2005 Chevrolet Astro 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. For vehicles first sold in Canada, substitute the name “General Motors of Canada Limited” for Chevrolet Motor Division whenever it appears in this manual.

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

Canadian Owners

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

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

How to Use This Manual

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

Index

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

Litho in U.S.A.
Part No. 05ASTRO A First Edition

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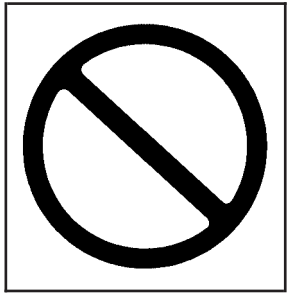
Safety Warnings and Symbols

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

⚠ CAUTION:

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

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



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

Vehicle Damage Warnings

Also, in this manual you will find these notices:

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

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

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

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

Vehicle Symbols

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

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

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

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

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

NOTES

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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.

If your vehicle has manual seats, they can be adjusted forward or rearward using the lever located under the front of the seat(s).

1. Move the seat adjustment lever toward the outboard side of the seat to unlock it.
2. Slide the seat to where you want it.
3. Release the lever and try to move the seat with your body, to make sure that the seat is locked into place

Power Seat

If your vehicle has this feature, there will be controls located on the inboard side of the driver's seat.

To raise or lower the front of the seat cushion, raise or lower the lever located toward the front of the vehicle.

To raise or lower the rear of the seat cushion, raise or lower the lever located toward the rear of the vehicle.

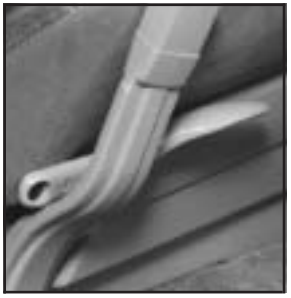
To move the entire seat backwards, forward, or up or down, move the center knob.

Manual Lumbar

If your vehicle has this feature, there will be a knob located on the inboard side of the driver's and passenger's bucket seats.

Turn the knob toward the front of the vehicle to increase lumbar support. Turn the knob toward the rear of the vehicle to decrease lumbar support.

Reclining Seatbacks



There is a lever located on the inboard side of the seat to adjust the seatback.

1. Lift the lever and lean back until the seatback is at the desired position.
2. Release the lever to lock the seatback where you want it.

To return the seatback to an upright position, pull up on the lever and lean forward.

But do not have a seatback reclined if your vehicle is moving.

⚠ CAUTION:

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

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

The lap belt can not 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.

Head Restraints

Adjust your head restraint so that the top of the restraint is closest to the top of your head. This position reduces the chance of a neck injury in a crash.

Seatback Latches

The seatback lever is located on the right rear of your seat. If your vehicle has the non-touring bench seatback, pull up on the latch release lever while pulling the seatback toward the rear of the vehicle.

After the latch has been released, push the seatback toward the front of the vehicle until it locks into place. To raise the seatback, unlock the seatback latch by pushing up on the lever while pushing down on the upper edge of the seatback. Move the seatback into the upright position. Make sure the seatback is locked when it is back in the upright position.

⚠ 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 press rearward on the seatback to be sure it is locked.

Rear Seats

Rear Seat Operation

Removing the Rear Seats

To remove the rear seats, do the following:

1. If you are removing the center seat, remove the right lap-shoulder belt. To do this, press the tip of a key into the release hole of the safety belt attachment while pulling up on the safety belt.

2. If you have a safety belt guide on your seat, pull the safety belt all the way out through the guide.

3. To store the safety belt while the second row bench seat is removed, pull the belt out and put both buckles in the passenger's side rear storage bin.

   Route the belt out of the forward edge of the storage bin. Close the cover to retain the belt.

4. Pull up on the seatback latch on the right rear of the seat. Push the seatback down until it locks into place.

5. Lift up on the left and the right seat release levers at the same time. The latches are near the floor on the rear legs of the seat.

6. Lift up on the rear of the seat to remove the seat assembly from the rear latch pins. Then, pull the whole seat back to remove the seat from the front retainers and then lift the seat out of the vehicle.

Replacing the Rear Seats

1. Lower the seat into position. Make sure the front retainers are hooked onto the anchor pins.

2. Pull the seat down to latch the rear retainers. Make sure the seat is locked in by pulling up and down on the seat.

⚠ CAUTION:

A seat that is not locked into place properly can move around in a collision or sudden stop. People in the vehicle could be injured. Be sure to lock the seat into place properly when installing it.

3. To raise the seatback, do the following:
   - 3.1. Unlock the seatback latch by pulling up on the latch release lever at the right rear of the seat, while pushing down on the upper edge of the seatback.
   - 3.2. Move the seatback into the upright position. Make sure the seatback is locked when it is back in the upright position.

If you are replacing the center seat, connect the right lap-shoulder belt to the attachment on the seat cushion. If you have a safety belt guide on your seat, pull the belt through the guide before reattaching the lap-shoulder belt to the side of the seat. The release hole should be facing outward.

If you installed the safety belt with the release hole facing inward (toward the seat), slide the plastic cover up so you can see the buckle. Disconnect the seat belt. Slide the cover back down and reinstall the belt correctly.

⚠ 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.

Bench Seat

Each bench seat can carry up to three passengers. They can also be removed to increase storage space. See “Removing the Rear Seats” following.

Only the third row bench seat can be adjusted forward or rearward.

Move the seat adjustment lever located at the front of the seat toward the passenger’s side to unlock it. Slide the seat to where you want it and release the lever. Try to move the seat with your body, to make sure the seat is locked into place.

The center bench seat has a pivoting right armrest.

The optional bench seats come with moveable armrests, individual reclining seatbacks, adjustable headrests and a fold-down center armrest console.

To adjust your seatback, pull up on the lever located on the outboard sides of the seat cushion.

Entering the Third Row Seat

The second row seat has a seatback lever that makes it easier to enter the third row seat, if equipped. The lever is located on the right rear of the second row seat.

1. Pull up on the seatback release lever while pulling the seatback toward the rear of the vehicle.
2. After the lever has been released, push the seatback toward the front of the vehicle until it locks into place.

To raise the seatback, do the following

1. Unlock the seatback lever by pulling up on the lever while pushing down on the upper edge of the seatback.
2. Move the seatback into the upright position.
3. Make sure the seatback is locked when it is back in the upright position.

⚠ 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 press rearward on the seatback to be sure it is locked.

Removing the Rear Seats

To remove the rear bench seats, do the following:

1. If you are removing the center seat, remove the right lap-shoulder belt. To do this, press the tip of a key into the release hole of the safety belt attachment while pulling up on the safety belt.

2. If you have a safety belt guide on your seat, pull the safety belt all the way out through the guide.

3. To store the safety belt while the second row bench seat is removed, pull the belt out and put both buckles in the passenger's side rear storage bin.

   Route the belt out of the forward edge of the storage bin. Close the cover to retain the belt.

4. Pull up on the seatback latch on the right rear of the seat. Push the seatback down until it locks into place.

5. Lift up on the left and the right seat release levers at the same time. The latches are near the floor on the rear legs of the seat.

6. Lift up on the rear of the seat to remove the seat assembly from the rear latch pins. Then, pull the whole seat back to remove the seat from the front retainers and then lift the seat out of the vehicle.

Reinstalling the Rear Seats

1. Lower the seat into position. Make sure the front retainers are hooked onto the anchor pins.

2. Pull the seat down to latch the rear retainers. Make sure the seat is locked in by pulling up and down on the seat.

⚠ CAUTION:

A seat that is not locked into place properly can move around in a collision or sudden stop. People in the vehicle could be injured. Be sure to lock the seat into place properly when installing it.

3. To raise the seatback, do the following:
   3.1. Unlock the seatback latch by pulling up on the latch release lever at the right rear of the seat, while pushing down on the upper edge of the seatback.
   3.2. Move the seatback into the upright position. Make sure the seatback is locked when it is back in the upright position.
4. If you are replacing the center seat, connect the right lap-shoulder belt to the attachment on the seat cushion. If you have a safety belt guide on your seat, pull the belt through the guide before reattaching the lap-shoulder belt to the side of the seat. The release hole should be facing outward.

5. If you installed the safety belt with the release hole facing inward (toward the seat), slide the plastic cover up so you can see the buckle. Disconnect the seat belt. Slide the cover back down and reinstall the belt correctly.

⚠ 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.

Bucket Seats

Your vehicle may have rear bucket seats with an adjustment release bar located under the front of the seats. These seats can be adjusted forward or rearward with the release bar. Pull the release bar up to release the seat bottom. Slide the seat where you want it and then let go of the release bar. Then try to move the seat with your body to make sure the seat is locked into place.

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 can not 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 a light that comes on as a reminder to buckle up. See *Safety Belt Reminder Light on page 3-25*.

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

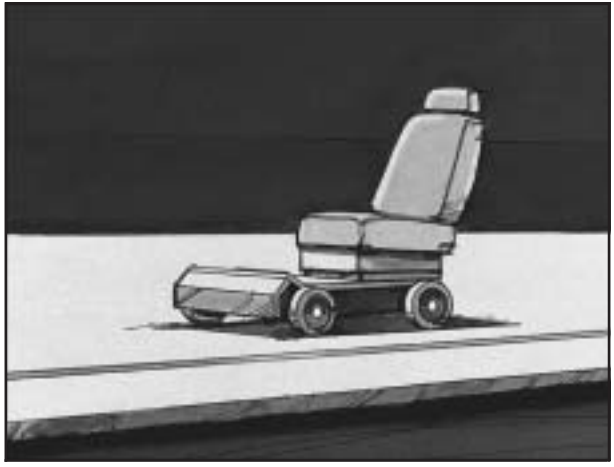
You never know if you will be in a crash. If you do have a crash, you do not know if it will be a bad one.

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.

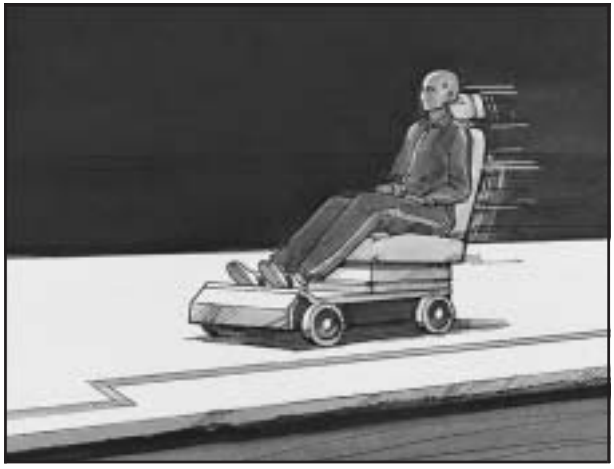
After more than 30 years of safety belts in vehicles, the facts are clear. In most crashes buckling up does matter...a lot!

Why Safety Belts Work

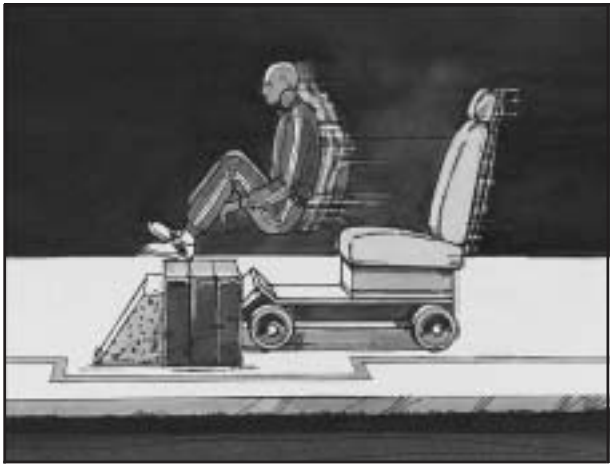
When you ride in or on anything, you go as fast as it goes.



