued)

### CAUTION: (Continued)

- 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.
- Do not use a cellular phone 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:

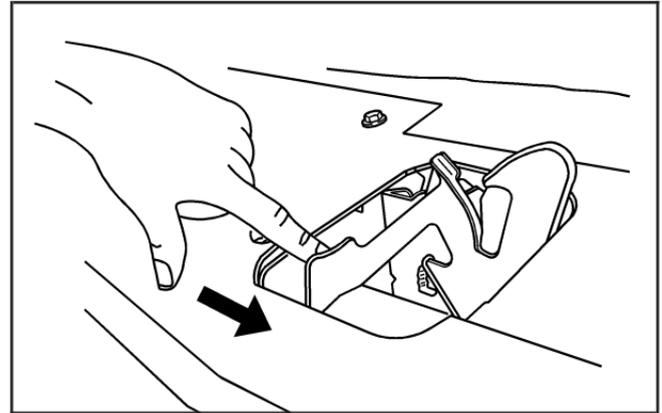
Things that burn can get on hot engine parts and start a fire. These include liquids like fuel, oil, coolant, brake fluid, windshield washer and other fluids, and plastic or rubber. You or others could be burned. Be careful not to drop or spill things that will burn onto a hot engine.

## Hood Release

To open the hood, do the following:



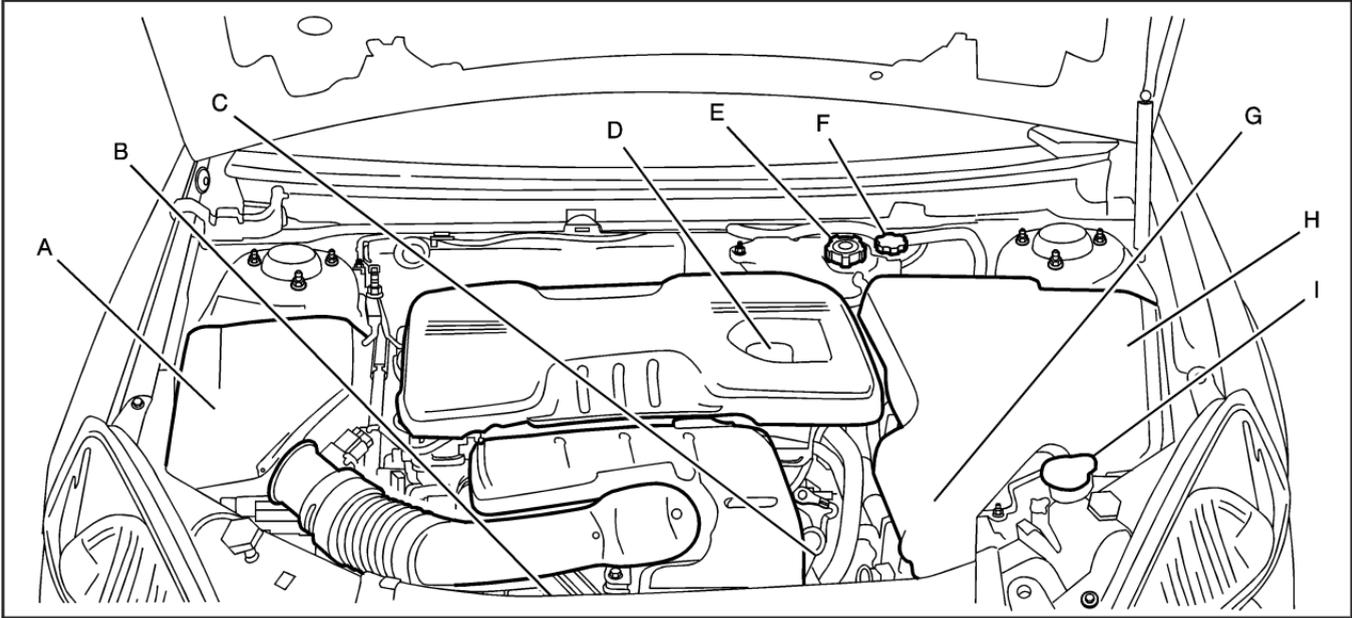
1. Pull the hood release handle with this symbol on it. It is located inside the vehicle to the left of the steering column.



2. Then go to the front of the vehicle and push the secondary hood release handle toward the driver side of the vehicle.
3. Lift the hood.
4. After the hood is slightly lifted, it will continue to open to the full position. Before closing the hood, be sure all the filler caps are on properly. Lower the hood until the lifting force of the strut is reduced, then release the hood to latch fully. Check to make sure the hood is closed and repeat the process if necessary.

# Engine Compartment Overview

When you open the hood, this is what you see:



- A. Engine Air Cleaner/Filter. See *Engine Air Cleaner/Filter on page 270*.
- B. Cooling Fans. See *Cooling System on page 278*.
- C. Engine Oil Dipstick. See “Checking Engine Oil” under *Engine Oil on page 265*.
- D. Engine Oil Fill Cap. See “When to Add Engine Oil” under *Engine Oil on page 265*.
- E. Engine Coolant Surge Tank. See *Engine Coolant on page 272*.
- F. Brake Master Cylinder Reservoir. See “Brake Fluid” under *Brakes on page 284*.
- G. Battery. See *Battery on page 287*.
- H. Engine Compartment Fuse Block. See *Engine Compartment Fuse Block on page 346*.
- I. Windshield Washer Fluid Reservoir. See “Adding Washer Fluid” under *Windshield Washer Fluid on page 282*.

## Engine Oil

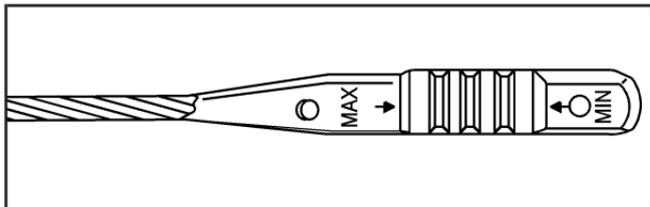
### Checking Engine Oil

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 264* 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 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 351*.

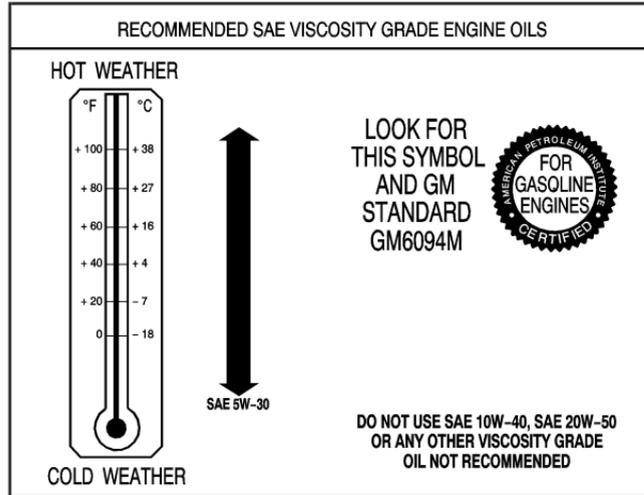
**Notice:** Do not add too much oil. If the engine has so much oil that the oil level gets above the upper mark that shows the proper operating range, the engine could be damaged.



See *Engine Compartment Overview on page 264* for the location of the engine oil fill cap.

Be sure to add enough oil to put the level somewhere in the proper operating range. Push the dipstick all the way back in when you are through.

## What Kind of Engine Oil to Use



Look for three things:

- GM6094M

Your vehicle's engine requires oil meeting GM Standard GM6094M. 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 have the starburst symbol on the container. This symbol indicates that the oil has been certified by the American Petroleum Institute (API).

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<sup>®</sup> oil meets all the requirements for your vehicle.

If you are in an area of extreme cold, where the temperature falls below  $-20^{\circ}\text{F}$  ( $-29^{\circ}\text{C}$ ), it is recommended that you use either an SAE 5W-30 synthetic oil or an SAE 0W-30 oil. Both 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 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 OIL SOON message will come on. See *DIC Warnings and Messages on page 182*. Change the 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 might 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/retailer has trained service people who will perform this work using genuine 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 your 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. Whenever 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 OIL SOON message being turned on, reset the system.

After changing the engine oil and filter, the system must be reset. To reset the oil life system:

1. With the CHANGE OIL SOON message displayed, press either of the DIC buttons to clear the CHANGE OIL SOON message. See *DIC Warnings and Messages on page 182*.
2. Display OIL LIFE RESET on the DIC.
3. Press and hold the ENTER button for at least one second. An ACKNOWLEDGED display message will appear for three seconds or until the next button is pressed. This will tell you the system has been reset. See *DIC Vehicle Personalization on page 187*.
4. Turn the ignition to OFF.

If the CHANGE 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 can 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/retailer, a service station, or a local recycling center for help.

## Engine Air Cleaner/Filter

See *Engine Compartment Overview on page 264* for the location of the engine air cleaner/filter.

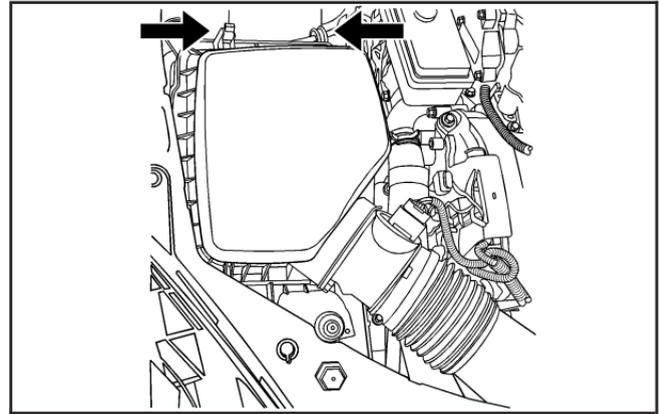
### When to Inspect the Engine Air Cleaner/Filter

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 356* for more information. If you are driving in dusty/dirty conditions, inspect the filter at each engine oil change.

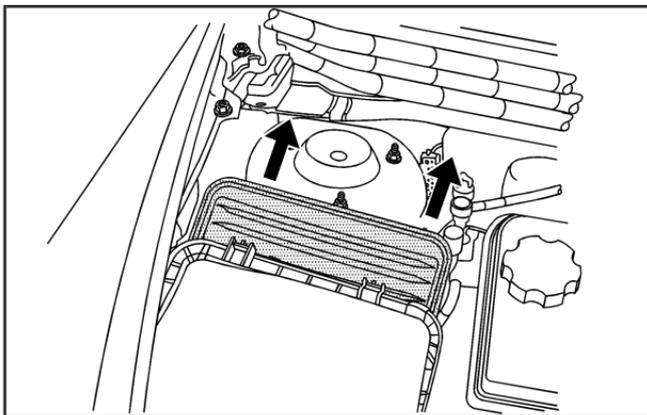
### How to Inspect the Engine Air Cleaner/Filter

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 engine air cleaner/filter, do the following:



1. Remove the spring clamps that hold the cover on.
2. Lift off the cover.



3. Inspect or replace the engine air cleaner/filter.
4. Align the filter correctly using alignment tab.
5. Install cover by guiding the tabs on the rim of the top cover into the bottom hinges and turn the cover down to close it.
6. The spring clips will engage easily, if the cover is properly seated.

**⚠ 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

It is not necessary to check the transaxle fluid level. A transaxle fluid leak is the only reason for fluid loss. If a leak occurs, take your vehicle to the retailer service department and have it repaired as soon as possible.

Change the fluid at the intervals listed in *Additional Required Services on page 359*, and be sure to use the transaxle fluid listed in *Recommended Fluids and Lubricants on page 365*.

**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 365*.

## Engine Coolant

The cooling system in your vehicle is filled with DEX-COOL<sup>®</sup> 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<sup>®</sup> 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 275*.

A 50/50 mixture of clean, drinkable water and DEX-COOL<sup>®</sup> coolant will:

- Give freezing protection down to  $-34^{\circ}\text{F}$  ( $-37^{\circ}\text{C}$ ).
- Give boiling protection up to  $265^{\circ}\text{F}$  ( $129^{\circ}\text{C}$ ).
- 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<sup>®</sup> 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<sup>®</sup> (silicate-free) coolant in your vehicle.**

## What to Use

Use a mixture of one-half clean, drinkable water and one-half DEX-COOL<sup>®</sup> coolant which will not damage aluminum parts. If you use this coolant mixture, you do not need to add anything else.