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

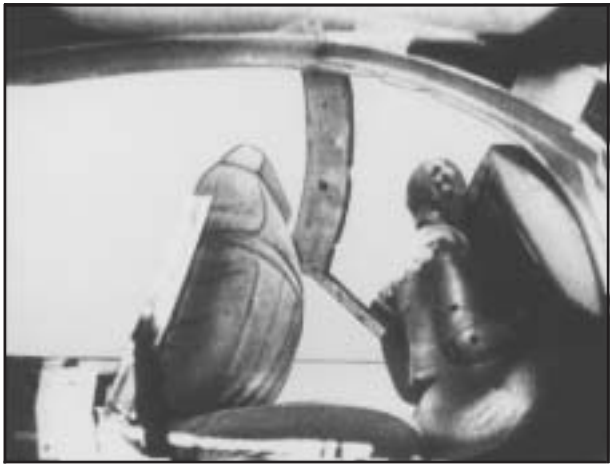


Put someone on it.



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 in many vehicles today and will be in most of them in the future. But they 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 1-38* or *Infants and Young Children on page 1-40*. Follow those rules for everyone's protection.

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

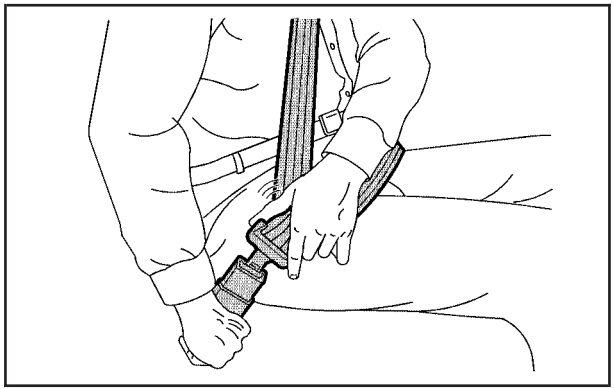
We will start with the driver position.

Driver Position

Lap-Shoulder Belt

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

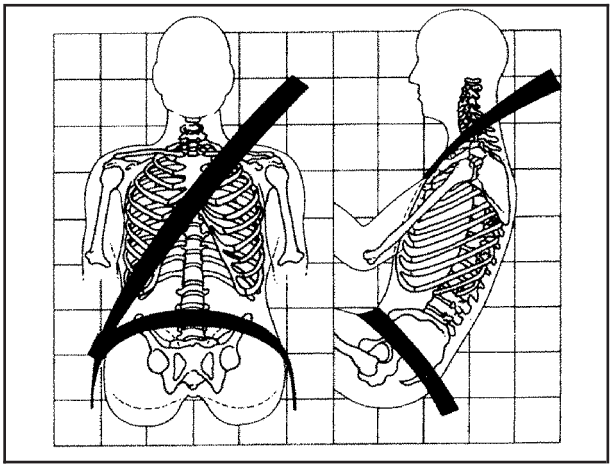
1. Close and lock the door.
2. Adjust the seat so you can sit up straight. To see how, see "Seats" in the Index.



3. Pick up the latch plate and pull the belt across you. Do not let it get twisted.
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 1-37*.

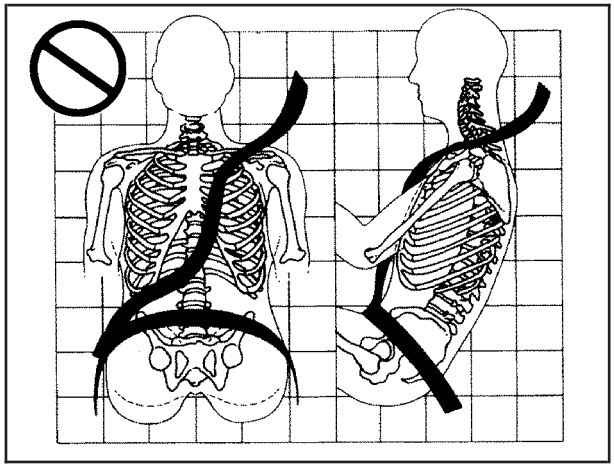
   Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.



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, or if you pull the belt very quickly out of the retractor.

Q: What is wrong with this?

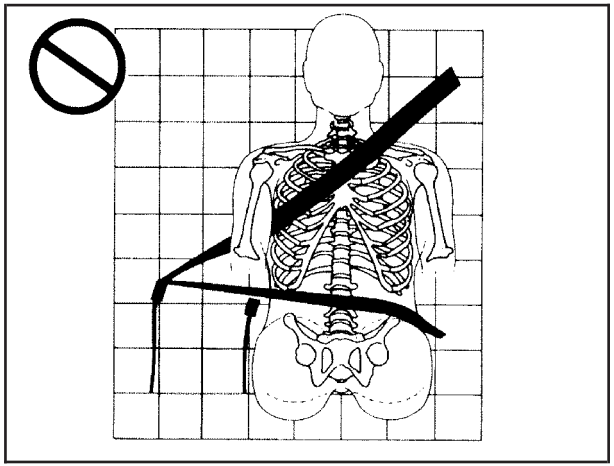


A: The shoulder belt is too loose. It will not give nearly as much protection this way.

⚠ 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?

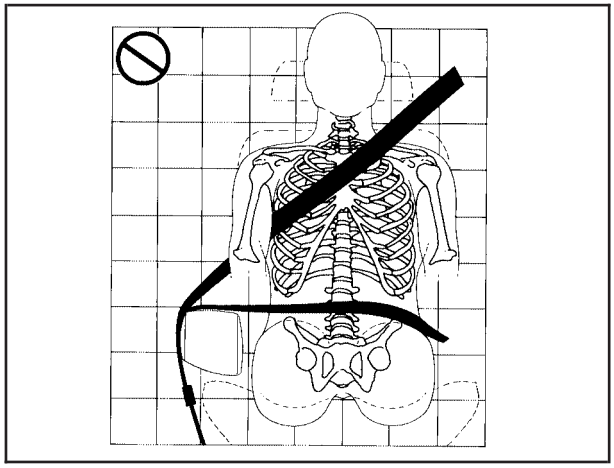


A: The belt is buckled in the wrong place.

⚠ 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?

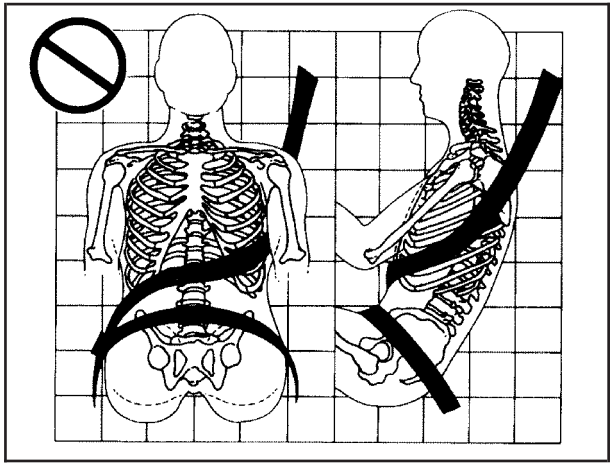


A: The belt is over an armrest.

⚠ CAUTION:

You can be seriously injured if your belt goes over an armrest like this. The belt would be much too high. In a crash, you can slide under the belt. The belt force would then be applied at the abdomen, not at the pelvic bones, and that could cause serious or fatal injuries.
Be sure the belt goes under the armrests.

Q: What is wrong with this?

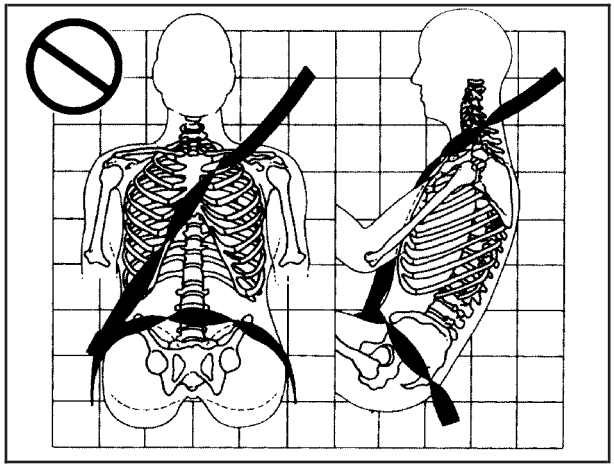


A: The shoulder belt is worn under the arm. It should be worn over the shoulder at all times.

⚠ CAUTION:

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

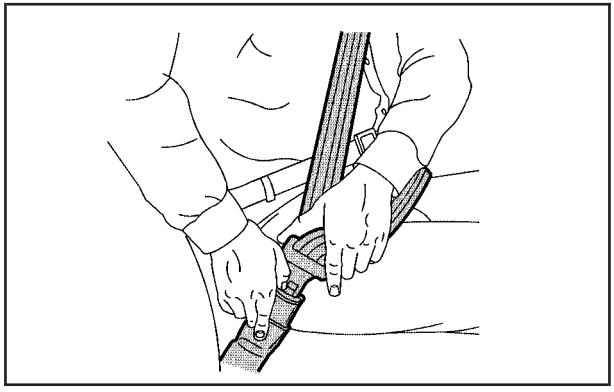
Q: What is wrong with this?



A: The belt is twisted across the body.

⚠ CAUTION:

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

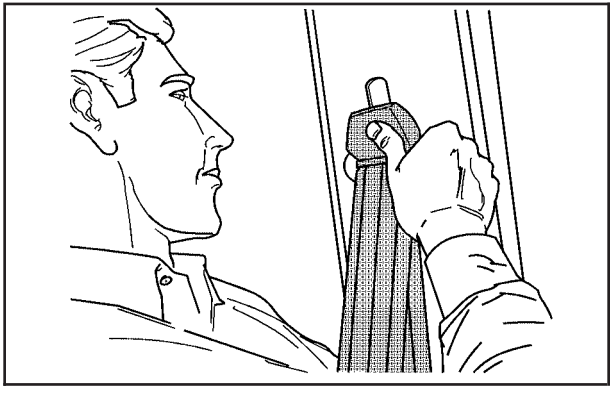


To unlatch the belt, just push the button on the buckle. The belt should go back out of the way.

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.

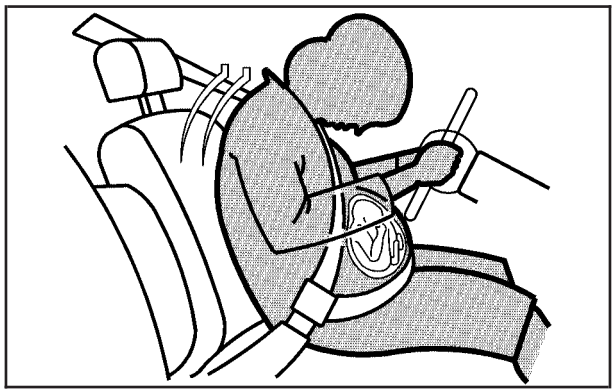


To move it down, push it in at the top of the arrows and move the height adjuster to the desired position. You can move the adjuster up just by pushing up on the shoulder belt guide. After you move the adjuster to where you want it, try to move it down without pushing it in to make sure it has locked into position.

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.

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 1-23*.

The right front passenger's safety belt works the same way as the driver's safety belt — except for one thing. If you ever pull the lap 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.

Rear Seat Passengers

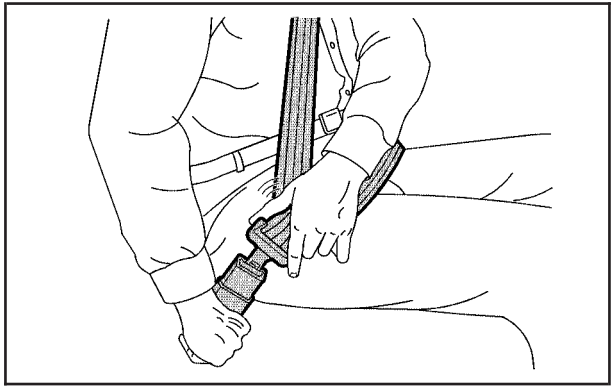
It is very important for rear seat passengers to buckle up! Accident statistics show that unbelted people in the rear seat are hurt more often in crashes than those who are wearing safety belts.

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.

Rear Seat Outside Passenger Positions

Lap-Shoulder Belt

These positions have lap-shoulder belts. Here is how to wear one properly.



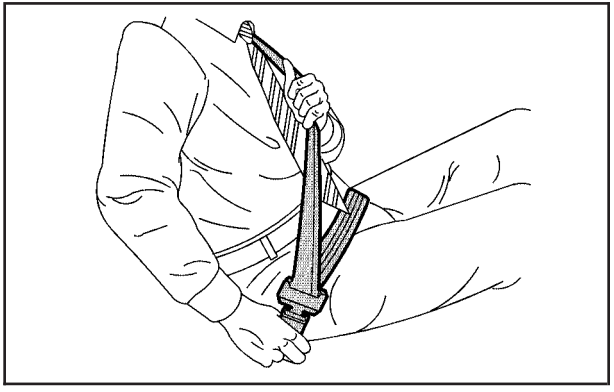
1. Pick up the latch plate and pull the belt across you. Do not let it get twisted.

   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.

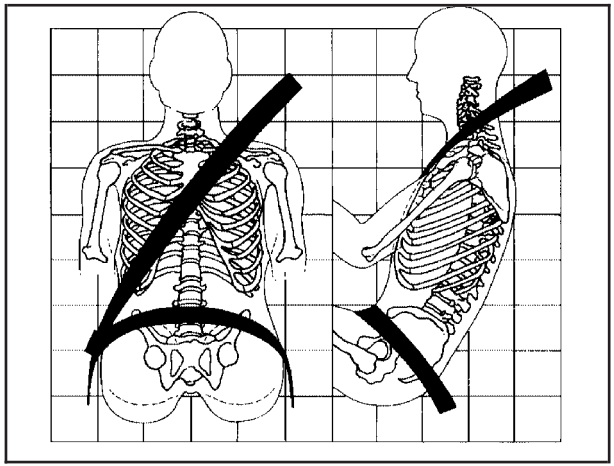
2. Push the latch plate into the buckle until it clicks. Pull up on the latch plate to make sure it is secure.

   If the belt is not long enough, see *Safety Belt Extender on page 1-37*.

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



3. To make the lap part tight, pull down on the buckle end of the belt as you pull up on the shoulder part.

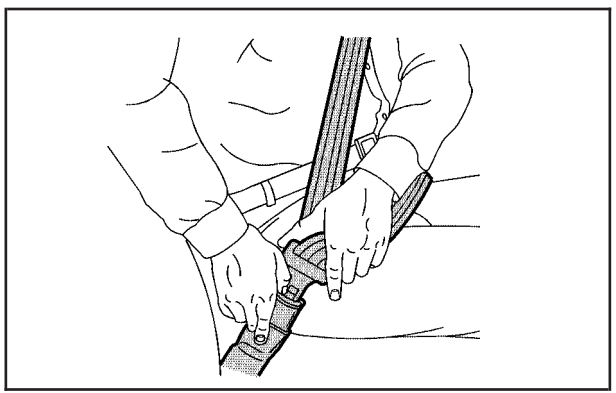


The lap part of the belt should be worn low and snug on the hips, just touching the thighs. In a crash, this applies force to the pelvic bones. And you would be less likely to slide under the lap belt. If you slid under it, the belt would apply force at your abdomen. This could cause serious or even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

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

⚠ CAUTION:

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

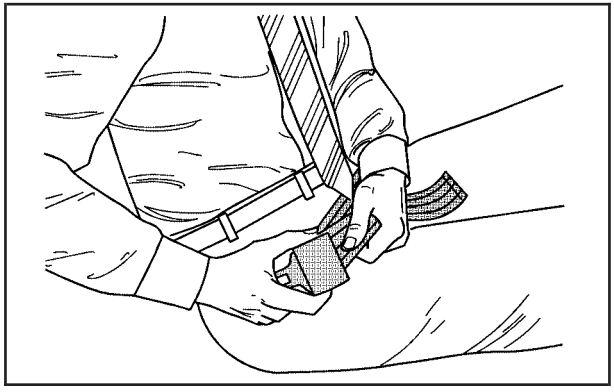


To unlatch the belt, just push the button on the buckle.

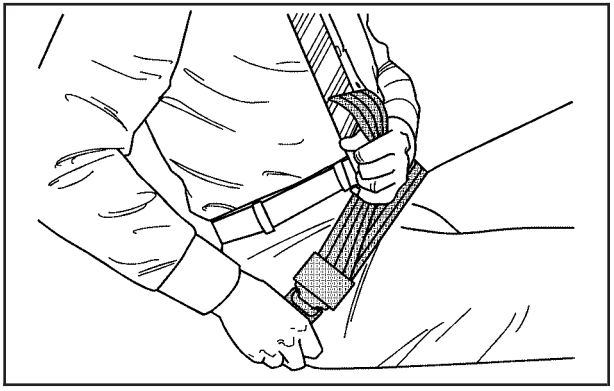
Center Rear Passenger Position

Lap Belt

If your vehicle has rear bench seats, someone can sit in the center positions.



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



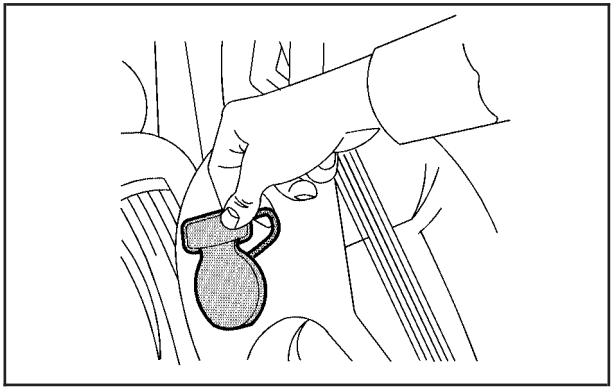
To make the belt shorter, pull its free end as shown until the belt is snug. Buckle, position and release it the same way as the lap part of a lap-shoulder belt. If the belt is not long enough, see *Safety Belt Extender on page 1-37*.

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

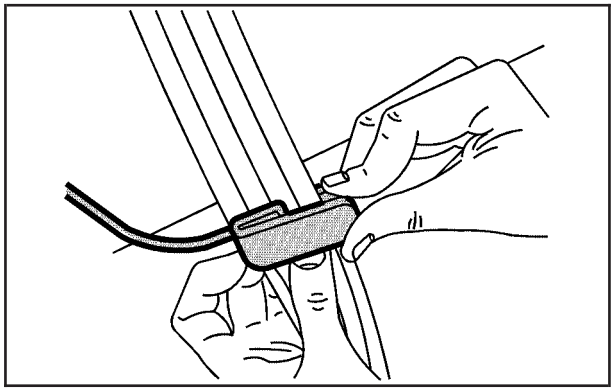
Rear Safety Belt Comfort Guides for Children and Small Adults

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

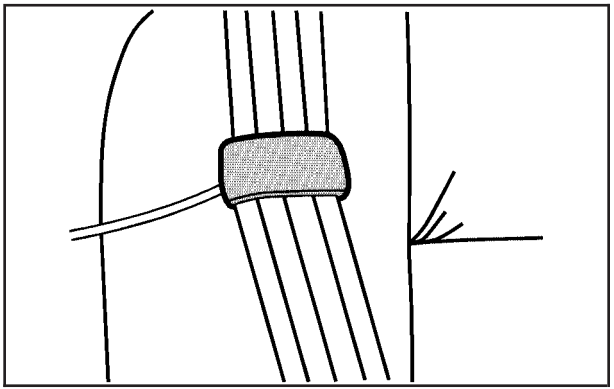
Here is how to install a comfort guide and use the safety belt:



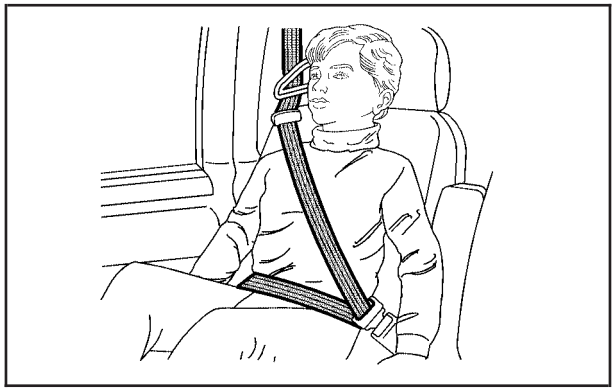
1. Remove the guide from its storage clip on the side of the seatback.



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



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



4. Buckle, position and release the safety belt as described in *Rear Seat Passengers on page 1-31*. Make sure that the shoulder belt crosses the shoulder.

To remove and store the comfort guides, squeeze the belt edges together so that you can take them out of the guides. Slide the guide onto the storage clip.

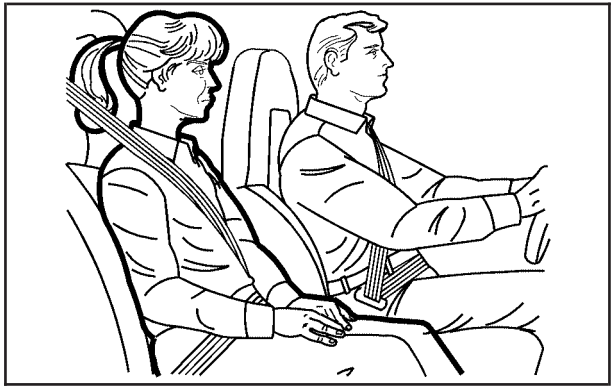
Safety Belt Extender

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

But if a safety belt is not long enough, your dealer will order you an extender. It is free. 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.

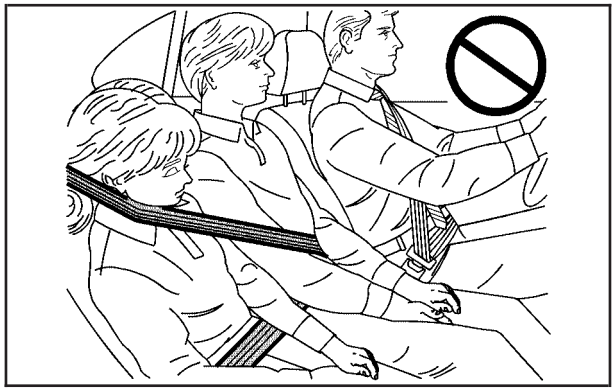
If you have the choice, a child should sit next to a window so the child can wear a lap-shoulder belt and get the additional restraint a shoulder belt can provide.

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

A: If possible, 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.

Accident statistics show that children are safer if they are restrained in the rear seat.

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



⚠ CAUTION:

Never do this.

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

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

A: Move the child toward the center of the vehicle, but 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 provides.

If the child is sitting in a rear seat outside position, see *Rear Safety Belt Comfort Guides for Children and Small Adults on page 1-35*.

If the child is so small that the shoulder belt is still very close to the child's face or neck, you might want to place the child in a seat that has a lap belt, if your vehicle has one.

⚠ 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.

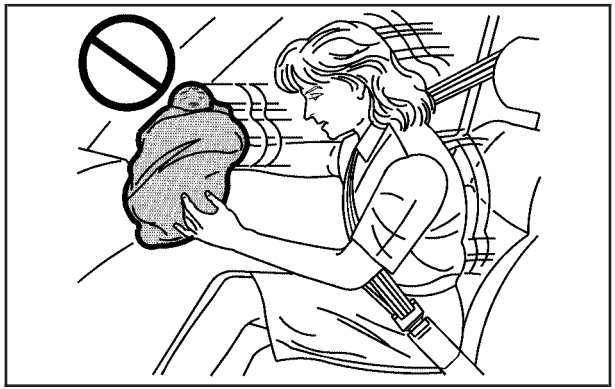
Wherever the child sits, the lap portion of the belt should be worn low and snug on the hips, just touching the child's thighs. This applies belt force to the child's pelvic bones in a crash.