### CAUTION:

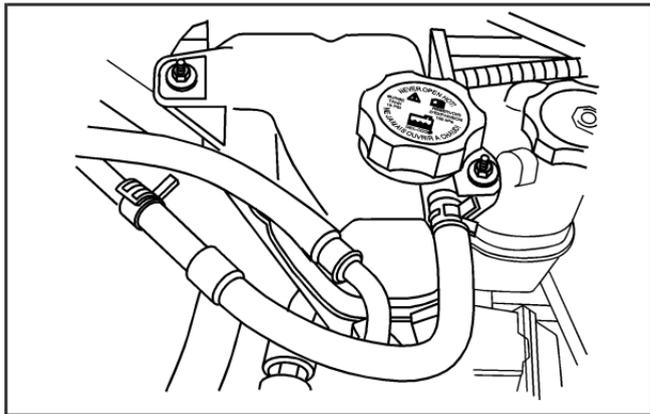
Adding only plain water to your cooling system can be dangerous. Plain water, or some other liquid such as alcohol, can boil before the proper coolant mixture will. Your vehicle's coolant warning system is set for the proper coolant mixture. With plain water or the wrong mixture, your engine could get 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<sup>®</sup> 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 four times a year, have your dealer/retailer 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 365* for more information.

## Checking Coolant



The engine coolant surge tank is located in the rear of the engine compartment.

See *Engine Compartment Overview* on page 264 for more information on location.

### 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 or slightly higher.

## Adding Coolant

If you need more coolant, add the proper DEX-COOL® coolant mixture at the surge tank, but only when the engine is cool. If the surge tank is empty, a special fill procedure is necessary. See *Engine Overheating on page 275* and *Cooling System on page 278*.

### 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 it is hand-tight and fully seated.

## 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 264* for more information on location.

## 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.

## Engine Overheating

You will find an engine coolant temperature warning light on your vehicle's instrument panel. See *Engine Coolant Temperature Warning Light on page 171* for more information.

## 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. Just 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 your 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.

**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.

## If No Steam Is Coming From Your Engine

An overheat warning, can indicate a serious problem.

If you get an engine overheat warning, 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 is safe to do so, pull off the road, shift to PARK (P) or NEUTRAL (N) and let the engine idle.
2. Turn on your heater to full hot at the highest fan speed and open the windows as necessary.

If the overheat warning is no longer on, 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.

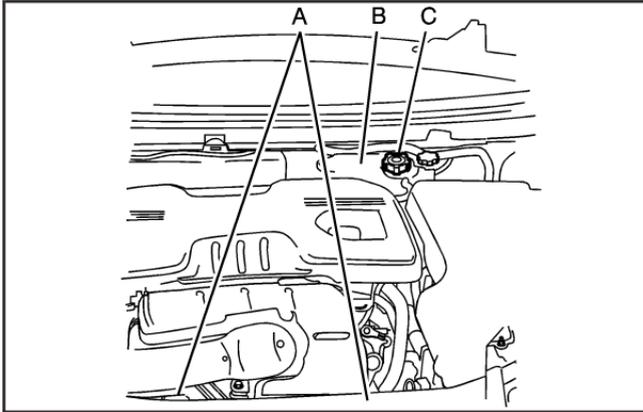
If the warning continues, pull over, stop, and park your vehicle right away.

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.

You may decide not to lift the hood but to get service help right away.

## Cooling System

When you decide it is safe to lift the hood, here is what you will see:



- A. Electric Engine Cooling Fans
- B. Engine Coolant Surge Tank
- C. Pressure Cap

### 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.

The coolant level should be at or above the FULL COLD mark on the front of the coolant surge tank. If it is not, you may have a leak at the pressure cap or in the radiator hoses, heater hoses, radiator, water pump, or somewhere else in the cooling system.

 **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.

**Notice:** Using coolant other than DEX-COOL<sup>®</sup> 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<sup>®</sup> (silicate-free) coolant in your vehicle.

## How to Add Coolant to the Coolant Surge Tank

**Notice:** This vehicle has a specific coolant fill procedure. Failure to follow this procedure could cause your engine to overheat and be severely damaged.

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 coolant level is not at or above the FULL COLD mark, add a 50/50 mixture of clean, drinkable water and DEX-COOL<sup>®</sup> coolant at the coolant surge tank, but be sure the cooling system, including the coolant surge tank pressure cap, is cool before you do it. See *Engine Coolant on page 272* 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.**

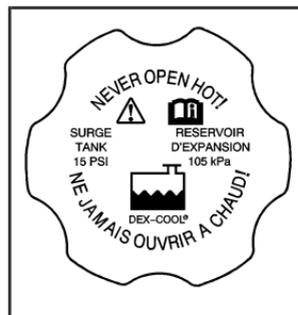
**⚠ CAUTION:**

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.

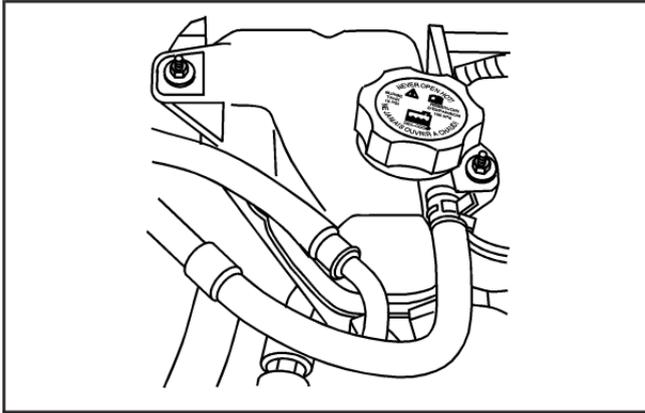
**⚠ CAUTION:**

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. 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 about two or two and one-half turns. If you hear a hiss, wait for that to stop. This allows any pressure still left to be vented out the discharge hose.



2. Then keep turning the pressure cap slowly, and remove it.
3. Fill the coolant surge tank with the proper mixture, to the FULL COLD mark on the front of the surge tank. Wait about five minutes, then check to see if the level is below the FULL COLD mark. If the level is below the FULL COLD mark, add additional coolant to bring the level up to the mark. Repeat this procedure until the level remains constant at the FULL COLD mark for at least five minutes.

4. With the coolant surge tank pressure 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 than the FULL COLD mark, add more of the proper mixture to the coolant surge tank until the level reaches the FULL COLD mark.

5. Then replace the pressure cap. Be sure the pressure cap is hand-tight and fully seated.

See your dealer/retailer, if necessary.

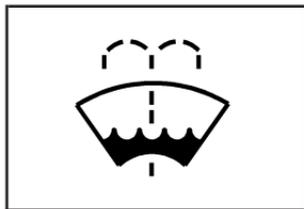
## Windshield Washer Fluid

### 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

When the windshield washer fluid reservoir is low, a LOW WASHER FLUID message displays on the Driver Information Center (DIC). See *DIC Warnings and Messages on page 182* for more information.



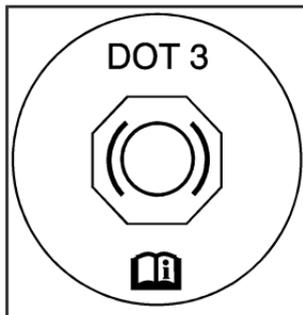
Open the cap with the washer symbol on it. Add washer fluid until the tank is full. See *Engine Compartment Overview on page 264* for reservoir location.

### **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 the washer fluid tank only three-quarters full when it is very cold. This allows for fluid 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 the vehicle's windshield washer system and paint.**

## Brakes

### Brake Fluid



The brake master cylinder reservoir is filled with DOT-3 brake fluid. See *Engine Compartment Overview* on page 264 for the location of the reservoir.

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 hydraulic system. If it is, you should have the brake hydraulic system fixed, since a leak means that sooner or later the brakes will not work well.

So, it is not a good idea to top off the brake fluid. Adding brake fluid will not correct a leak. If you add fluid when the linings are worn, there will be too much fluid when you get new brake linings. 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.**

When the brake fluid falls to a low level, the BRAKE FLUID message in the Driver Information Center (DIC) displays. See *DIC Warnings and Messages* on page 182.

## 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 365.

Always clean the brake fluid reservoir cap and the area around the cap before removing it. This helps keep dirt from entering the reservoir.

### CAUTION:

**With the wrong kind of fluid in the brake hydraulic system, the brakes might not work well. This could cause a crash. Always use the proper brake fluid.**

### Notice:

- **Using the wrong fluid can badly damage brake hydraulic system parts. For example, just a few drops of mineral-based oil, such as engine oil, in the brake hydraulic system can damage brake hydraulic 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 335.**

## Brake Wear

Your vehicle has 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 can 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 can cause a brake squeal when the brakes are first applied or lightly applied. This does not mean something is wrong with the 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 torque specifications in *Capacities and Specifications on page 351*.

Brake linings should always be replaced as complete axle sets.

## Brake Pedal Travel

See your dealer/retailer 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 that brake service might be required.

## Brake Adjustment

Every time you apply the brakes, with or without the vehicle moving, the 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 brake parts. When you replace parts of the braking system — for example, when the brake linings wear down and you need new ones put in — be sure you get new approved replacement parts. If you do not, the brakes might not work properly. For example, if someone puts in brake linings that are wrong for your vehicle, the balance between the 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

### 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 289* for tips on working around a battery without getting hurt.**

**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.

Your vehicle has a standard 12-volt battery and a 36-volt hybrid battery system.

## 12-Volt Battery

When it is time for a new standard 12-volt battery, see your dealer/retailer for one that has the replacement number shown on the original battery's label.

## 36-Volt Battery System

If you need a new 36-volt hybrid battery system, see your dealer/retailer.

## Vehicle Storage

If you are not going to drive your vehicle for 30 days or more, you should disconnect the standard 12-volt battery by disconnecting the negative battery cable, the one that is exposed. Remember to reconnect the battery when you are ready to drive your vehicle.

***Notice:*** The 36-volt hybrid battery system should be serviced only by a qualified facility to avoid battery system damage. See your dealer/retailer if service is needed.

***Notice:*** If the vehicle is not driven for over two months, the 36-volt hybrid battery can be permanently damaged.

The 36-volt battery is located behind the rear seat, in the trunk. If the vehicle is stored for an extended period of time, drive the vehicle every two months for about half an hour to keep the 36-volt hybrid battery charged and in good working condition.

## Jump Starting

If your 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 outlet. 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 batteries. Find the positive (+) and negative (-) terminal locations on each vehicle. Your vehicle's positive (+) terminal is located under a red tethered cap on the battery. The negative (-) terminal is located under a black tethered cap on the battery. See *Engine Compartment Overview on page 264* for more information on location. Flip the caps up to access the positive (+) and negative (-) terminals.

 **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 don't, 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.

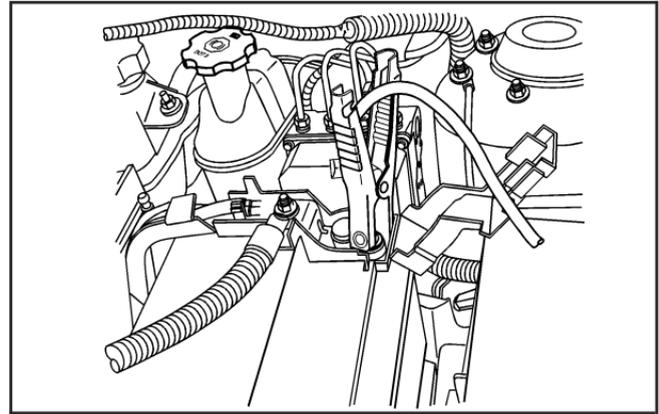
5. Check that the jumper cables do not have loose or missing insulation. If they do, you could get a shock. The vehicles could be damaged too.

Before you connect the cables, here are some 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.

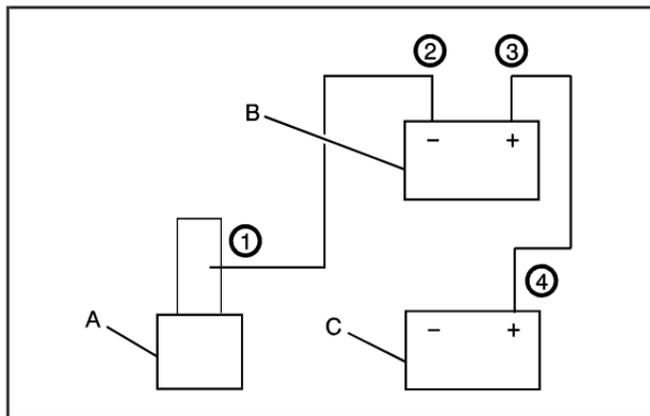
6. Connect the red positive (+) cable to the positive (+) terminal of the dead battery. Use a remote positive (+) terminal if the vehicle has one.
7. Do not let the other end touch metal. Connect it to the positive (+) terminal of the good battery. Use a remote positive (+) terminal if the vehicle has one.
8. Now connect the black negative (-) cable to the negative (-) terminal of the good battery. Use a remote negative (-) terminal if the vehicle has one.