Infants and Young Children

Except Cargo Vans

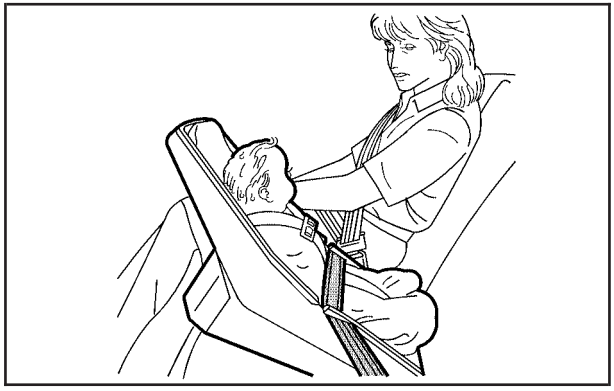
Everyone in a vehicle needs protection! This includes infants and all other children. Neither the distance traveled nor the age and size of the traveler changes the need, for everyone, to use safety restraints. In fact, the law in every state in the United States and in every Canadian province says children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

Every time infants and young children ride in vehicles, they should have the protection provided by appropriate restraints. Young children should not use the vehicle's adult safety belts alone, unless there is no other choice. Instead, they need to use a child restraint.



⚠ CAUTION:

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



⚠ CAUTION:

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

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

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

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

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

⚠ CAUTION:

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

⚠ CAUTION:

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

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⚠ CAUTION:

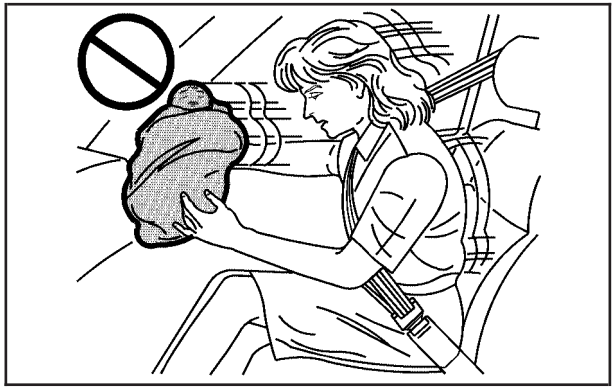
Children who are up against, or very close to, any airbag when it inflates can be seriously injured or killed. Airbags plus lap-shoulder belts offer protection for adults and older children, but not for young children and infants. Neither the vehicle's safety belt system nor its airbag system is designed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

⚠ 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 restrained in appropriate infant restraints. However, infants, who should be restrained in a rear-facing child restraint, cannot ride safely in this vehicle.

⚠ CAUTION:

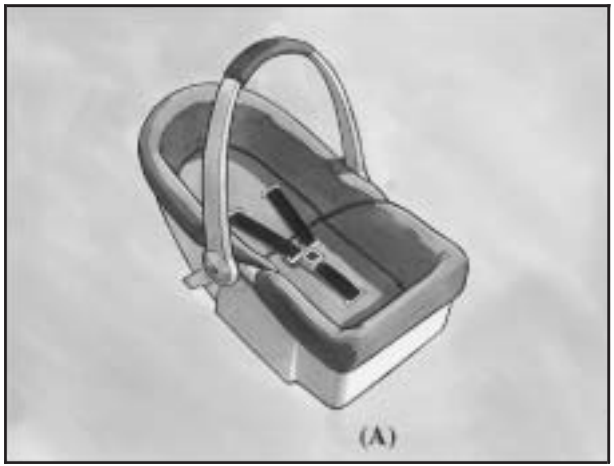
The body structure of a young child is quite unlike that of an adult or older child, for whom the safety belts are designed. A young child's hip bones are still so small that the vehicle's regular safety belt may not remain low on the hip bones, as it should. Instead, it may settle up around the child's 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.



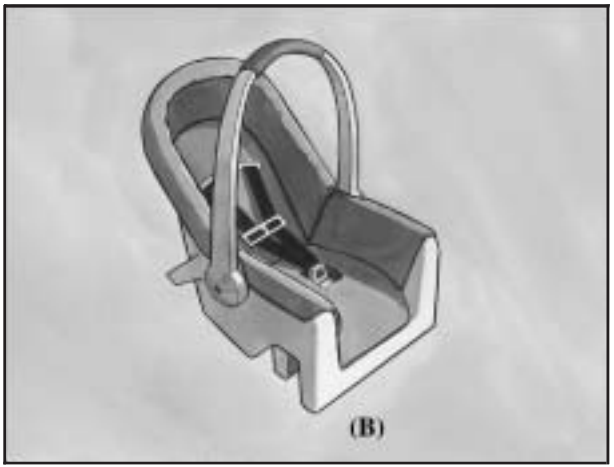
⚠ CAUTION:

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.

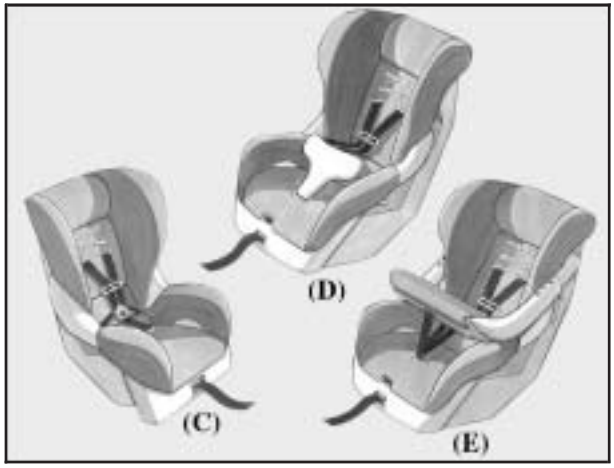
Child Restraint Systems



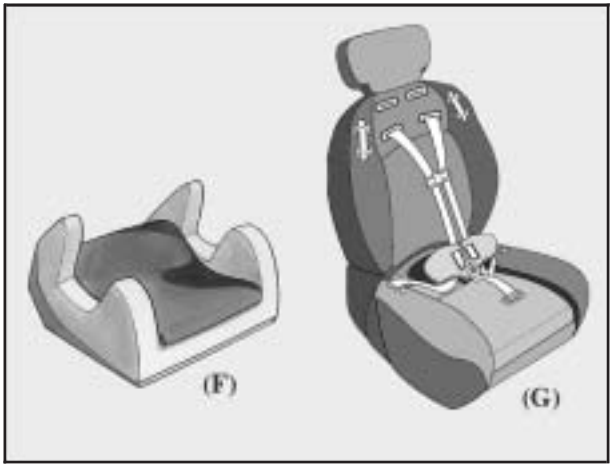
An infant car bed (A), a special bed made for use in a motor vehicle, is an infant restraint system designed to restrain or position a child on a continuous flat surface. Make sure that the infant's head rests toward the center of the vehicle.



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 do child restraints work?

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.

For many years, add-on child restraints have used the adult belt system in the vehicle. To help reduce the chance of injury, the child also has to be secured within the restraint. The vehicle's belt system secures the add-on child restraint in the vehicle, and the add-on child restraint's harness system holds the child in place within the 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.

When choosing a 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. These restraints use the belt system or the LATCH system in your vehicle, but the child also has to be secured within the restraint to help reduce the chance of personal injury. 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.

Where to Put the Restraint

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Accident statistics show that children are safer if they are restrained in the rear rather than the front seat. General Motors, therefore, recommends that child restraints be secured in a rear seat including an infant riding in a rear-facing infant seat, a child riding in a forward-facing child seat and an older child riding in a booster seat. *Never* put a rear-facing child restraint in the front passenger seat. Here is why:

⚠ 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. Always secure a rear-facing child restraint in a rear seat.

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

Wherever you install it, 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.

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The child restraint must be secured properly in the passenger seat. *Never* put a rear-facing child restraint in this vehicle. Here is why:

⚠ CAUTION:

A child in a rear-facing child restraint can be seriously injured or killed if the 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 this vehicle.

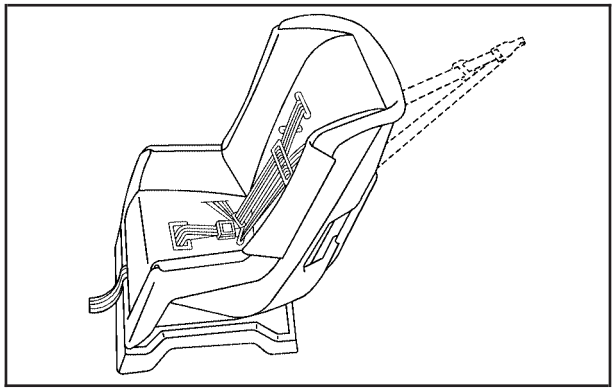
If you need to secure a forward-facing child restraint in the front passenger position, always move the front passenger seat as far back as it will go.

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.

Top Strap

Some child restraints have a top strap, or "top tether." It can help restrain the child restraint during a collision. For it to work, a top strap must be properly anchored to the vehicle. Some top strap-equipped child restraints are designed for use with or without the top strap being anchored. Others require the top strap always to be anchored. Be sure to read and follow the instructions for your child restraint. If yours requires that the top strap be anchored, do not use the restraint unless it is anchored properly.

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



In Canada, the law requires that forward-facing child restraints have a top strap, and that the strap be anchored. In the United States, some child restraints also have a top strap. If your child restraint has a top strap, it should be anchored.

Anchor the top strap to one of the following anchor points. Be sure to use an anchor point located on the same side of the vehicle as the seating position where the child restraint will be placed.

If you have an adjustable head restraint, route the top strap under it.

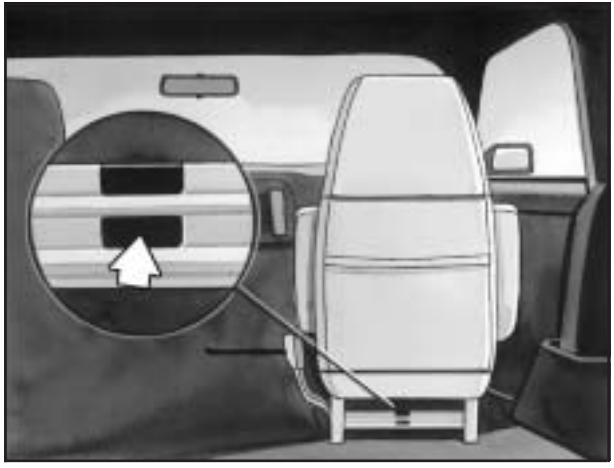
⚠ CAUTION:

Each top tether bracket is designed to anchor only one child restraint. Attaching more than one child restraint to a single bracket could cause the anchor 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 bracket.

Once you have the top strap anchored, you will be ready to secure the child restraint itself. Tighten the top strap when and as the child restraint manufacturer's instructions say.

Top Strap Anchor Location

Cargo Van



Cargo Van

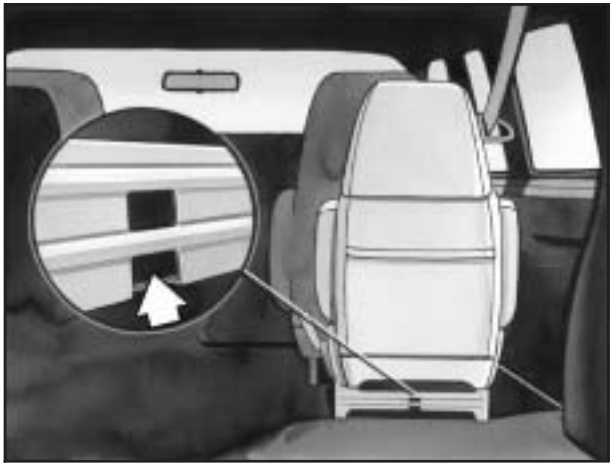
If your vehicle is a cargo van, the anchoring point for a top strap is located at the rear of the seat cushion on the right front passenger's seat spacer bar. Anchor the top strap through the two slots.

⚠ CAUTION:

A child in a rear-facing child restraint can be seriously injured or killed if the 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 this vehicle.

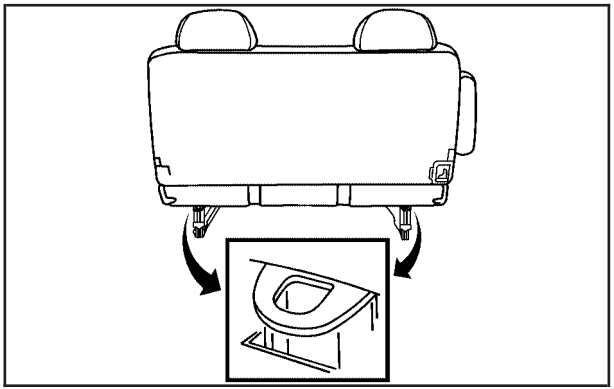
If you need to secure a forward-facing child restraint in the front passenger position, always move the front passenger seat as far back as it will go.