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



9. Connect the other end of the negative (-) cable at least 18 inches (45 cm) away from the dead battery, but not near engine parts that move. The electrical connection is just as good there, and the chance of sparks getting back to the battery is much less.
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
- 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 caps over the positive (+) and negative (-) terminals to their original positions.

## Bulb Replacement

For the type of bulb to use, see *Replacement Bulbs* on page 296.

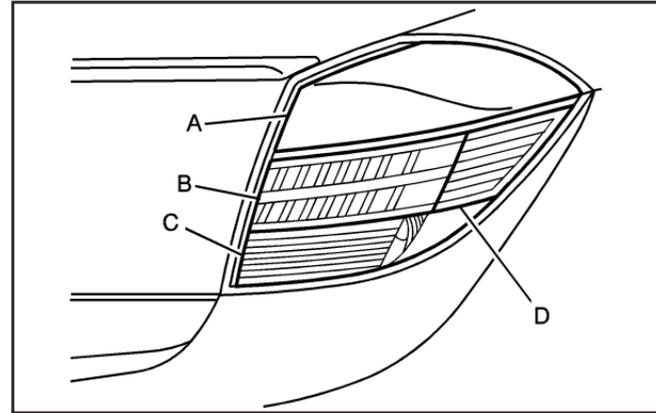
For any bulb changing procedure not listed in this section, contact your retailer.

## Halogen Bulbs

### CAUTION:

Halogen bulbs have pressurized gas inside and can burst if you drop or scratch the bulb. You or others could be injured. Be sure to read and follow the instructions on the bulb package.

## Taillamps, Turn Signal, Sidemarker, Stoplamps and Back-up Lamps

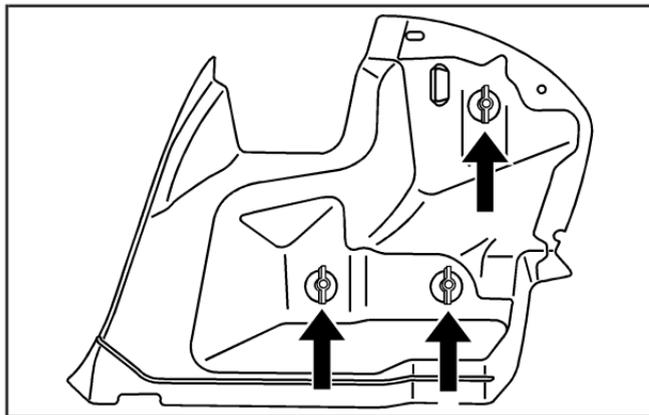


- A. Turn Signal Lamp    C. Backup Lamp  
B. Stoplamp/Taillamp    D. Sidemarker Lamp

If a stoplamp or a taillamp needs to be replaced, see your dealer/retailer.

To replace a sidemarket lamp, turn signal lamp, or a back-up lamp:

1. Open the trunk. See *Trunk* on page 97 for more information.
2. Remove the convenience net, if the vehicle has one.
3. Remove the wing nuts holding the trunk trim.

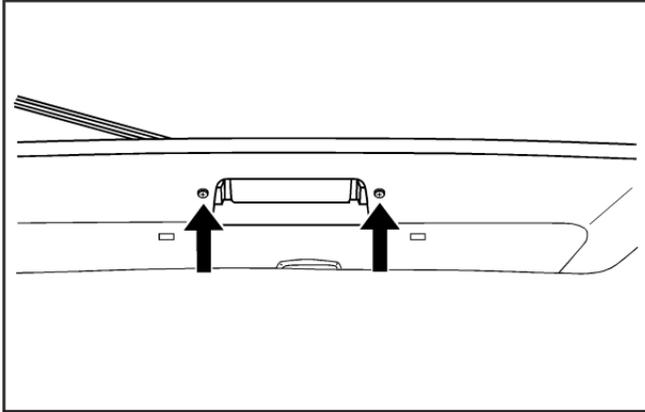


4. Remove the three wing nuts, which hold the taillamp assembly, from inside the vehicle.

5. Remove the taillamp assembly.
6. Remove the wiring harness from the taillamp assembly by lifting the release tab.
7. Turn the bulb socket counterclockwise to remove it.
8. Pull the bulb from the socket.
9. Install a new bulb.
10. Reverse Steps 2 through 6 to reinstall the taillamp assembly.

## License Plate Lamp

To replace the license plate lamp bulb:



1. Remove the two screws holding the license plate lamp assembly to the fascia.
2. Turn and pull the license plate lamp forward through the fascia opening.

3. Turn the bulb socket counterclockwise and pull the bulb straight out of the socket.
4. Install the new bulb.
5. Reverse Steps 1 through 3 to reinstall the lamp assembly.

## Replacement Bulbs

Exterior Lamp	Bulb Number
Back-up Lamp	921
License Plate Lamp and Rear Sidemarker Lamp	168
Turn Signal Lamp	3156

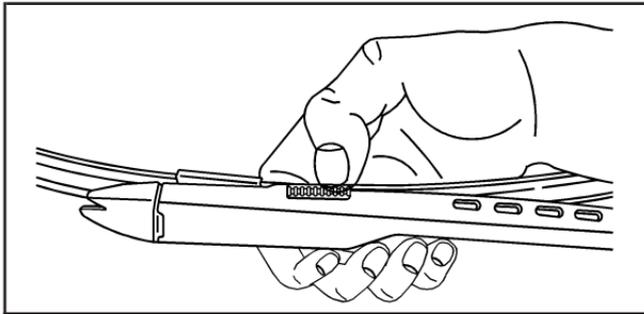
For replacement bulbs not listed here, contact your dealer/retailer.

## Windshield Wiper Blade Replacement

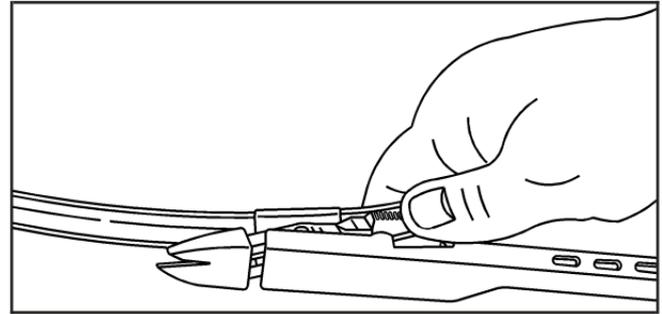
Windshield wiper blades should be inspected for wear or cracking. See *Scheduled Maintenance on page 356* for more information on wiper blade inspection.

Replacement blades come in different types and are removed in different ways. Here is how to remove the wiper blade:

1. Pull the windshield wiper arm connector away from the windshield.



2. Squeeze the grooved areas on each side of the blade, and turn the blade assembly away from the arm connector.



3. Install the new blade onto the arm connector and make sure the grooved areas are fully set in the locked position.

For the proper type and size, see *Normal Maintenance Replacement Parts on page 366*.

## 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 Saturn 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 vehicle's 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 242.***

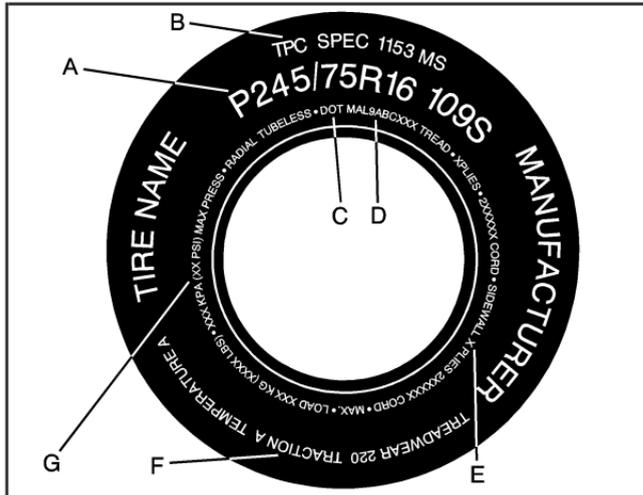
CAUTION: (Continued)

### CAUTION: (Continued)

- **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. Tire pressure should be checked when your vehicle's tires are cold. See *Inflation - Tire Pressure on page 304.***
- **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 the tire's tread is badly worn, or if your vehicle's tires have been damaged, replace them.**

## Tire Sidewall Labeling

Useful information about a tire is molded into the sidewall. The following illustration is an example of a typical P-Metric tire sidewall.



**(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) 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.

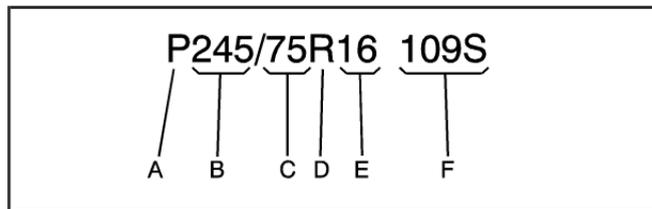
**(F) Uniform Tire Quality Grading (UTQG):** Tire manufacturers are required to grade tires based on three performance factors: treadwear, traction, and temperature resistance. For more information, see *Uniform Tire Quality Grading* on page 315.

### **(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 304* and *Loading Your Vehicle on page 242*.

### **Tire Size**

The following illustration shows, an example of, a typical passenger car tire size.



**(A) Passenger (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 75, as shown in item C, of the illustration, it would mean that the tire's sidewall is 75 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:** The service description indicates the load range and speed rating of a tire. The load index can range from 1 to 279. 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, 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 304*.

**Curb Weight:** 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 242*.

**GAWR FRT:** Gross Axle Weight Rating for the front axle. See *Loading Your Vehicle on page 242*.

**GAWR RR:** Gross Axle Weight Rating for the rear axle. See *Loading Your Vehicle on page 242*.

**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 can 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 242*.

**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 304* and *Loading Your Vehicle on page 242*.

**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 311*.

**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 315*.

**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 242*.

**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 242*.

## 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 vehicle specific Tire and Loading Information label is attached to your vehicle. This label shows your vehicle's original equipment tires and 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 242*. How you load your vehicle affects 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.

## 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.

## Tire Pressure Monitor System

Your vehicle has a Tire Pressure Monitor System (TPMS). This system uses radio and sensor technology to check tire pressure levels. Sensors are mounted onto each tire and wheel assembly. The TPMS sensors monitor the air pressure in your vehicle's tires and transmit tire pressure readings to a receiver located in the vehicle.

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.

When a low tire pressure condition is detected, the TPMS illuminates the low tire pressure warning light on the instrument panel cluster, and at the same time the CHECK TIRE PRESS message appears on the Driver Information Center (DIC) display.

The low tire pressure warning light on the instrument panel cluster, and the CHECK TIRE PRESS message displays 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 Operation and Displays on page 180* and *DIC Warnings and Messages on page 182*.

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

A Tire and Loading Information label, attached to your vehicle, shows the size of your vehicle's original equipment tires and the correct inflation pressure for your vehicle's tires when they are cold. See *Loading Your Vehicle on page 242*, for an example of the Tire and Loading Information label and its location on your vehicle. Also see *Inflation - Tire Pressure on page 304*.

Your vehicle's TPMS system can warn you about a low tire pressure condition but it does not replace normal tire maintenance. See *Tire Inspection and Rotation on page 310* and *Tires on page 298*.

**Notice:** Your vehicle has a Tire Pressure Monitor System (TPMS). Use only the GM-provided tire sealant. Other liquid tire sealants may damage the tire pressure sensors.

The TPMS will not function properly if one or more of the TPMS sensors are missing or inoperable. See your Saturn retailer for service if all TPMS sensors are installed and the TPMS error message comes on and stays on.

## TPMS Sensor Identification Codes

Each TPMS sensor has a unique identification code. Any time you replace one or more of the TPMS sensors or rotate the vehicle's tires, the identification codes need to be matched to the new tire/wheel position. The sensors are matched, to the tire/wheel positions, in the following order: driver side front tire, passenger side front tire, passenger side rear tire, and driver side rear tire using a TPMS diagnostic tool. See your Saturn retailer for service.

The TPMS sensors can also be matched to each tire/wheel position by increasing or decreasing the tire's air pressure. When increasing the tire's pressure, do not exceed the maximum inflation pressure indicated on the tire's sidewall. To decrease the tire's air-pressure use the pointed end of the valve cap, a pencil-style air pressure gage, or a key.

You have two minutes to match each tire and wheel position. If it takes longer than two minutes to match any tire and wheel position, the matching process stops and you need to start over.