Passenger Van

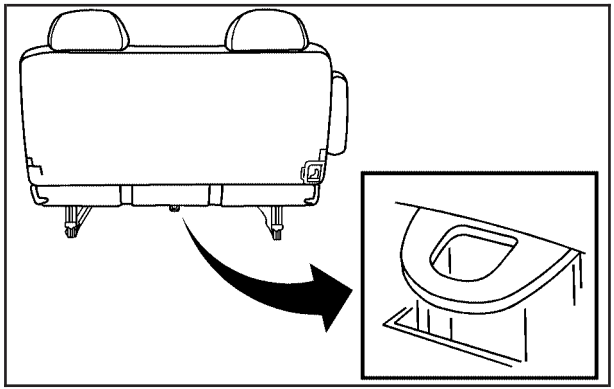


Passenger Van Bucket Seats

Bucket Seats: An anchoring point is located below the rear of the seat cushion on the spacer bar. Anchor the top strap through the two slots on the bar.



Passenger Van Bench Seat (Second Row)



Passenger Van Bench Seat (Third Row)

Bench Seats: An anchor bracket is located at the rear of the seat cushion near the top rear of the seat leg for each outboard seating position of the second row. For the third row, an anchor bracket is located at the rear of the seat cushion of the center seating position.

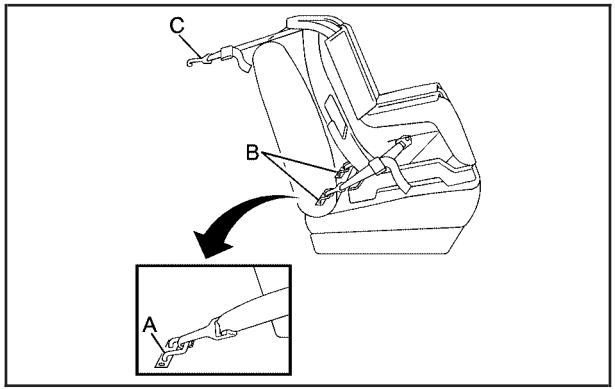
If you have adjustable head restraints, raise the head restraint and route the top strap under it.

Do not secure a child restraint with a top strap in the right front passenger's position, the second row center position, or the third row outside positions if a national or local law requires that the top strap be anchored, or if the instructions that come with the child restraint say that the top strap must be anchored. There is no place to anchor the top strap in these positions.

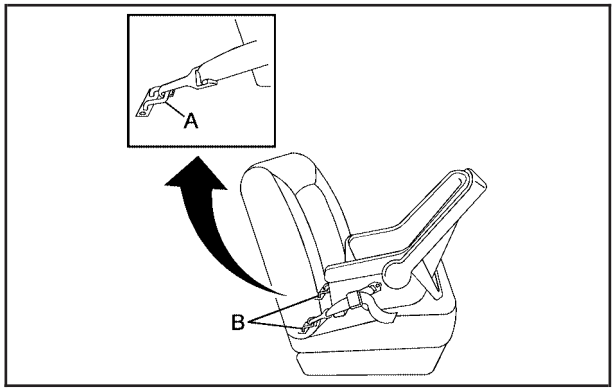
Lower Anchorages and Top Tethers for Children (LATCH System)

If you have a passenger van it has the LATCH system. It has two sets of anchors in the second row of seats. In a seven passenger van, the anchors are located in each of the bucket seats in the second row. In an eight passenger van, the anchors are located in the driver and passenger side seating positions of the second row bench seat.

This system, designed to make installation of child restraints easier, does not use the vehicle's safety belts. Instead, it uses vehicle anchors and child restraint attachments to secure the restraints. Some restraints also use another vehicle anchor to secure a top tether strap.



A. Lower Anchorage
B. Lower Anchorage
C. Top Tether



A. Lower Anchorage
B. Lower Anchorage

In order to use the LATCH system in your vehicle, you need a child restraint designed for that system.

With this system, use the LATCH system instead of the vehicle's safety belts to secure a child restraint.

To assist you in locating the lower anchors for this child restraint system, each seating position with the LATCH system has a visible metal anchorage point in the seat where the seatback meets the seat cushion.

⚠ CAUTION:

If a LATCH-type child restraint is not attached to its anchorage points, 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 anchorage points, 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.

Securing a Child Restraint Designed for the LATCH System

1. Find the LATCH anchorages for the seating position you want to use, where the bottom of the seatback meets the back of the seat cushion. See *Lower Anchorages and Top Tethers for Children (LATCH System) on page 1-54*.
2. Put the child restraint on the seat.
3. Attach and tighten the LATCH attachments on the child restraint to the LATCH anchorages in the vehicle. The child restraint instructions will show you how.
4. If the child restraint is forward-facing, attach and tighten the top tether to the top tether anchorage. The child restraint instructions will show you how. Also see *Top Strap on page 1-50*.
5. Push and pull the child restraint in different directions to be sure it is secure.

To remove the child restraint, simply unhook the top tether from the top tether anchorage and then disconnect the LATCH attachments from the LATCH anchorages.

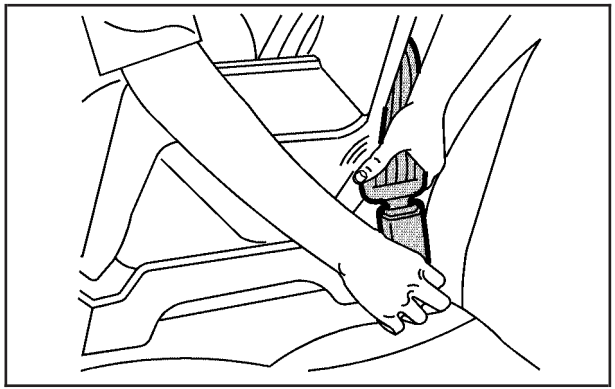
Securing a Child Restraint in a Rear Outside Seat Position

If your child restraint is equipped with the LATCH system, see *Lower Anchorages and Top Tethers for Children (LATCH System) on page 1-54* in the Index. See *Top Strap on page 1-50* if the child restraint has one.

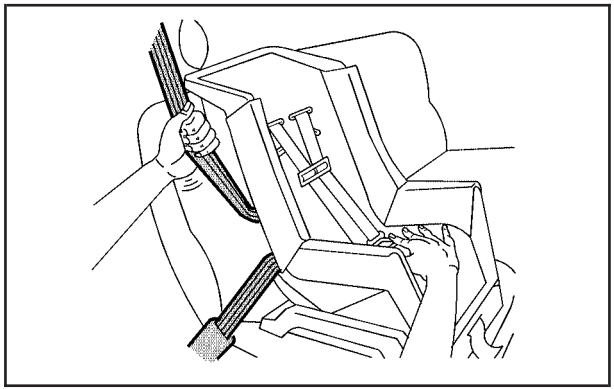
There are no top strap anchors at the third row outside seating positions. Do not secure a child seat in these positions if a national or local law requires that the top strap be anchored, or if the instructions that came with the child restraint say that the top strap must be anchored.

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

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



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



4. 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.
5. Push and pull the child restraint in different directions to be sure it is secure.

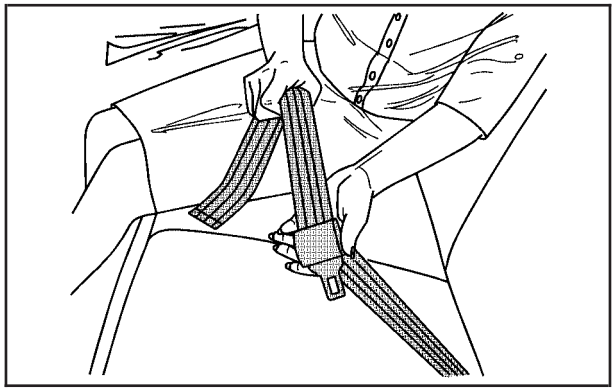
To remove the child restraint, just unbuckle the vehicle's safety belt and let it go back all the way. The safety belt will move freely again and be ready to work for an adult or larger child passenger.

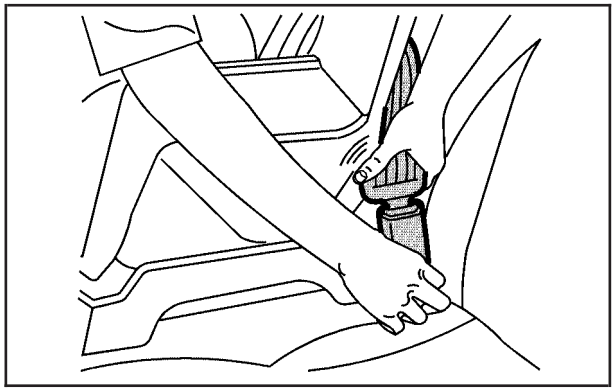
Securing a Child Restraint in a Center Rear Seat Position (Bench Seat)

If your child restraint is equipped with the LATCH system, see *Lower Anchorages and Top Tethers for Children (LATCH System) on page 1-54*. See *Top Strap on page 1-50* if the child restraint has one.

There is no top strap anchor at the second row center seating position. Do not secure a child seat in this position if a national or local law requires that the top strap be anchored, or if the instructions that came with the child restraint say that the top strap must be anchored.

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





1. Make the belt as long as possible by tilting the latch plate and pulling it along the belt.
2. Put the child restraint on the seat.
3. Run 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. To tighten the belt, pull its free end while you push down on the child restraint. 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. Push and pull the child restraint in different directions to be sure it is secure.

To remove the child restraint, just unbuckle the vehicle's safety belt. It will be ready to work for an adult or larger child passenger.

Securing a Child Restraint in the Right Front Seat Position

If your child restraint is equipped with the LATCH system, see *Lower Anchorages and Top Tethers for Children (LATCH System) on page 1-54*.

If your vehicle is a passenger van, there is no top strap anchor in the right front passenger's position. Do not secure a child seat in this position if a national or local law requires that the top strap be anchored, or if the instructions that come with the child restraint say that the top strap must be anchored. See *Top Strap on page 1-50* if the child restraint has one.

Your vehicle has a front passenger airbag. *Never* put a rear facing child restraint in this seat. Here is why:

⚠ CAUTION:

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

CAUTION: (Continued)

CAUTION: (Continued)

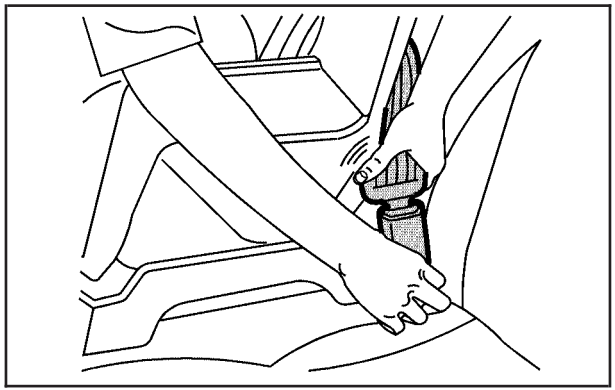
If your vehicle is a passenger van, always secure a rear-facing child restraint in a rear seat. If your vehicle is a cargo van, do not use a rear-facing child restraint in this vehicle.
If you need to secure a forward-facing child restraint in the right front seat, always move the passenger seat as far back as it will go.

A rear seat is a safer place to secure a forward-facing child restraint.

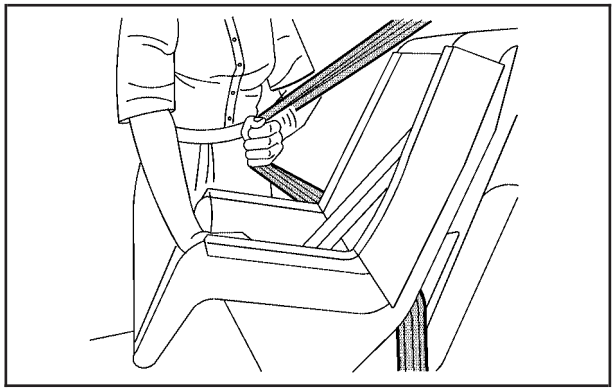
If you need to secure a forward-facing child restraint in the right front seat, you will be using the lap-shoulder belt to secure the child restraint in this position. Be sure to follow the instructions that came with the child restraint. Secure the child in the child restraint when and as the instructions say.