The TPMS matching process is outlined below:

1. Set the parking brake.
2. Turn the ignition switch to ON with the engine off.
3. Press and hold both the Lock and Unlock buttons on the Remote Keyless Entry (RKE) transmitter, at the same time, for approximately five seconds or until you hear the horn sound twice.
4. The horn sounding twice indicates the receiver is ready to learn the TPMS sensors. The driver side front turn signal comes on indicating that corner's sensor is ready to be learned.
5. Start with the driver side front tire.
6. Remove the valve cap from the tire's valve stem. Activate the TPMS sensor by increasing or decreasing the tire's air pressure for about eight seconds. The horn chirp, can take up to 30 seconds to sound. It sounds one time and all the turn signals flash one time to confirm the sensor identification code has been matched to the tire/wheel position.

7. The passenger side front turn signal comes on to indicate that corner's sensor is ready to be learned. Proceed to the passenger side front tire and repeat the procedure in Step 6.
8. The passenger side rear turn signal comes on to indicate that corner's sensor is ready to be learned. Proceed to the passenger side rear tire and repeat the procedure in Step 6.
9. The driver side rear turn signal comes on to indicate that corner's sensor is ready to be learned. Proceed to the driver side rear tire, and repeat the procedure in Step 6.
10. After hearing the single horn chirp for the driver side rear tire, two additional horn chirps sound to indicate the tire learning process is done. 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.

## **Federal Communications Commission (FCC) and Industry and Science Canada**

The Tire Pressure Monitor System (TPMS) operates on a radio frequency subject to Federal Communications Commission (FCC) Rules and with 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 and Science 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.

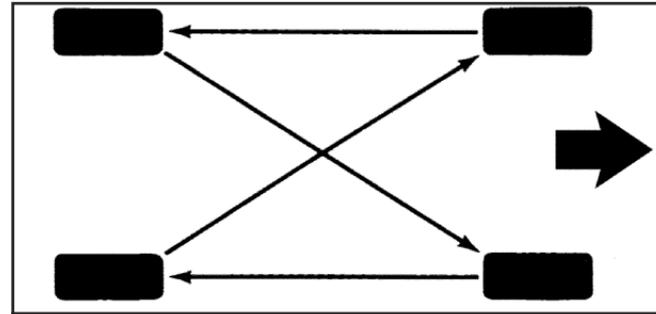
Changes or modifications to this system by other than an authorized service facility could void authorization to use this equipment.

## 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 311* and *Wheel Replacement on page 316* 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" for additional information.



When rotating your tires, always use the correct rotation pattern shown here.

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 242*, for an example of the tire and loading information label and its location on your vehicle.

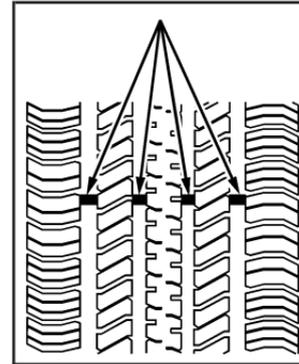
Make certain that all wheel nuts are properly tightened. See “Wheel Nut Torque” under Capacities and Specifications.

**⚠ CAUTION:**

**Rust or dirt on a wheel, or on the parts to which it is fastened, can make wheel nuts become loose after a time. The wheel could come off and cause a crash. 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 you need to, to get all the rust or dirt off.**

## When It Is Time for New Tires

Various factors, such as maintenance, temperatures, driving speeds, vehicle loading, and road conditions influence when you need 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 new tires 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.

The rubber in tires degrades over time. This is true for the spare tire as well, even if it is not being used. Multiple conditions affect how fast this aging takes place, including temperatures, loading conditions, and inflation pressure maintenance. With proper care and maintenance tires will typically wear out before they degrade due to age. If you are unsure about the need to replace your tires as they get older, consult the tire manufacturer for more information.

## 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 a MS, for mud and snow. See *Tire Sidewall Labeling on page 299* for additional information.

 **CAUTION:**

**Mixing tires could cause you to lose control 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 your vehicle's wheels.**

 **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.

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 242*, for more information about the Tire and Loading Information label.

## 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 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 Saturn specific wheel and tire systems developed for your vehicle, and have them properly installed by a Saturn certified technician.**

See *Buying New Tires* on page 312 and *Accessories and Modifications* on page 253 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 might need to be checked. If you notice your vehicle vibrating when driving on a smooth road, the tires and wheels might need to be rebalanced. See your dealer/retailer 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 (except some aluminum wheels, which can sometimes be repaired). See your retailer if any of these conditions exist.

Your retailer 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.

 **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.**

If you need to replace any of your wheels, wheel bolts, or wheel nuts, replace them only with new Saturn original equipment parts. This way, you will be sure to have the right wheel, wheel bolts, and wheel nuts for your vehicle.

**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 clearance to the body and chassis.

 **CAUTION:**

**Rust or dirt on a wheel, or on the parts to which it is fastened, can make wheel nuts become loose after a time. The wheel could come off and cause a crash. 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 you need to, to get all the rust or dirt off.**

 **CAUTION:**

Never use oil or grease on studs or the threads of the wheel nuts. If you do, the wheel nuts might come loose and the wheel could fall off, causing a crash.

 **CAUTION:**

Incorrect wheel nuts or improperly tightened wheel nuts can cause the wheel to become loose and even come off. This could lead to a crash. Be sure to use the correct wheel nuts. If you have to replace them, be sure to get new Saturn original equipment wheel nuts.

*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.

### 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 Saturn 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.**

**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

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

It is unusual for a tire to blow out while you are driving, especially if you maintain your tires properly. See *Tires on page 298*. If air goes out of a tire, it is much more likely to leak out slowly. But, if you should ever have a blow out, here are a few tips about what to expect and what to do:

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

A rear blow out, particularly on a curve, acts much like a skid and may require the same correction you would use in a skid. In any rear blow out, 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.

If a tire goes flat, avoid further tire and wheel damage by driving slowly to a level place and stopping. Then do this:

1. Turn on the hazard warning flashers.
2. Park your vehicle. Set the parking brake firmly and put the shift lever in PARK (P). See *Shifting Into PARK (P) on page 120* for additional information.
3. Turn off the engine.
4. Inspect the flat tire.

If the tire has been separated from the wheel or has damaged sidewalls or large tears that allow rapid air loss, call a tire repair facility. See *Roadside Assistance Program on page 377*.

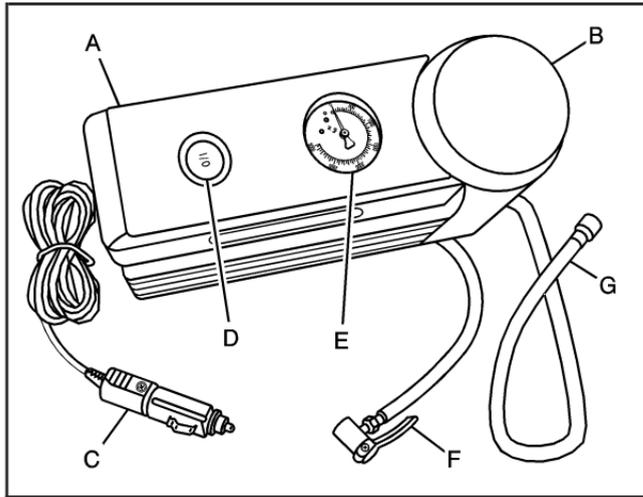
If the flat tire is due to a slow leak caused by a nail or other similar road hazard, the tire inflator kit may be used to repair the damaged tire temporarily. The kit uses a liquid tire sealant to seal small punctures in the tread area of the tire.

After repairing a tire with the tire inflator kit, take your vehicle to an authorized retailer to have the tire inspected and repaired as soon as possible. The tire sealant is a temporary repair only. See *Tire Inflator Kit on page 320*.

## **Tire Inflator Kit**

Your vehicle has a tire inflator kit. There is no jack or spare tire. The kit uses a liquid tire sealant and air at the same time to seal small punctures in the tread area of the tire. Be sure to read and follow all of the tire inflator kit instructions.

The kit includes:



- |                                  |                                 |
|----------------------------------|---------------------------------|
| A. Air Compressor                | D. On/Off Switch                |
| B. Tire Sealant Canister         | E. Air Pressure Gage            |
| C. Air Compressor Accessory Plug | F. Air Compressor Inflator Hose |
|                                  | G. Sealant Filling Hose         |

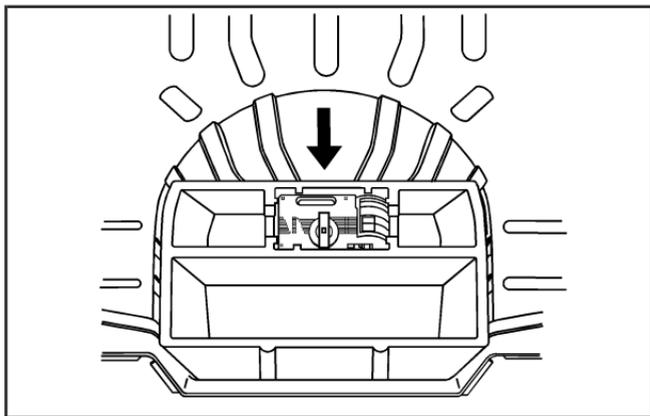
If the flat tire is due to a slow leak caused by a nail or other similar road hazard, use the tire inflator kit to temporarily repair the damaged tire.

After temporarily repairing a tire using the tire inflator kit, take your vehicle to an authorized dealer/retailer within 100 miles (161 kilometers) of driving to have the tire inspected and repaired. If the sealant is not removed from the tire within 100 miles (161 kilometers) of driving, it is more likely that the tire can get damaged and have to be replaced.

## Accessing the Tire Inflator Kit

To access the tire inflator kit:

1. Open the trunk. See *Trunk* on page 97 for more information.



2. Remove the tire inflator kit strap by turning the wing nut counterclockwise.
3. Remove the inflator kit from its foam container.

## Tire Sealant

The kit contains a liquid sealant that when injected into a flat tire, can temporarily repair nail holes or cuts in the tread area of the tire. The tire sealant cannot repair tire damage caused while driving on a flat tire or a tire that has had a “blow out”, or a tire that has punctures in the sidewall areas. The tire sealant solution is to be used for a single tire and can only be used once.

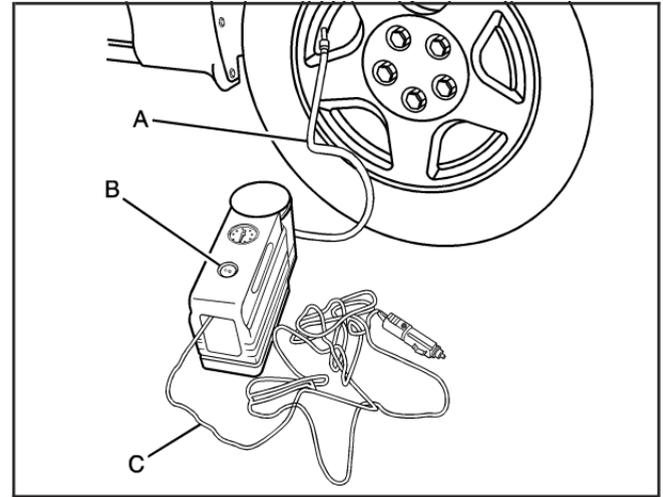
Check the tire sealant expiration date on the sealant canister. The sealant might not be as effective beyond the expiration date. If needed, see your dealer/retailer for a replacement canister.

## Using the Tire Inflator Kit

To use the tire inflator kit:

1. Place the inflator kit on the ground and unwrap the sealant filling hose from the compressor.
2. Remove the air compressor accessory plug from the unit. To do this, pull the top portion of the wrapped cord out first, then the bottom, and then unsnap the plug. Do not insert the plug into an accessory outlet yet.
3. Remove the valve stem cap from the flat tire by turning it counterclockwise.

If an object, such as a nail, has penetrated the tire, do not remove it.



4. Attach the sealant filling hose (A) onto the tire valve stem. Turn it clockwise until it is tight. Make sure the inflator kit on/off switch (B) is in the O (off) position.
5. Plug the air compressor accessory plug (C) into an accessory power outlet in the vehicle. See *Accessory Power Outlet(s)* on page 153 for more information.

 **CAUTION:**

Idling the engine in a closed-in place or with the climate control system off can cause deadly carbon monoxide (CO). See *Engine Exhaust on page 123*.

6. Start the vehicle. See *Starting the Engine (Automatic Engine Start/Stop) on page 110* for more information. The vehicle must be running while using the air compressor.

 **CAUTION:**

Inflating something too much can make it explode, and you or others could be injured. Be sure to read the inflator instructions, and inflate the tire to its recommended pressure. Do not exceed **36 psi (248 kPa)**.

7. Push the inflator kit switch to the I (on) position.

The inflator kit forces sealant and air into the tire. Sealant could leak from the puncture hole until the vehicle is driven and the hole has sealed.

8. Make sure there is a proper connection between the tire valve stem and the sealant filling hose by looking at the air pressure gage. If there is not a pressure reading while the compressor is running, the connection between the inflator kit and the tire is bad.

Check the attachment between the sealant filling hose and the tire valve stem.

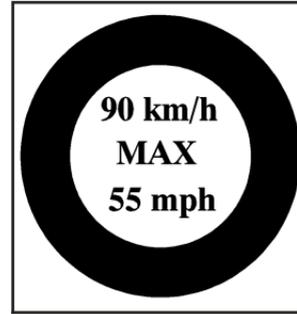
9. Inflate the tire up to the recommended inflation pressure, found on the Tire and Loading Information label located on the vehicle's center pillar (B-pillar) below the vehicle's door latch, using the air pressure gage on the top of the unit.

The pressure gage reading is slightly high while the compressor is on. Turn the compressor off to get an accurate pressure reading.

**Notice:** If the recommended pressure cannot be reached after 15 minutes, the vehicle should not be driven farther. Damage to the tire is severe and the sealant will not be effective. Remove the air compressor plug from the accessory power outlet and unscrew the inflating hose from the tire valve. See *Roadside Assistance Program on page 377.*

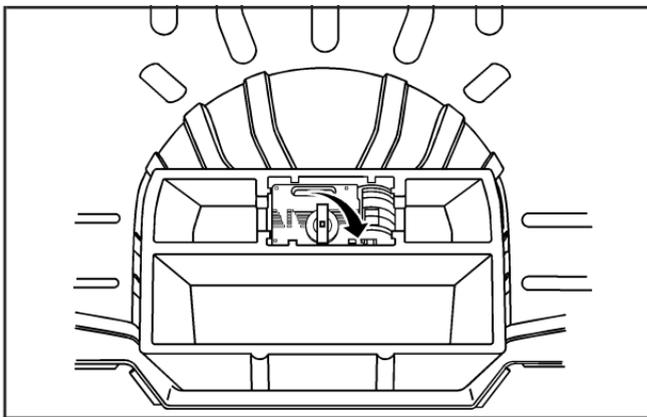
10. Push the inflator kit switch to the O (off) position once the correct tire pressure is obtained.
11. Turn off the engine.

12. Unplug the air compressor accessory plug from the accessory power outlet in the vehicle.
13. Disconnect the sealant filling hose from the tire valve stem, by turning it counterclockwise, and replace the tire valve stem cap.  
Be careful when handling the tire inflator components as they could be hot after usage.
14. Wrap the sealant filling hose around the air compressor channel to stow it in its original location.
15. Stow the air compressor accessory plug back in the air compressor. To do this, wrap the air compressor accessory plug, snap in the plug, and then push in the bottom and then the top of the wrapped air compressor accessory plug.



16. If the flat tire was able to inflate to the recommended inflation pressure, remove the maximum speed label from the sealant canister.

Place it in a highly visible location such as the inside of the upper left corner of the windshield or to the face of the radio/clock. The maximum speed label reminds you to drive cautiously and not to exceed 55 mph (90 km/h) until you have the damaged tire inspected and repaired.



17. Return the equipment to the proper storage location in the trunk of your vehicle. Turn the wing nut clockwise to secure the tire inflator kit.

**⚠ CAUTION:**

**Storing the tire inflator kit or other equipment in the passenger compartment of the vehicle could cause injury. In a sudden stop or collision, loose equipment could strike someone. Store the tire inflator kit in the proper place.**

18. Immediately drive the vehicle 5 miles (8 km) to distribute the sealant evenly in the tire. Stop at a safe location and check the tire pressure, refer to Steps 1 through 8 under “Using the Air Compressor without Sealant” next in this section. If the tire pressure has fallen more than 10 psi (68 kPa), below the recommended inflation pressure, stop driving the vehicle. The tire is too damaged for the sealant to work. See *Roadside Assistance Program* on page 377.

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

19. Dispose of the sealant canister at a local dealer/retailer or in accordance with local state codes and practices.

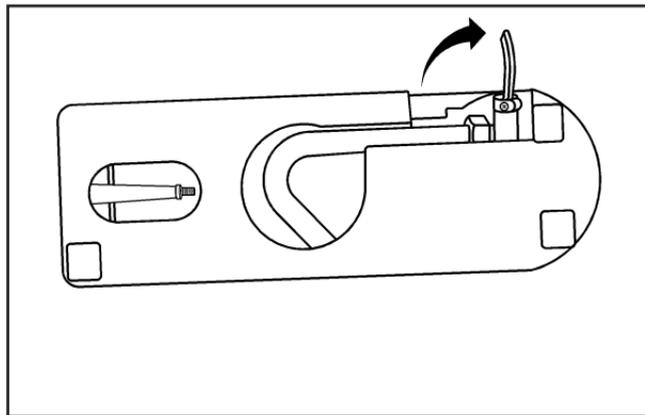
After using the sealant canister, replace it with a new canister from your dealer/retailer.

20. After temporarily repairing a tire with the emergency flat tire repair kit, take your vehicle to your dealer/retailer to have the tire inspected and repaired.

## Using the Air Compressor without Sealant

To use the air compressor by itself to inflate a tire:

1. Remove the air compressor accessory plug from the air compressor.



2. Unlock the air compressor hose from the sealant canister by pulling up on the lever.
3. Pull the air compressor inflator hose from the sealant canister.

4. Push the air compressor inflator hose onto the tire valve stem and push the lever down to secure in place.
5. Plug the air compressor accessory plug into an accessory power outlet in the vehicle. See *Accessory Power Outlet(s)* on page 153 for more information.

 **CAUTION:**

**Idling the engine in a closed-in place or with the climate control system off can cause deadly carbon monoxide (CO). See *Engine Exhaust* on page 123.**

6. Start the vehicle. See *Starting the Engine (Automatic Engine Start/Stop)* on page 110 for more information. The vehicle must be running while using the air compressor.

 **CAUTION:**

**Inflating something too much can make it explode, and you or others could be injured. Be sure to read the inflator instructions, and inflate the tire to its recommended pressure. Do not exceed 36 psi (248 kPa).**

7. Push the inflator kit switch to the I (on) position.
8. Make sure there is a proper connection between the tire valve stem and the air compressor hose by looking at the air pressure gage. If there is not a pressure reading while the compressor is running, the connection between the inflator kit and the tire is bad.

Check the attachment between the air compressor hose and the tire valve stem.

- Inflate the tire up to the recommended inflation pressure using the air pressure gage on the top of the unit.
- Turn off the air compressor by moving the switch to the O (off) position.
- Disconnect the compressor inflator hose and wrap the hose in the bottom of the inflator kit.

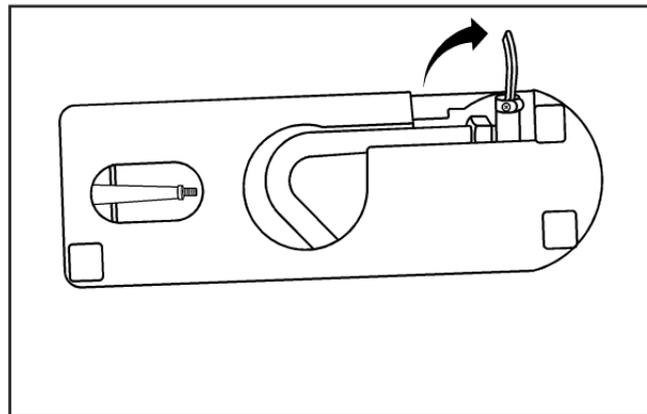
**⚠ CAUTION:**

**Storing the tire inflator kit or other equipment in the passenger compartment of the vehicle could cause injury. In a sudden stop or collision, loose equipment could strike someone. Store the tire inflator kit in the proper place.**

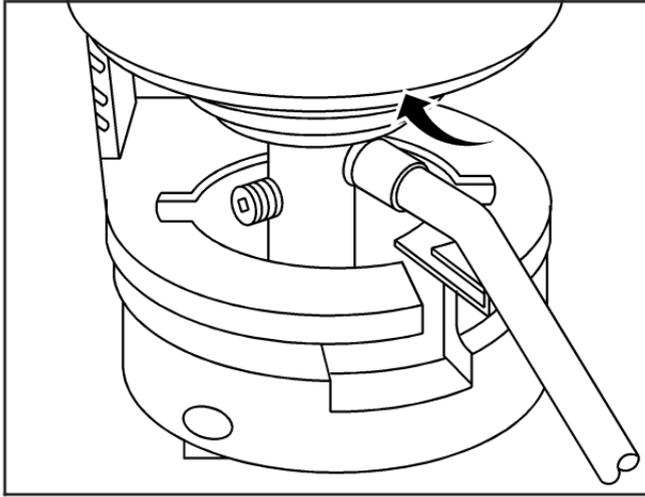
- Place the equipment in the original location in the trunk of your vehicle.

## Removal and Installation of the Sealant Canister

To remove the sealant canister:



- Unlock the air compressor inflator hose from the sealant canister by pulling the lever up.
- Disconnect the air compressor inflator hose from the sealant canister.
- Unwrap the sealant filling hose from the compressor.



4. Turn the sealant canister so the inflator filling hose is aligned with the slot in the compressor.
5. Lift the sealant canister from the compressor and replace with a new sealant canister. See your dealer/retailer for more information.

To install a new sealant canister:

1. Align the sealant filling hose with the slot in the air compressor.
2. Push the sealant canister down and turn it clockwise.
3. Wrap the sealant filling hose around the air compressor channel to stow it in its original location.
4. Push the air compressor inflator hose onto the sealant canister inlet and push the lever down.

# 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 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 retailer has a product for cleaning your vehicle's glass. Should it become necessary, you can also obtain a product from your retailer 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 naphtha, 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.

## **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.

## 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 365*.

## Washing Your Vehicle

The paint finish on your vehicle provides beauty, depth of color, gloss retention, and durability.

The best way to preserve your vehicle's finish is to keep it clean by washing it often with lukewarm or cold water.

Do not wash your 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. You can get approved cleaning products from your retailer. See *Vehicle Care/Appearance Materials on page 340*. 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 your 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 335.

## Finish Care

Occasional waxing or mild polishing of your vehicle by hand may be necessary to remove residue from the paint finish. You can get approved cleaning products from your Saturn retailer. See *Vehicle Care/Appearance Materials* on page 340.

Your 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.

**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.

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 your 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. You can help to keep the paint finish looking new by keeping your vehicle in a garage or covered whenever possible.

## Windshield and Wiper Blades

Clean the outside of the windshield with glass cleaner.

Clean the rubber blades using a lint free cloth or paper towel soaked with windshield washer fluid or a mild detergent. Wash the windshield thoroughly when cleaning the blades. Bugs, road grime, sap, and a buildup of vehicle wash/wax treatments may cause wiper streaking. Replace the wiper blades if they are worn or damaged.

Wipers can be damaged by:

- Extreme dusty conditions
- Sand and salt
- Heat and sun
- Snow and ice, without proper removal

## Aluminum Wheels

**Notice:** Chrome wheels and other chrome trim may be damaged if you do not wash your vehicle after driving on roads that have been sprayed with magnesium, calcium or sodium chloride. These chlorides are used on roads for conditions such as ice and dust. Always wash your vehicle's chrome with soap and water after exposure.

**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 approved cleaners on 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:** 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.

The surface of these wheels is similar to the painted surface of the vehicle. Do not use strong soaps, chemicals, abrasive polishes, abrasive cleaners, cleaners with acid, or abrasive cleaning brushes on them because the surface could be damaged. Do not use chrome polish on aluminum wheels.

**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.

## 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 Saturn retailer. Larger areas of finish damage can be corrected in your Saturn retailer'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 Saturn retailer 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 your 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, we 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 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 easy step. No wiping necessary.
Wash Wax Concentrate	Medium foaming shampoo. Cleans and lightly waxes. Biodegradable and phosphate free.
Spot Lifter	Quickly and easily 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 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 helps you identify your vehicle's engine, specifications, and replacement parts.

## Service Parts Identification Label

This label is on the inside of the glove box. It is very helpful if you ever need to order parts. The label has the following information:

- Vehicle Identification Number (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 retailer 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.

Your vehicle has an airbag system. Before attempting to add anything electrical to your vehicle, see *Servicing Your Airbag-Equipped Vehicle* on page 82.

## Windshield Wiper Fuses

The windshield wiper motor is protected by an internal circuit breaker and a fuse. If the motor overheats due to heavy snow, etc., the wiper will stop until the motor cools. If the overload is caused by some electrical problem, have it fixed.