1. Because your vehicle has a right front passenger airbag, always move the seat as far back as it will go before securing a forward-facing child restraint. See *Manual Seats on page 1-3*.
2. Put the child restraint on the seat.

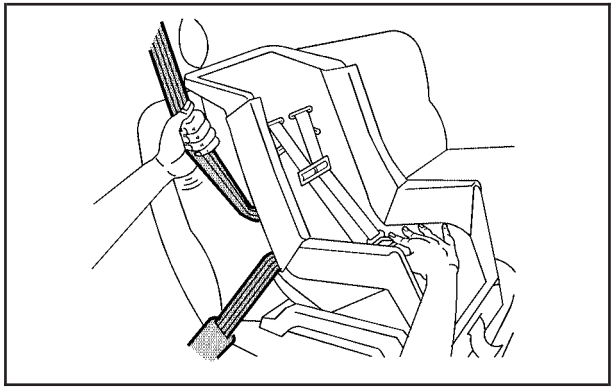
3. Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint. The child restraint instructions will show you how.



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 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. You may find it helpful to use your knee to push down on the child restraint as you tighten the belt.
7. Push and pull the child restraint in different directions to be sure it is secure.

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

Airbag System

Your vehicle has airbags – one airbag for the driver and another airbag for the right front passenger.

Frontal airbags are designed to help reduce the risk of injury from the force of an inflating airbag. But these airbags must inflate very quickly to do their job and comply with federal regulations.

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 designed to work with safety belts, but do not replace them. Airbags are designed to deploy only in moderate to severe frontal and near frontal crashes.
They are not designed to inflate in rollover, rear or low-speed frontal crashes, or in many side crashes. And, for some unrestrained occupants, airbags may provide less protection in frontal crashes than more forceful airbags have provided in the past. Everyone in your vehicle should wear a safety belt properly — whether or not there is an airbag for that person.

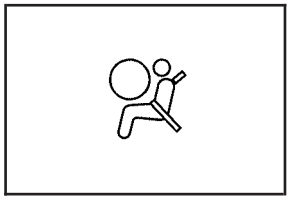
⚠ CAUTION:

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 before and during a crash. Always wear your safety belt, even with airbags. The driver should sit as far back as possible while still maintaining control of the vehicle.

⚠ 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 1-38* and *Infants and Young Children on page 1-40*.

United States



Canada

There is an airbag readiness light on the instrument panel, which shows AIR BAG or 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 3-26* for more information.

Where Are the Airbags?

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

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

⚠ CAUTION:

If something is between an occupant and an airbag, the bag 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.

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.

If the front of your vehicle goes straight into a wall that does not move or deform, the threshold level is about 9 to 16 mph (14 to 26 km/h). (The threshold level can vary, however, with specific vehicle design, so that it can be somewhat above or below this range.)

Airbags may inflate at different crash speeds. For example:

- If the vehicle hits a stationary object, the airbag could inflate at a different crash speed than if the object were moving.
- If the object deforms, the airbag could inflate at a different crash speed than if the object does not deform.
- If the vehicle hits a narrow object (like a pole), the airbag 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 airbag could inflate at a different crash speed than if the vehicle goes straight into the object.

The frontal airbags (driver and right front passenger) are not intended to inflate during vehicle rollovers, rear impacts, or in many side impacts because inflation would not likely help the occupants.

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. Inflation is determined by the angle of the impact and how quickly the vehicle slows down in frontal or near-frontal impacts.

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 inside the steering wheel and in the instrument panel in front of the right front passenger.

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. 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 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 those airbags. 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.

What Will You See After an Airbag Inflates?

After an airbag inflates, it quickly deflates, so quickly that some people may not even realize the airbag inflated. Some components of the airbag module — the steering wheel hub for the driver's airbag, or the instrument panel for the right front passenger's bag — will be hot for a short time. The parts of the bag that come into contact with you may be warm, but not too hot to touch.

There will be some smoke and dust coming from the vents in the deflated airbags. Airbag inflation does not prevent the driver from seeing or being able to steer the vehicle, nor does it stop people from leaving the vehicle.

⚠ CAUTION:

When an airbag inflates, there is 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 can not 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.

- Airbags are designed to inflate only once. After an airbag inflates, you will need some new parts for your 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 is equipped with a crash sensing and diagnostic module which records information after a crash. See *Vehicle Data Collection and Event Data Recorders on page 7-10*.
- Let only qualified technicians work on your airbag system. Improper service can mean that your airbag system will not work properly. See your dealer for service.

Notice: **If you damage the covering for the driver's or the right front passenger's airbag, the bag may not work properly. You may have to replace the airbag module in the steering wheel or both the airbag module and the instrument panel for the right front passenger's airbag. Do not open or break the airbag coverings.**

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 don't want the system to inflate while someone is working on your vehicle. Your dealer and the service manual have information about servicing your vehicle and the airbag system. To purchase a service manual, see *Service Publications Ordering Information on page 7-12*.

⚠ CAUTION:

For up to 10 minutes after the ignition key 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 wires wrapped with yellow tape or 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 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, front end sheet metal or height, 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 on page 7-2*.

Restraint System Check

Checking Your 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.

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.)

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 sever crash, the you need new parts.

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

If your seat adjuster will not work after a crash, the special part of the safety belt that goes through the seat to the adjuster may need to be replaced.

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

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Keys

⚠ CAUTION:

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

This vehicle has one double-sided key for the ignition and door locks. It will fit with either side up.

When a new vehicle is delivered, the dealer provides the owner with a pair of identical keys and a bar-coded tag.

The bar-coded tag has a code on it that tells your dealer or a qualified locksmith how to make extra keys. Keep this tag in a safe place. If you lose your keys, you'll be able to have new ones made easily using this tag.

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.**

If you ever do get locked out of your vehicle, call GM Roadside Assistance Center. See *Roadside Assistance Program on page 7-6*.

Remote Keyless Entry System

If equipped, the keyless entry 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.

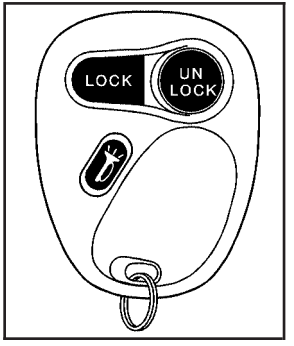
Changes or modifications to this system by other than an authorized service facility could void authorization to use this equipment.

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 System Operation on page 2-4*.
- If you are still having trouble, see your dealer or a qualified technician for service.

Remote Keyless Entry System Operation

If your vehicle has this feature, you can lock and unlock your doors from about 3 feet (1 m) up to 30 feet (9 m) away using the remote keyless entry transmitter supplied with your vehicle.



UNLOCK: Press UNLOCK once for the driver’s door to unlock, the parking lamps to flash and the interior lights to go on.

If you press UNLOCK again within three seconds, all doors will unlock.

LOCK: Press LOCK to lock all the doors. Press LOCK again within three seconds and the horn will chirp.

(Panic Alarm): Press this button for the horn to sound and the headlamps and taillamps to flash for up to 30 seconds. This can be turned off by pressing the panic button again, waiting for 30 seconds, or starting the vehicle.

Matching Transmitter(s) to Your Vehicle

Each remote keyless entry 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 dealer. Remember to bring any remaining transmitters with you when you go to your dealer. When the dealer matches the replacement transmitter to your vehicle, any remaining transmitters must also be matched. Once your dealer has coded the new transmitter, the lost transmitter will not unlock your vehicle. Each vehicle can have a maximum of four transmitters matched to it.

Battery Replacement

Under normal use, the battery in your remote keyless entry transmitter should last about two years.

You can tell the battery is weak if the transmitter won't work at the normal range in any location. If you have to get close to your vehicle before the transmitter works, it's probably time to change the battery.

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, do the following:

1. Insert a thin object like a dime to separate the bottom of the transmitter from the top.
2. Remove the battery and replace it with a new one, making sure the positive (+) side of the battery is facing down. Use one Panasonic® three-volt, type CR2032, or equivalent battery.
3. Snap the top and bottom together.

Doors and Locks

⚠ CAUTION:

Unlocked doors can be dangerous.

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

To unlock your door from the outside, use your key or remote keyless entry transmitter, if equipped. For more information, see *Remote Keyless Entry System Operation on page 2-4*.

To lock or unlock the front doors and sliding side door from the inside, slide the manual lock levers. When the red mark on the lock lever is visible, the door is unlocked.

Power Door Locks

If your vehicle has power door locks, press the power door lock switch located on the door panel to lock or unlock all the doors at once.

The power door lock switch will lock or unlock the rear hatch and Dutch doors. See “Hatch Release” in *Rear Doors on page 2-11*.

When a door is locked, the inside door handle will not open the door. This will help stop a door from being accidentally opened.

If the sliding door is open and you press the power door lock switch, the sliding door will not lock immediately. After you close the door, the system comes on and locks the sliding door in about five seconds.

When the key is in the ignition and the power door lock switch is pressed with a door open, all doors are locked while the driver’s side door remains unlocked.

Programmable Automatic Door Locks

Your vehicle is equipped with an auto lock/unlock feature which enables you to program your power door locks.

Your vehicle left the factory programmed to have all the doors lock automatically when the shift lever is moved out of PARK (P). All of the doors will unlock when the shift lever is moved back into PARK (P). The following instructions detail how to program your door locks.

To enter the program mode you need to do the following:

1. Begin with the ignition in OFF. Then, pull back on the turn signal/multifunction lever all the way toward you and hold it while you perform the next step.
2. Turn your key to RUN and OFF twice. Then, with the key in OFF, release the turn signal/multifunction lever. Once you do this, you will hear the lock switch lock and unlock.

You are now ready to program the automatic door locks. Select one of the following four programming options and follow the instructions. You will have thirty seconds to begin programming. If you exceed the thirty second limit, the locks will automatically lock and unlock to indicate that you have left the program mode. If this occurs, repeat the procedure beginning with Step 1. You can exit the program mode any time by turning the ignition to RUN. The locks will automatically lock and unlock to indicate that you are leaving the program mode. If the lock/unlock switches are not pressed while in the programming mode, the auto lock/unlock setting will not be modified.

The following is a list of the available programming options:

- **All doors lock/Only the driver's door unlocks:** Press the lock side of the power lock switch on the door panel once and then the unlock side once.
- **All doors lock/All doors unlock:** Press the lock side of the power lock switch on the door panel once, and then the unlock side twice.
- **All doors lock/None of the doors unlock:** Press the lock side of the power lock switch on the door panel once, and then the unlock side three times.
- **No doors lock/None of the doors unlock:** Press the lock side of the power lock switch on the door panel twice. This turns off the automatic lock feature.

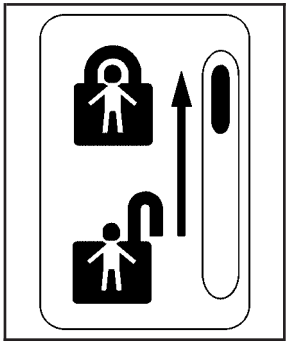
For more information, see your dealer.

Sliding Side Door

To open the sliding side door, pull the handle toward the back and slide the door to the rear until it rests in the open position.

To close the sliding side door, pull the handle toward the front and slide the door forward.

Sliding Door Security Lock



Your vehicle may have this feature. A sliding door security lock helps to prevent young children or other passengers from opening the sliding door using the inside door handle.

The security door lock is located near the front of the sliding door.

There are two labels on your vehicle to remind you that you have this feature. One can be seen from the outside on your sliding door. It is located near the bottom of the door glass, toward the front of the door. The other label is located on the front of the sliding door, near the security door lock.

This feature prevents passengers from opening the sliding side door from the inside.