## Power Windows and Other Power Options

Fuses in the fuse block protect the power windows. When the current load is too heavy, the fuse opens protecting the circuit until the problem is fixed.

## Fuses

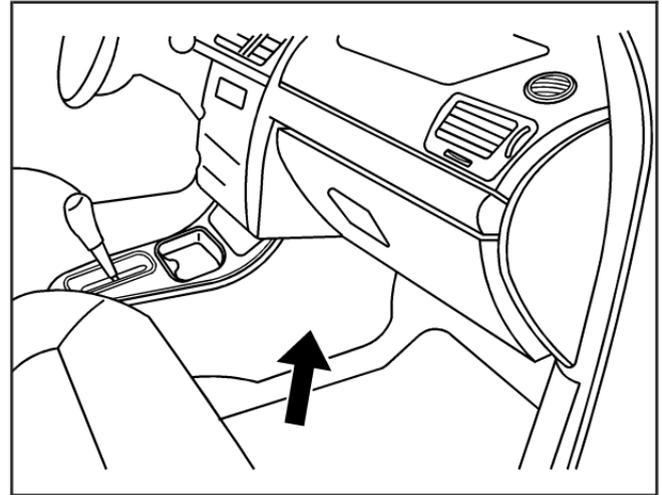
The wiring circuits in your vehicle are protected from short circuits by a combination of fuses, circuit breakers and fusible links. This greatly reduces the chance of damage caused by electrical problems.

Look at the silver-colored band inside the fuse. If the band is broken or melted, replace the fuse. Be sure to replace a bad fuse with a new one of the identical size and rating.

There are three fuse blocks in your vehicle: one in the center of the instrument panel, one in the engine compartment and one in the trunk.

There is a fuse puller located on the instrument panel fuse block. It can be used to easily remove fuses from the fuse block.

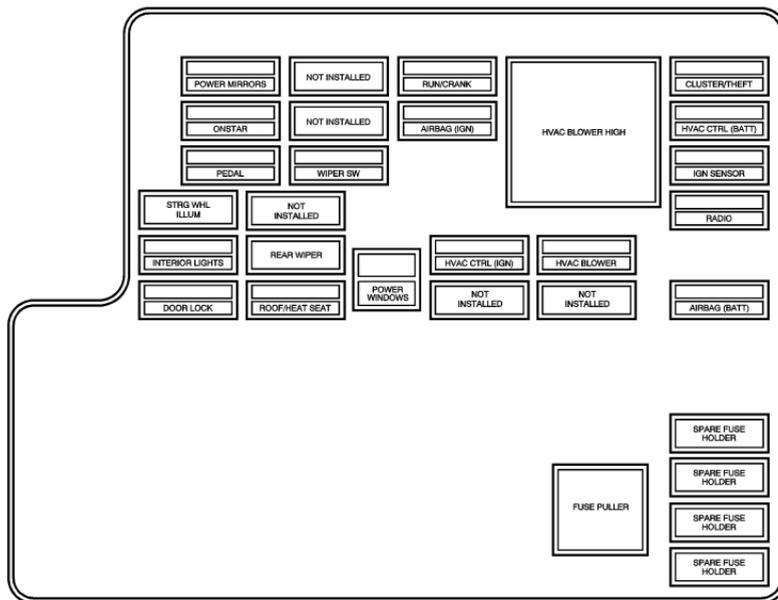
## Instrument Panel Fuse Block



The instrument panel fuse block is located on the passenger's side of the vehicle, on the lower portion of the instrument panel near the floor.

Remove the panel cover to access the fuse block, then remove the fuse block cover to access the fuses.

Your vehicle might not have all the fuses and features listed.



<b>Fuses</b>	<b>Usage</b>
POWER MIRRORS	Power Mirrors
NOT INSTALLED	Not Used
RUN/CRANK	Cruise Control Switch, Passenger Airbag Status Indicator
HVAC BLOWER HIGH	Heating Ventilation Air Conditioning Blower - High Speed Relay
CLUSTER/THEFT	Instrument Panel Cluster, Theft Deterrent System
ONSTAR	OnStar®
NOT INSTALLED	Not Used
AIRBAG (IGN)	Airbag (Ignition)
HVAC CTRL (BATT)	Heating Ventilation Air Conditioning Control Diagnostic Link Connector (Battery)
PEDAL	Adjustable Pedals
WIPER SW	Windshield Wiper/Washer Switch
IGN SENSOR	Ignition Switch
STRG WHL ILLUM	Steering Wheel Illumination
NOT INSTALLED	Not Used
RADIO	Audio System
INTERIOR LIGHTS	Interior Lamps

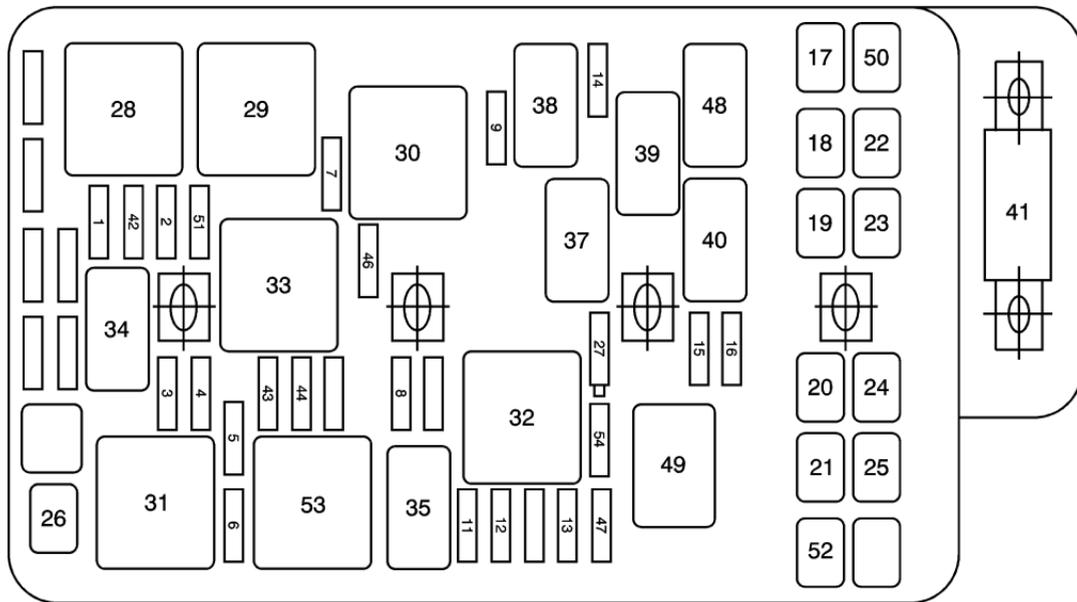
<b>Fuses</b>	<b>Usage</b>
REAR WIPER	Not Used
POWER WINDOWS	Power Windows
HVAC CTRL (IGN)	Heating Ventilation Air Conditioning Control (Ignition)
HVAC BLOWER	Heating Ventilation Air Conditioning Blower Switch
DOOR LOCK	Door Locks
ROOF/HEAT SEAT	Sunroof, Power Windows
NOT INSTALLED	Not Used
NOT INSTALLED	Not Used
AIRBAG (BATT)	Airbag (Battery)
SPARE FUSE HOLDER	Spare Fuse Holder
SPARE FUSE HOLDER	Spare Fuse Holder
SPARE FUSE HOLDER	Spare Fuse Holder
SPARE FUSE HOLDER	Spare Fuse Holder
FUSE PULLER	Fuse Puller

## Engine Compartment Fuse Block

Your vehicle might not have all the fuses and features listed.

The engine compartment fuse block is located on the driver side of the engine compartment, near the battery.

**Notice:** Spilling liquid on any electrical components on your vehicle may damage it. Always keep the covers on any electrical component.



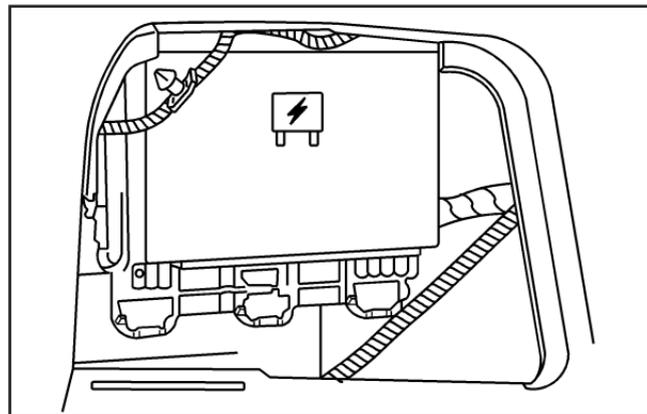
<b>Fuses</b>	<b>Usage</b>
1	Air Conditioner Clutch
2	Electronic Throttle Control
3	Belt Alternator Starter (BAS) IGN
4	Transmission, Transmission Control Module Ignition 1
5	Belt Alternator Starter (BAS) Pumps
6	Emission
7	Left Headlamp Low-Beam
8	Horn
9	Right Headlamp Low-Beam
11	Left Headlamp High-Beam
12	Right Headlamp High-Beam
13	Engine Control Module BATT
14	Windshield Wiper
15	Anti-lock Brake System (ABS) (IGN 1)
16	Engine Control Module (IGN 1)
17	Cooling Fan 1
18	Cooling Fan 2
19	Run Relay, Heating, Ventilation, Air Conditioning Blower

<b>Fuses</b>	<b>Usage</b>
20	Body Control Module 1
21	Body Control Module Run/Crank
22	Rear Electrical Center 1
23	Rear Electrical Center 2
24	Anti-lock Brake System (ABS)
25	Body Control Module 2
26	Starter
41	Electric Power Steering
42	Transmission Control Module Battery
43	Ignition Module
44	Injectors
46	Daytime Running Lamps
47	Center High-Mounted Stoplamps
50	Driver Power Window
51	Belt Alternator Starter (BAS) BATT
52	Transmission Pump Motor
54	Battery Voltage Sense

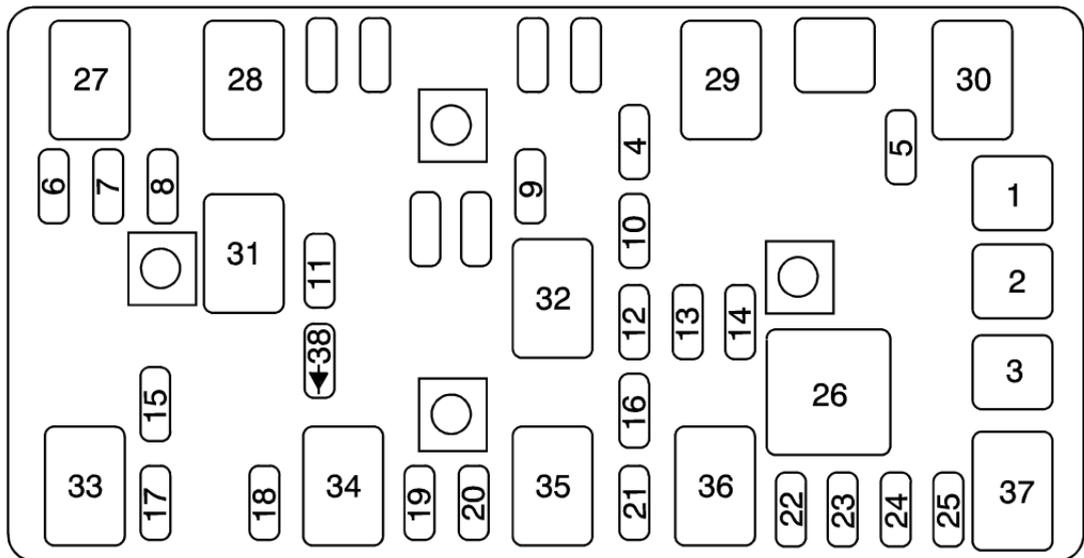
Relays	Usage
28	Cooling Fan 1
29	Cooling Fan Series/Parallel
30	Cooling Fan 2
31	Starter
32	Run/Crank, Ignition
33	Powertrain
34	Air Conditioning Clutch
35	High-Beam Headlamp
37	Horn
38	Low-Beam Headlamp
39	Windshield Wiper 1
40	Windshield Wiper 2
48	Daytime Running Lamps (DRL)
49	Stoplamps
53	Transmission Pump Motor

Diodes	Usage
27	Wiper

## Rear Compartment Fuse Block



The rear compartment fuse block is located in the trunk of the vehicle. Access the fuse block through the trunk panel on the driver's side of the rear cargo area.