To use this feature, do the following:

1. Move the lever all the way up.
2. Close the door.

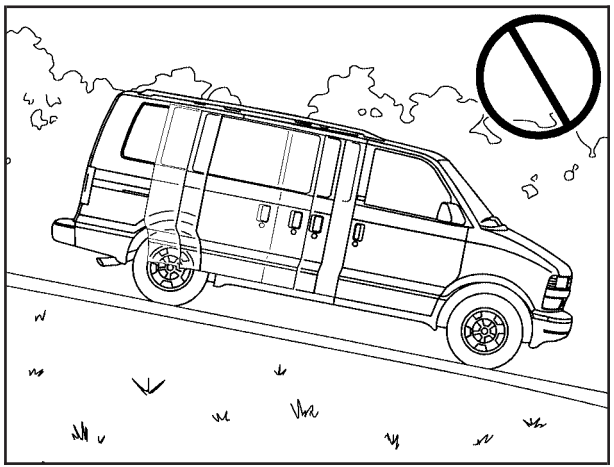
To open the sliding side door while the security lock is engaged, unlock the door and open it from the outside.

If you don't cancel the security lock feature, adults or older children who ride in the rear won't be able to open the sliding door from the inside. You should let adults and older children know how the security door lock works, and how to cancel the lock.

Canceling the Sliding Door Security Lock

To cancel the security lock, do the following:

1. Unlock the door and open it from the outside.
2. Move the lever all the way down.



⚠ CAUTION:

If your vehicle is facing downward on a steep grade (15 percent or more), the door may not stay open and could slam shut, possibly injuring someone. To make sure the door does not slam shut be sure to hold it open until everyone is clear of the door, and only then allow it to slowly close.

Rear Doors

If your vehicle has Dutch doors, you must open the hatch first. See “Hatch Release” later in this section.

Cargo Door Shown

Rear doors can only be opened from the outside. Open the passenger’s side rear door first. Grasp the handle and pull the door open.

To open the driver’s side rear door, pull on the latch release handle located on the inside of the door.

To close the rear doors, close the driver’s side door first. Check to make sure both doors are completely closed

The rear doors have a check assembly to keep the doors from opening beyond 90 degrees.

To fully open the rear doors, push in on the clip and lift the check assembly up off the mounting bracket.

Do this on each door. Replace the check assemblies on the mounting brackets before closing the doors.

⚠ CAUTION:

It can be dangerous to drive with the rear glass 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 rear glass open or if electrical wiring or other cable connections must pass through the seal between the body and the rear glass:

- **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 on page 3-19*.**
- **If you have air outlets on or under the instrument panel, open them all the way.**

See *Engine Exhaust on page 2-26*.

Hatch Release

You can use your key to unlock the hatch and all of the other doors from the outside. Insert the key into the hatch release button and turn it counterclockwise. All of the doors will unlock.

You may also use the remote keyless entry transmitter. See *Remote Keyless Entry System Operation on page 2-4*.

The hatch can be opened or closed without a key if the door lock system is unlocked.

The interior light will not turn on if the rear doors are open.

To open the hatch, unlock it, then press the button and lift the handle located in the center of the door.

To lock the power lock system from the outside, insert the key in the hatch release button and turn it clockwise. All doors will lock.

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.

Manual Windows

To operate your manual windows, turn the hand crank on each door to raise or lower your side door windows.

Power Windows

If you have power windows, the controls are located on each of the front doors. The driver's door also has a switch for the front passenger window. Your power windows will not work unless the ignition is in RUN or ACCESSORY, or unless retained accessory power is active. See *Retained Accessory Power (RAP) on page 2-18*.

Express-Down Window

The driver's window switch also has an express-down feature that allows you to lower the window without holding the switch. Press the down arrow on the driver's window switch marked AUTO briefly to activate the express-down feature. The express-down feature can be interrupted at any time by pressing the up arrow end of the switch. Lightly tap the switch to open the window slightly.

Sun Visors

To block out glare, you can swing down the visors. You can also swing them from side to side. Your visors may have an extension that can be pulled out for additional glare protection.

Visor Vanity Mirror

Lift the mirror cover on each visor to turn the lamps 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.

Passlock®

Your vehicle is equipped with the Passlock® theft-deterrent system.

Passlock® is a passive theft-deterrent system. Passlock® enables fuel if the ignition lock cylinder is turned with a valid key. If a correct key is not used or the ignition lock cylinder is tampered with, fuel is disabled.

During normal operation, the SECURITY light will go off approximately five seconds after the key is turned to RUN. See *Security Light on page 3-34*.

If the engine stalls and the SECURITY light flashes, wait until the light stops flashing before trying to restart the engine. Remember to release the key from START as soon as the engine starts.

If the engine is running and the SECURITY light comes on, you will be able to restart the engine if you turn the engine off. However, your Passlock® system is not working properly and must be serviced by your dealer. Your vehicle is not protected by Passlock® at this time.

You may also want to check the fuse. See *Fuses and Circuit Breakers on page 5-95*. See your dealer for service.

Starting and Operating Your Vehicle

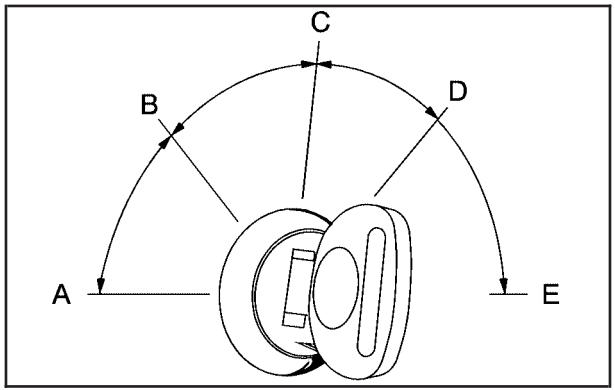
New Vehicle Break-In

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

- **Keep your speed at 55 mph (88 km/h) or less for the first 500 miles (805 km).**
- **Do not drive at any one speed — fast or slow — for the first 500 miles (805 km). Do not make full-throttle starts.**
- **Avoid making hard stops for the first 200 miles (322 km) or so. During this time your new brake linings are not yet broken in. Hard stops with new linings can mean premature wear and earlier replacement. Follow this breaking-in guideline every time you get new brake linings.**
- **Do not tow a trailer during break-in. See *Towing a Trailer on page 4-34* for more information.**

Ignition Positions

With the key in the ignition, you can turn it to five different positions.



A (ACCESSORY): This position lets you use things like the radio, power windows and windshield wipers when the engine is off. To get into ACCESSORY, push in the key and turn it toward you.

Notice: **Lengthy operation of features such as the radio in the accessory ignition position may drain the battery and prevent your vehicle from starting. Do not operate your vehicle in the accessory ignition position for a long period of time.**

B (LOCK): This position locks your ignition and transmission. It is a theft-deterrent feature. You will only be able to remove your key when the ignition is turned to LOCK.

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 all the way in. If it is, turn the steering wheel left and right while you turn the key hard. If none of this works, then your vehicle needs service.**

C (OFF): This position lets you turn off the engine. Use OFF if you must have your vehicle in motion while the engine is off (for example, if your vehicle is being towed).

D (RUN): This is the position for driving.

E (START): This position starts your engine.

Retained Accessory Power (RAP)

Your vehicle is equipped with a Retained Accessory Power (RAP) feature which will allow certain features on your vehicle to continue to work up to 20 minutes after the ignition key is turned to OFF.

Your radio, power windows and overhead console will work when the ignition key is in RUN or ACCESSORY. Once the key is turned from RUN to OFF, these features will continue to work for up to 20 minutes or until a door is opened.

Starting Your Engine

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

Notice: **Do not try to shift to PARK (P) if your vehicle is moving. If you do, you could damage the transmission. Shift to PARK (P) only when your vehicle is stopped.**

1. With your foot off the accelerator pedal, turn the ignition key to START. When the engine starts, let go of the key. The idle speed will go down as your engine gets warm.

Notice: **Holding your key in START for longer than 15 seconds at a time will cause your battery to be drained much sooner. And the excessive heat can damage your starter motor. Wait about 15 seconds between each try to help avoid draining your battery or damaging your starter.**

2. If it does not start within 10 seconds, push the accelerator pedal all the way to the floor, while you hold the ignition key in START. When the engine starts, let go of the key and let up on the accelerator pedal. Wait about 15 seconds between each try.

When starting your engine in very cold weather (below 0°F or –18°C), do this:

1. With your foot off the accelerator pedal, turn the ignition key to START and hold it there up to 15 seconds. When the engine starts, let go of the key.
2. If your engine still will not start, or starts but then stops, it could be flooded with too much gasoline. Try pushing your accelerator pedal all the way to the floor and holding it there as you hold the key in START for about three seconds. When the engine starts, let go of the key and accelerator. If the vehicle starts briefly but then stops again, do the same thing, but this time keep the pedal down for five or six seconds. This clears the extra gasoline from the engine.

Notice: **Your engine is designed to work with the electronics in your vehicle. If you add electrical parts or accessories, you could change the way the engine operates. Before adding electrical equipment, check with your dealer. If you do not, your engine might not perform properly.**

Fuel Regulator

Your vehicle has a fuel regulator that shuts the fuel off when the engine reaches 5,600 rpm.

Engine Coolant Heater

If your vehicle has this feature, in very cold weather, 0°F (–18°C) or colder, the engine coolant heater can help. You will get easier starting and better fuel economy during engine warm-up.

Usually, the coolant heater should be plugged in a minimum of four hours prior to starting your vehicle. At temperatures above 32°F (0°C), use of the coolant heater is not required. 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 on the driver's side of the engine compartment, near the power steering fluid reservoir.
3. Plug it into a normal, grounded 110-volt AC outlet.

⚠ CAUTION:

Plugging the cord into an ungrounded outlet could cause an electrical shock. Also, the wrong kind of extension cord could overheat and cause a fire. You could be seriously injured. Plug the cord into a properly grounded three-prong 110-volt AC outlet. If the cord will not reach, use a heavy-duty three-prong extension cord rated for at least 15 amps.

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

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

Automatic Transmission Operation

There are several different positions for your shift lever.

PARK (P): This position locks your rear wheels. It is the best position to use when you start your 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 2-24*. If you are pulling a trailer, see *Towing a Trailer on page 4-34*.

Ensure the shift lever is fully in PARK (P) before starting the engine. Your vehicle has an automatic transmission shift lock control system. You have to fully apply your regular brakes before you can shift from PARK (P) when the ignition key is in RUN. If you cannot shift out of PARK (P), ease pressure on the shift lever – push the shift lever all the way into PARK (P) as you maintain brake application. Then move the shift lever into the gear you wish. See *Shifting Out of Park (P) on page 2-25*.

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

Notice: **Shifting to REVERSE (R) while your vehicle is moving forward could damage the transmission. 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 transmission, see *If You Are Stuck: In Sand, Mud, Ice or Snow on page 4-27*.

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

⚠ CAUTION:

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

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

DRIVE (D): This position is for normal driving. If you need more power for passing, and you are:

- Going less than about 35 mph (55 km/h), push your accelerator pedal about halfway down.
- Going about 35 mph (55 km/h) or more, push the accelerator pedal all the way down. You will shift down to the next gear and have more power.

DRIVE (D) should be used for normal towing.

THIRD (3): This position is also used for normal driving, however it offers more power and lower fuel economy than DRIVE (D). You should use THIRD (3) when carrying a heavy load or driving on steep hills.

SECOND (2): This position gives you more power but lower fuel economy. You can use SECOND (2) on hills. It can help control your speed as you go down steep mountain roads, but then you would also want to use your brakes off and on.

If you manually select SECOND (2), the transmission will drive in second gear. You may use this feature for reducing torque to the rear wheels when you are trying to start your vehicle from a stop on slippery road surfaces.

FIRST (1): This position gives you even more power (but lower fuel economy) than SECOND (2). You can use it on very steep hills, or in deep snow or mud. If the shift selector lever is put in FIRST (1), the transmission will not shift into first gear until the vehicle is going slow enough.

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

Tow/Haul Mode

Your vehicle is equipped with a tow/haul button. The button is located on the end of the column shift lever. You can use this feature to assist when towing or hauling a heavy load.

To select the tow/haul mode, press in the button. The TOW/HAUL light on the instrument panel cluster will come on. To go back to normal operation, press the button again. The indicator light on the instrument panel cluster will go out. See *Tow/Haul Mode Light on page 3-35* for more information.