Fuses	Usage
1	Passenger Seat Controls
2	Driver Seat Controls
3	Not Used
4	Not Used

Fuses	Usage
5	Belt Alternator Starter (BAS)
6	Park Lamps, Instrument Panel Dimming
7	Not Used
8	Not Used

<b>Fuses</b>	<b>Usage</b>
9	Not Used
10	Sunroof Controls
11	Not Used
12	Not Used
13	Audio Amplifier
14	Heated Seat Controls
15	Not Used
16	Remote Keyless Entry (RKE) System, XM™ Satellite Radio
17	Back-up Lamps
18	Not Used
19	Not Used
20	Auxiliary Power Outlets
21	Not Used
22	Trunk Release
23	Rear Defog
24	Heated Mirrors
25	Fuel Pump

<b>Relays</b>	<b>Usage</b>
26	Rear Window Defogger
27	Park Lamps
28	Not Used
29	Not Used
30	Not Used
31	Not Used
32	Not Used
33	Back-up Lamps
34	Not Used
35	Not Used
36	Trunk Release
37	Fuel Pump
38 (Diode)	Cargo Lamp

## Capacities and Specifications

The following approximate capacities are given in English and metric conversions. Please refer to *Recommended Fluids and Lubricants* on page 365 for more information.

Application	Capacities	
	English	Metric
Air Conditioning Refrigerant R134a	For the air conditioning system refrigerant charge amount, see the refrigerant caution label located under the hood. See your retailer for more information.	
Cooling System	8.1 qt	7.7 L
Transaxle (Bottom Pan Removal)	7.0 qt	6.6 L
Engine Oil with Filter	5.0 qt	4.7 L
Fuel Tank	16.3 gal	61.7 L
Wheel Nut Torque	100 lb ft	140 N•m
All capacities are approximate. When adding, be sure to fill to the appropriate level, as recommended in this manual.		

### Engine Specifications

Engine	VIN Code	Transaxle	Spark Plug Gap
2.4L L4	5	Automatic	0.040 inches (1.01 mm)



## Section 6 Maintenance Schedule

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# Maintenance Schedule

## Introduction

**Important:** Keep engine oil at the proper level and change as recommended.

## 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 might 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 Saturn 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 Saturn retailer.

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 242*.
- are driven on reasonable road surfaces within legal driving limits.
- use the recommended fuel. See *Gasoline Octane on page 255*.

The services in *Scheduled Maintenance on page 356* should be performed when indicated. See *Additional Required Services on page 359* and *Maintenance Footnotes on page 360* 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 retailer to have a qualified technician do the work. See *Doing Your Own Service Work on page 254*.**

Some maintenance services can be complex. So, unless you are technically qualified and have the necessary equipment, you should have your Saturn retailer do these jobs.

When you go to your Saturn retailer for your service needs, you will know that Saturn-trained and supported service technicians will perform the work using genuine Saturn parts.

If you want to purchase service information, see *Service Publications Ordering Information on page 387*.

*Owner Checks and Services on page 362* 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 365* and *Normal Maintenance Replacement Parts on page 366*. 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 Saturn parts.

## Scheduled Maintenance

When the CHANGE 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, the engine oil and filter must be changed at least once a year and at this time the system must be reset. Your dealer/retailer has trained service technicians who will perform this work using genuine 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 268* for information on the Engine Oil Life System and resetting the system.

When the CHANGE 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 might be required more often.

**Maintenance I** — Use Maintenance I if the 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 <i>Engine Oil on page 265</i> . Reset oil life system. See <i>Engine Oil Life System on page 268</i> . An <i>Emission Control Service</i> .	•	•
Visually check for any leaks or damage. See <i>footnote (j)</i> .	•	•
Inspect engine air cleaner filter. If necessary, replace filter. See <i>Engine Air Cleaner/Filter on page 270</i> . See <i>footnote (k)</i> .		•
Rotate tires and check inflation pressures and wear. See <i>Tire Inspection and Rotation on page 310</i> and <i>At Least Once a Month on page 362</i> .	•	•

## Scheduled Maintenance (cont'd)

Service	Maintenance I	Maintenance II
Inspect brake system. <i>See footnote (a).</i>	•	•
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. <i>See footnote (b).</i>		•
Inspect engine cooling system. <i>See footnote (c).</i>		•
Inspect wiper blades. <i>See footnote (d).</i>		•
Inspect restraint system components. <i>See footnote (e).</i>		•
Lubricate body components. <i>See footnote (f).</i>		•
Inspect throttle system. <i>See footnote (g).</i>		•

## 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 <i>Engine Air Cleaner/Filter on page 270</i> .		•		•		•
Change automatic transmission fluid and filter (severe service only). See <i>footnote (h)</i> .		•		•		•
Replace spark plugs. Inspect spark plug wires. <i>An Emission Control Service</i> .				•		
Engine cooling system service (or every five years, whichever occurs first). <i>An Emission Control Service</i> . See <i>footnote (i)</i> .						•
Inspect engine accessory drive belt. <i>An Emission Control Service</i> . See <i>footnote (m)</i> .				•		

## Maintenance Footnotes

(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 electric power steering cables for proper hook-up, binding, 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 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) *Inspect wiper blades for wear, cracking, or contamination. Clean the windshield and wiper blades, if contaminated. Replace wiper blades that are worn or damaged. See Windshield Wiper Blade Replacement on page 297 and Windshield and Wiper Blades on page 337 for more information.*

(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, door hinges and latches, hood hinges and latches, and trunk lid hinges and latches. 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) Check system for interference or binding and for damaged or missing parts. Replace parts as needed. Replace any components that have high effort or excessive wear. Do not lubricate accelerator or cruise control cables.*

*(h) Change automatic transmission 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.*
- Uses such as found in taxi, police, or delivery service.*

*If you do not use your vehicle under any of these conditions, the fluid and filter do not require changing.*

*(i) Drain, flush, and refill cooling system. This service can be complex; you should have your dealer/retailer perform this service. See Engine Coolant on page 272 for what to use. Inspect hoses. Clean radiator, condenser, pressure cap, and filler neck. Pressure test the cooling system and pressure cap.*

*(j) 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.*

*(k) If you drive regularly under dusty conditions, inspect the filter at each engine oil change.*

*(m) 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 Saturn retailer 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 365.

### At Each Fuel Fill

*It is important to perform these underhood checks at each fuel fill.*

### Engine Oil Level Check

**Notice:** It is important to check the engine oil regularly and keep it at the proper level. Failure to keep the engine oil at the proper level can cause damage to the engine not covered by your warranty.

Check the engine oil level and add the proper oil if necessary. See *Engine Oil* on page 265.

### Engine Coolant Level Check

Check the engine coolant level and add DEX-COOL<sup>®</sup> coolant mixture if necessary. See *Engine Coolant* on page 272.

### 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 Inspection and Inflation Check

Inspect your vehicle's tires for wear and make sure they are inflated to the correct pressures. See *Inflation - Tire Pressure* on page 304.

## 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 119*.  
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 Saturn retailer 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 119*.  
Be ready to apply the regular brake immediately if the vehicle begins to move.
3. With the engine off, turn the ignition to ON, 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 Saturn retailer 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 Saturn retailer 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 Saturn retailer 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 can be obtained from your dealer/retailer.

Usage	Fluid/Lubricant
Engine Oil	Engine oil which meets GM Standard GM6094M and displays the American Petroleum Institute Certified for Gasoline Engines starburst symbol. To determine the proper viscosity for your vehicle's engine, see <i>Engine Oil on page 265</i> .
Engine Coolant	50/50 mixture of clean, drinkable water and use only DEX-COOL <sup>®</sup> Coolant. See <i>Engine Coolant on page 272</i> .
Hydraulic Brake System	Delco <sup>®</sup> Supreme 11 Brake Fluid or equivalent DOT-3 brake fluid.
Windshield Washer	Optikleen <sup>®</sup> Washer Solvent.

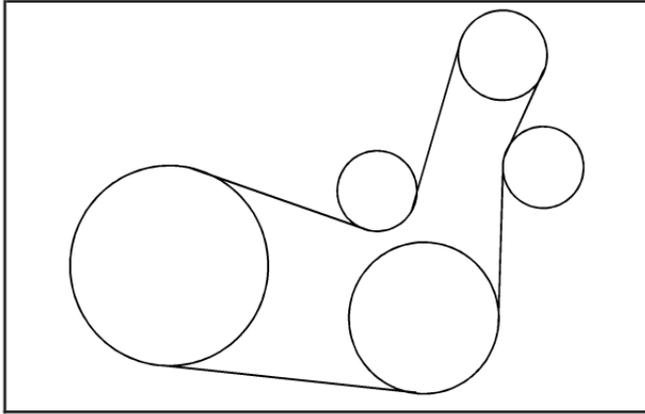
Usage	Fluid/Lubricant
Automatic Transmission	DEXRON <sup>®</sup> -VI Automatic Transmission Fluid.
Key Lock Cylinders	Multi-Purpose Lubricant, Superlube (GM Part No. U.S. 12346241, in Canada 10953474).
Hood Latch Assembly, Secondary Latch, Pivots, Spring Anchor, and Release Pawl	Lubriplate Lubricant 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 109435474).
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 Saturn retailer.

<b>Part</b>	<b>Part Numbers</b>	<b>ACDelco® Part Numbers</b>
Engine Air Cleaner/Filter	22676970	A1627C
Engine Oil Filter	12605566	PF457G
Spark Plugs	12598004	41-103
Windshield Wiper Blades		
Driver's Side – 23.6 inches (60.0 cm)	15779416	—
Passenger's Side – 21.0 inches (53.0 cm)	15779415	—

## Engine Drive Belt Routing



The engine drive belt on this hybrid vehicle is under a higher tension than the engine drive belt on a non-hybrid vehicle and requires the use of a special kind of tool to service. See your dealer/retailer for service.

## 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 354*. Any additional information from *Owner Checks and Services on page 362* 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

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# Customer Assistance and Information

## Customer Satisfaction Procedure

Your satisfaction and goodwill are important to your retailer and to Saturn. Together we are committed to providing our customers with unparalleled service, before, during, and after the purchase of a Saturn vehicle, for total customer satisfaction. We call this the Saturn Difference. Normally, any concerns with the sales transaction or the operation of your vehicle are resolved by your retailer's sales or service departments. If, for any reason, your ownership experience falls below your expectations, we suggest you take the following action:

**STEP ONE:** Contact the Retail Customer Assistance Liaison. Any member of the retail management team has the authority and the desire to resolve your concerns. Normally, concerns can be quickly resolved at this level.

**STEP TWO:** Should you need additional assistance, in the U.S., contact the Saturn Customer Assistance Center by calling 1-800-553-6000. In Canada, contact the Saturn Customer Communication Centre at 1-800-263-1999. A Saturn Customer Assistance Center team member will handle your call and assist in providing product and warranty information, the nearest retailer location, roadside assistance, brochures, literature and discuss any concerns you may have.

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 17-digit number can be found on the vehicle registration or title, on the upper driver side corner of the dash, or on your roadside assistance key card.
- The name of your selling and servicing retail facility.
- Vehicle delivery date and present mileage.
- Your daytime and evening phone numbers.

When contacting Saturn, please remember that your concern will likely be resolved at a retailer's facility. That is why we suggest you follow Step One first if you have a concern.

**STEP THREE (U.S. Owners):** Both Saturn and its retailers are committed to making sure you are completely satisfied with your Saturn vehicle. However, if you continue to remain unsatisfied after following the procedure outlined in Steps One and Two, Saturn and its retailers offer the additional assistance of a neutral party through our voluntary participation in a mediation/arbitration program called Better Business Bureau (BBB) Auto Line.

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. This program is available at no cost to you, our customer.

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 is generally heard within 40 days. If you do not agree with the decision given in your case, you can reject it and proceed with any other venue for relief available to you.

Contact the BBB Auto Line Program by using the toll-free telephone number or by writing 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. Saturn Corporation 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 following the procedure outlined in Steps 1 and 2, 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 Saturn Customer Communication Centre, 1-800-263-1999, or you may write to:

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  
Telephone: 1-800-955-5100

Your inquiry should be accompanied by your Vehicle Identification Number (VIN).

## Online Owner Center

### Online Owner Center (United States only)

The Owner Center is a resource for your Saturn 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 Saturn retailers for service nationwide.
- Receive special promotions and privileges only available to members.

Refer to [www.saturn.com](http://www.saturn.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](http://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](http://www.gmcanada.com).

## **Customer Assistance for Text Telephone (TTY) Users**

To assist owners who have hearing difficulties, Saturn has installed special TDD (Telecommunication Devices for the Deaf) equipment in its Saturn Customer Assistance Center.

Any hearing- or speech-impaired customer who has access to a TDD or to a conventional Text Telephone (TTY) can communicate with Saturn by dialing 1-800-TDD-6000. TTY users in Canada may dial 1-800-263-3830.

## **Customer Assistance Offices**

Saturn encourages customers to call the toll-free number for assistance. If a customer wishes to write to Saturn, the letter should be addressed to:

Saturn Customer Assistance Center  
100 Saturn Parkway  
Mail Code 371-999-S24  
Spring Hill, TN 37174-1500  
1-800-553-6000  
1-800-833-6000 (For Text Telephone devices (TTYs))  
Roadside Assistance: 1-800-553-6000

In Canada, write to:

Saturn Customer Communication Centre  
General Motors of Canada Ltd.  
CA1-163-005  
1908 Colonel Sam Drive  
Oshawa, Ontario L1H 8P7  
[www.gmcanada.com](http://www.gmcanada.com)  
1-800-263-1999  
1-800-263-3830 (For Text Telephone devices (TTYs))  
Roadside Assistance: 1-800-268-6800

## GM Mobility Reimbursement Program



This program, available to qualified applicants, can reimburse you up to \$1,000 toward eligible aftermarket driver or passenger adaptive equipment you may require for your vehicle such as hand controls, wheelchair/scooter lifts, etc.

The offer is available for a limited period of time from the date of vehicle purchase/lease.

For more details, or to determine your vehicle's eligibility, visit your Saturn retailer or call the Saturn Customer Assistance Center at 1-800-553-6000. Text telephone (TTY) users, call 1-800-833-6000.

In Canada, customers may call the Saturn Customer Communication Centre at 1-800-263-1999. TTY users in Canada may call 1-800-263-3830.

## Roadside Assistance Program

For vehicles purchased in the U.S., call **1-800-553-6000**;  
**(Text Telephone (TTY): 1-800-833-6000)**.

For vehicles purchased in Canada, call **1-800-268-6800**.

Service is available 24 hours a day, 365 days a year.

As the owner of a new Saturn vehicle, you are automatically enrolled in the Saturn Roadside Assistance Program.

### Who is Covered?

Roadside Assistance coverage is for the vehicle operator, regardless of ownership. In Canada, a person driving this vehicle without the consent of the owner is not eligible for coverage.

## Services Provided

The following services are provided in the U.S. and Canada up to 5 years/100,000 miles (160 000 km), whichever comes first, and, in Canada only, up to a maximum of \$100.

- **Fuel Delivery:** Delivery of enough fuel for the vehicle to get to the nearest service station (approximately \$5 Canada). In Canada, service to provide diesel may be restricted. For safety reasons, propane and other alternative fuels are not provided through this service.
- **Lock-out Service:** Lock-out service is covered at no charge if you are unable to gain entry into your vehicle. A remote unlock may be available if you have an active OnStar® subscription. To ensure security, the driver must present personal identification before lock-out service is provided. In Canada, the vehicle registration is also required.
- **Emergency Tow From a Public Roadway or Highway:** Tow to the nearest Saturn retailer for warranty service or in the event of a vehicle-disabling accident. Winch-out assistance is provided when the vehicle is mired in sand, mud, or snow.

- **Flat Tire Change:** Installation of a spare tire in good condition, when equipped and properly inflated, is covered at no charge. The customer is responsible for the repair or replacement of the tire if not covered by a warrantable failure.
- **Jump Start:** A battery jump start is covered at no charge if the vehicle does not start.
- **Trip Routing Service (Canada only):** Upon request, Roadside Assistance will send you detailed, computer personalized maps, highlighting your choice of either the most direct route or the most scenic route to your destination, anywhere in North America, along with helpful travel information pertaining to your trip.

Please allow three weeks before your planned departure date. Trip routing requests are limited to six per calendar year.

- **Trip Interruption Benefits and Assistance (Canada only):** In the event of a warranty related vehicle disablement, while en route and over 250 kilometres from the original point of departure, you might qualify for trip interruption expense assistance. This assistance covers reasonable reimbursement of up to a maximum of \$500 (Canadian) for (A) meals (maximum of \$50/day), (B) lodging (maximum of \$100/night), and (C) alternate ground transportation (maximum of \$40/day). This benefit is to assist you with some of the unplanned expense you may incur while waiting for your vehicle to be repaired.

Pre-authorization, original detailed receipts, and a copy of the repair order are required.

Once authorization has been given, your advisor will help you make any necessary arrangements and explain how to claim for trip interruption expense assistance.

- **Alternative Service (Canada only):** There could be times when Roadside Assistance cannot provide timely assistance. Your advisor may authorize you to secure local emergency road service, and you will be reimbursed up to \$100 upon submission of the original receipt to Roadside Assistance.

In many instances, mechanical failures may be covered. However, any cost for parts and labor for non-warranty repairs are the responsibility of the driver.

Saturn and General Motors of Canada Limited reserve the right to limit services or reimbursement to an owner or driver when, in their sole discretion, the claims become excessive in frequency or type of occurrence.

### Calling for Assistance

For prompt and efficient assistance when calling, please provide the following to the Roadside Assistance Representatives:

- Your name, home address, and home telephone number
- Telephone number of your location
- Location of the vehicle
- Model, year, color, and license plate number of the vehicle
- Odometer reading, Vehicle Identification Number (VIN) and delivery date of the vehicle
- Description of the problem

## **Towing and Road Service Exclusions**

Specifically excluded from Roadside Assistance coverage are towing or services for vehicles operated on a non-public roadway or highway, fines, impound towing caused by a violation of local, Municipal, State, Provincial or Federal law, and mounting, dismounting or changing of snow tires, chains, or other traction devices.

Roadside Assistance is not part of or included in the coverage provided by the New Vehicle Limited Warranty. Saturn and General Motors of Canada Limited reserve the right to make any changes or discontinue the Roadside Assistance program at any time without notification.

## **Courtesy Transportation**

To enhance your ownership experience, we and our participating retailers are proud to offer Courtesy Transportation, a customer support program for vehicles with the Bumper to Bumper (Base Warranty Coverage period in Canada) and extended powertrain warranty in both the U.S. and Canada.

Several courtesy transportation options are available to assist in reducing your inconvenience when warranty repairs are required.

Courtesy Transportation is not a 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.

## **Transportation Options**

Warranty service can generally be completed while you wait. However, if you are unable to wait, Saturn helps to minimize your inconvenience by providing several transportation options. Depending on the circumstances, your retailer can offer you one of the following:

### **Shuttle Service**

Shuttle service is the preferred means of offering Courtesy Transportation. Retailers may 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 within reasonable time and distance parameters of the retailer's area.

## **Public Transportation or Fuel Reimbursement**

If your vehicle requires overnight warranty repairs, and public transportation is used instead of the retailer's shuttle service, the expense must be supported by original receipts and can only be up to the maximum amount allowed by Saturn for shuttle service. In addition, for U.S. customers, should you arrange transportation through a friend or relative, limited reimbursement for reasonable fuel expenses may be available. Claim amounts should reflect actual costs and be supported by original receipts. See your retailer for information regarding the allowance amounts for reimbursement of fuel or other transportation costs.

## **Courtesy Rental Vehicle**

Your retailer 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 an overnight warranty repair. Rental reimbursement will be limited and must be supported by original receipts. This requires that you sign and complete a rental agreement and meet state/provincial, 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.

It may not be possible to provide a like-vehicle as a courtesy rental.

## **Additional Program Information**

All program options, such as shuttle service, may not be available at every retailer. Please contact your retailer for specific information about availability. All Courtesy Transportation arrangements will be administered by appropriate retailer personnel.

*Saturn 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.*

## 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 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 Saturn retailer 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 helps guard against post-accident legal action.

- If you need roadside assistance, call GM Roadside Assistance. See *Roadside Assistance Program* on page 377 for more information.
- If your vehicle cannot be driven, know where the towing service is 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 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 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 Saturn retailer 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 are not 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 Saturn Corporation.

If NHTSA receives similar complaints, it could open an investigation, and if it finds that a safety defect exists in a group of vehicles, it could order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your retailer or Saturn Corporation.

To contact NHTSA, 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, notify Transport Canada immediately, in addition to notifying General Motors of Canada Limited. 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 Saturn

In addition to notifying NHTSA (or Transport Canada) in a situation like this, please notify Saturn.

Call 1-800-553-6000, or write:

Saturn Corporation  
100 Saturn Parkway  
Mail Drop 371-999-S24  
Spring Hill, TN 37174-1500

In Canada, call 1-800-263-1999,  
or write:

Saturn Customer Communication Centre  
General Motors of Canada Limited  
CA1-163-005  
1908 Colonel Sam Drive  
Oshawa, Ontario L1H 8P7

## Service Publications Ordering Information

### Service Manuals

A variety of publications are available to you. Saturn service manuals are written for trained technicians, and in some cases, specialized tools and equipment are necessary to complete certain repairs. However, the manuals are available to owners who either have the training, or wish to gain a greater understanding of the technical aspect of their Saturn.

For additional publications information or to order publications in the United States, call toll free 1-800-2-SATURN or visit [www.saturn-publications.com](http://www.saturn-publications.com) to order on-line.

In Canada, Saturn service manuals are available by calling toll free 1-800-551-4123.

## Owner Publications

Information on how to obtain product bulletins and as described below is applicable only in the fifty U.S. states and the District of Columbia, and only for cars and light trucks with a Gross Vehicle Weight Rating (GVWR) less than 10,000 pounds (4 536 kg). Copies of individual bulletins are also at your participating Saturn retailer. You can ask to see them.

In Canada, information relating to product service bulletins can be obtained by contacting your Saturn retailer.

## Service Bulletins

Saturn regularly sends its retailers useful service bulletins about Saturn products. Saturn monitors product performance in the field. We then prepare bulletins for servicing our products better. You can get these bulletins, too.

Bulletins cover various subjects. Some pertain to the proper use and care of your vehicle. Some describe costly repairs. Others describe inexpensive repairs which, if done on time with the latest parts, may avoid future costly repairs.

Some bulletins tell a technician how to repair a new or unexpected condition. Others describe a quicker way to fix your vehicle. They can help a technician service your vehicle better.

Most bulletins apply to conditions affecting a small number of vehicles. Your Saturn retailer or a qualified technician may have to determine if a specific bulletin applies to your vehicle. To order Saturn bulletins, call Saturn Publications at 1-800-2-SATURN or visit [www.saturn-publications.com](http://www.saturn-publications.com) to order online.

## Vehicle Data Recording and Privacy

Your Saturn vehicle has a number of sophisticated computers that record information about the vehicle's performance and how it is driven. For example, your vehicle uses computer modules to monitor and control engine and transmission performance, to monitor the conditions for airbag deployment and deploy airbags in a crash and, if so equipped, to provide anti-lock braking to help the driver control the vehicle. These modules may store data to help your dealer/retailer technician service your vehicle. Some modules may also store data about how you operate the vehicle, such as rate of fuel consumption or average speed. These modules may also retain the owner's personal preferences, such as radio pre-sets, seat positions, and temperature settings.

## Event Data Recorders

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

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

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

**Important:** EDR data is recorded by your vehicle only if a non-trivial crash situation occurs; no data is recorded by the EDR under normal driving conditions and no personal data (e.g., name, gender, age, and crash location) is recorded. However, other parties, such as law enforcement, could combine the EDR data with the type of personally identifying data routinely acquired during a crash investigation.

To read data recorded by an EDR, special equipment is required, and access to the vehicle or the EDR is needed. In addition to the vehicle manufacturer, other parties, such as law enforcement, that have the special equipment, can read the information if they have access to the vehicle or the EDR.

Saturn will not access this data or share it with others except: 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 Saturn's defense of litigation through the discovery process; or, as required by law. Data that Saturn collects or receives may also be used for Saturn research needs or may be made available to others for research purposes, where a need is shown and the data is not tied to a specific vehicle or vehicle owner.

## OnStar

If your vehicle has OnStar<sup>®</sup> and you subscribe to the OnStar<sup>®</sup> services, please refer to the OnStar<sup>®</sup> Terms and Conditions for information on data collection and use. See also *OnStar<sup>®</sup> System on page 127* in this manual for more information.

## Navigation System

If your vehicle has a **navigation system**, use of the system may result in the storage of **destinations, addresses, telephone numbers, and other trip information**. Please refer to the navigation system operating manual for information on stored data and for deletion instructions.

## Radio Frequency Identification (RFID)

**RFID** technology is used in some vehicles for functions such as tire pressure monitoring and ignition system security, as well as in connection with conveniences such as key fobs for remote door locking/unlocking and starting, and in-vehicle transmitters for garage door openers. RFID technology in Saturn vehicles does not use or record personal information or link with any other Saturn system containing personal information.



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