All-Wheel Drive

If your vehicle has all-wheel drive, your engine's driving power is sent to all four wheels for extra traction when needed.

This is like four-wheel drive, but there is no separate lever or switch to engage or disengage the front axle. It is fully automatic, and adjusts itself as needed for road conditions.

You may experience a brief vehicle vibration upon acceleration when driving in slippery conditions. This is normal and is an indication that the all-wheel drive system is functioning properly.

Parking Brake

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

Push down the parking brake pedal with your left foot. If the ignition is on, the brake system warning light will come on.

To release the parking brake, hold the regular brake pedal down. Pull the brake release lever located on the lower left side of the steering column.

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

If you are towing a trailer and are parking on a hill, see *Towing a Trailer on page 4-34*. That section shows what to do first to keep the trailer from moving.

Shifting Into Park (P)

⚠ CAUTION:

It can be dangerous to get out of your vehicle if the shift lever is not fully in PARK (P) with the parking brake firmly set. Your vehicle can roll. If you have left the engine running, the vehicle can move suddenly. You or others could be injured. To be sure your vehicle will not move, even when you are on fairly level ground, use the steps that follow. If you are pulling a trailer, see *Towing a Trailer on page 4-34*.

1. Hold the brake pedal down with your right foot and set the parking brake with your left foot.
2. Move the shift lever into PARK (P) by pulling the shift lever toward you and moving it up as far as it will go.
3. Turn the ignition key to LOCK.
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 you leave it. After you move 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 pulling it toward you. If you can, it means that the shift lever was not fully locked into PARK (P).

Torque Lock

If you are parking on a hill and you do not shift your vehicle into PARK (P) properly, the weight of the vehicle may put too much force on the parking pawl in the transmission. You may find it difficult to pull the shift lever out of 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 2-24*.

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 may need to have another vehicle push yours a little uphill to take some of the pressure from the parking pawl in the transmission, so you can pull the shift lever out of PARK (P).

Shifting Out of Park (P)

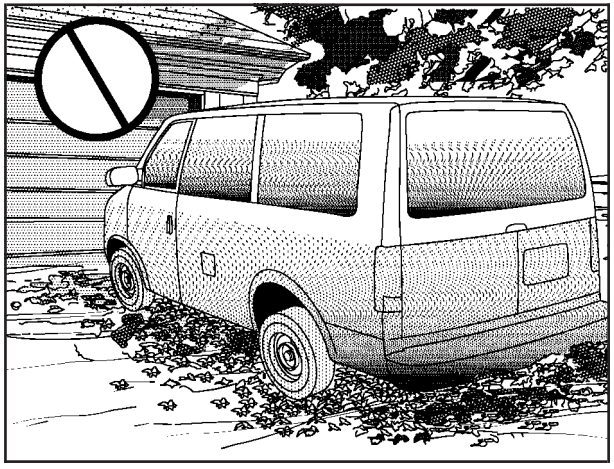
Your vehicle has an automatic transmission shift lock control system. You have to fully apply your regular brakes before you can shift from PARK (P) when the ignition is in RUN. See *Automatic Transmission Operation on page 2-20*.

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

If you ever hold the brake pedal down but still cannot shift out of PARK (P), try this:

1. Turn the key to OFF.
2. Apply and hold the brake until the end of Step 4.
3. Shift to NEUTRAL (N).
4. Start the vehicle and then shift to the drive gear you want.
5. Have the system fixed as soon as you can.

Parking Over Things That Burn



⚠ CAUTION:

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

Engine Exhaust

⚠ CAUTION:

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

You might have exhaust coming in if:

- **Your exhaust system sounds strange or different.**
- **Your vehicle gets rusty underneath.**
- **Your vehicle was damaged in a collision.**
- **Your vehicle was damaged when driving over high points on the road or over road debris.**
- **Repairs were not done correctly.**
- **Your vehicle or exhaust system had 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 Your Engine While You Are Parked

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

⚠ CAUTION:

Idling the engine with the climate control system off could allow dangerous exhaust into your vehicle. See the earlier caution under *Engine Exhaust on page 2-26*.

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 4-23*.

⚠ CAUTION:

It can be dangerous to get out of your vehicle if the shift lever is not fully in PARK (P) with the parking brake firmly set. Your vehicle can roll. Do not leave your vehicle when the engine is running unless you have to. If you have left the engine running, the vehicle can move suddenly. You or others could be injured. To be sure your vehicle will not move, even when you are on fairly level ground, always set your parking brake 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 2-24*.

If you are pulling a trailer, see *Towing a Trailer on page 4-34*.

Mirrors

Manual Rearview Mirror

You can adjust the mirror for day or night driving. Press the tab forward (away from you) for day driving. Pull the tab back (toward you) for night driving.

Outside Manual Mirror

Adjust your outside rearview mirrors so you can see a little of the side of your vehicle and the area beside and behind your vehicle, from a comfortable driving position.

You can fold the mirrors inward before entering a car wash. Pull the mirrors toward the vehicle. Push the mirrors back out when finished. After pushing the mirror out, the adjustment will be maintained.

Outside Power Mirrors

Your vehicle may have this feature.

To adjust the outside rearview mirror, move the selector switch in the middle of the control to L for the driver's side mirror or to R for the passenger's side mirror. Then use the arrows located on the four-way control pad to move the mirror in the desired direction. To make sure you do not accidentally move a mirror, return the selector switch to the middle position (off) after adjusting the mirrors.

Outside Convex Mirror

Your passenger's side mirror is convex. A convex mirror's surface is curved so you can see more from the driver's seat.

⚠ CAUTION:

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

HomeLink® Transmitter

HomeLink,® a combined universal transmitter and receiver, provides a way to replace up to three hand-held transmitters used to activate devices such as gate operators, garage door openers, entry door locks, security systems and home lighting. Additional HomeLink,® information can be found on the internet at www.homelink.com or by calling 1-800-355-3515.

If your vehicle is equipped with the HomeLink® Transmitter, it complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (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, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

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

Programming the HomeLink® Transmitter

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

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

Keep the original transmitter for use in other vehicles as well as for future HomeLink® programming. It is also recommended that upon the sale of the vehicle, the programmed HomeLink® buttons should be erased for security purposes. Refer to “Erasing HomeLink® Buttons” or, for assistance, contact HomeLink® on the internet at: www.homelink.com or by calling 1-800-355-3515.

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

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

Programming HomeLink®

Your vehicle’s engine should be turned off while programming the transmitter. Follow these steps to program up to three channels:

1. Press and hold down the two outside buttons, releasing only when the indicator light begins to flash, after 20 seconds. Do not hold down the buttons for longer than 30 seconds and do not repeat this step to program a second and/or third transmitter to the remaining two HomeLink® buttons.

2. Position the end of your hand-held transmitter about 1 to 3 inches (3 to 8 cm) away from the HomeLink® buttons while keeping the indicator light in view.
3. Simultaneously press and hold both the desired button on HomeLink® and the hand-held transmitter button. Do not release the buttons until Step 4 has been completed.

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

   If the indicator light stays on constantly, programming is complete and your device should activate when the HomeLink® button is pressed and released.

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

   If the indicator light blinks rapidly for two seconds and then turns to a constant light, continue with Steps 6 through 8 following to complete the programming of a rolling-code equipped device (most commonly, a garage door opener).
6. Locate in the garage, the garage door opener receiver (motor-head unit). Locate the “Learn” or “Smart” button. This can usually be found where the hanging antenna wire is attached to the motor-head unit.
7. Firmly press and release the “Learn” or “Smart” button. The name and color of the button may vary by manufacturer.

   You will have 30 seconds to start Step 8.
8. Return to the vehicle. Firmly press and hold the programmed HomeLink® button for two seconds, then release. Repeat the press/hold/release sequence a second time, and depending on the brand of the garage door opener (or other rolling code device), repeat this sequence a third time to complete the programming.

   HomeLink® should now activate your rolling-code equipped device.

To program the remaining two HomeLink® buttons, begin with Step 2 of “Programming HomeLink®.” You do not want to repeat step 1, as this will erase all previous programming.

Gate Operator and Canadian Programming

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

If you live in Canada, or you are having difficulty programming a gate operator by using the “Programming HomeLink®” procedures (regardless of where you live), replace Step 3 under “Programming HomeLink®” with the following:

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

Using HomeLink®

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

Erasing HomeLink® Buttons

To erase programming from the three buttons do the following:

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

HomeLink® is now in the train (learning) mode and can be programmed at any time beginning with Step 2 under “Programming HomeLink®” shown earlier in this section.

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

Reprogramming a Single HomeLink® Button

To program a device to HomeLink® using a HomeLink® button previously trained, follow these steps:

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

Resetting Defaults

To reset HomeLink® to default settings do the following:

1. Hold down the two outside buttons for about 20 seconds until the indicator light begins to flash.
2. Continue to hold both buttons until the HomeLink® indicator light turns off.
3. Release both buttons.

For questions or comments, contact HomeLink® at 1-800-355-3515, or on the internet at www.homelink.com.

Storage Areas

Your front storage compartment/glove box is at the center of the engine cover. To open the compartment, press the two tabs together and pull.

If you have rear storage compartments, pull up on the lid to open the cover.

There is also a map/storage pocket on the passenger's side of the engine cover console.

Overhead Console

Your vehicle may have this feature.

The overhead console includes reading lamps, a compartment for a garage door opener, a trip computer, a temperature and compass display, and a storage compartment for sunglasses.

The reading lamps, trip computer, temperature and compass display will work when the ignition is in RUN, ACCESSORY or when Retained Accessory Power (RAP) is active. See “Retained Accessory Power” under *Retained Accessory Power (RAP) on page 2-18*.

Reading Lamps

Your vehicle may have this feature.

Press the button near each lamp to turn the reading lamps on and off.

The lamps can also be swiveled to point in the direction you want.

Installing a Garage Door Opener

If you have a garage door opener, the front overhead compartment can be used to conveniently store the opener.

1. To install the garage door opener, first open the compartment door by pressing the latch forward.

2. Peel the protective backing from the hook and loop patch.

3. Press it firmly to the back of your garage door opener, as close to the center of the opener as possible.

4. Center the garage door opener activation button over the console door button and press the opener firmly into place.

The pegs inside the compartment door are used to make sure the button on the compartment door will contact the control button on the garage door opener.

5. Add one peg at a time until the garage door opener operates with the compartment door closed when you press the button. Adjust the position of the garage door opener and add or remove pegs as needed, until the opener operates properly.

6. Now, with the compartment door closed, press the button again to make sure the garage door opener operates properly.

With the garage door opener positioned properly and the right number of pegs in place, you can press the button to operate the opener.

Your vehicle may be equipped with a HomeLink® Transmitter. For more information, see *Programming the HomeLink® Transmitter on page 2-30*.

Sunglasses Storage Compartment

The overhead console has a sunglasses storage compartment.

Luggage Carrier

If you have a luggage carrier, you can load things on top of your vehicle.

The luggage carrier has side rails and crossrails attached to the roof to secure cargo.

Be sure the cargo is properly loaded. Follow these guidelines:

- Carrying small, heavy loads on the roof is not recommended.
- Tie the load to the side rails. Use the crossrails only to keep the load from sliding.
- If you need to carry long items, tie the load to the side rails. Also tie the load to the bumpers. Do not tie the load so tightly that the crossrails or side rails are damaged.
- After moving the crossrails, be sure to tighten all the slider screws.
- For the purpose of wind noise reduction, locate the front and rear crossrails in line with the two center supports.

Notice: **Loading cargo on the luggage carrier that weighs more than 200 lbs (91 kg) or hangs over the rear or sides of the vehicle may damage your vehicle. Load cargo so that it rests on the slats as far forward as possible and against the side rails, making sure to fasten it securely.**

Don't exceed the maximum vehicle capacity when loading your vehicle. For more information on vehicle capacity and loading, see *Loading Your Vehicle on page 4-28*.

To prevent damage or loss of cargo as you're driving, check now and then to make sure the luggage carrier and cargo are still securely fastened.

Convenience Net

You may have a convenience net in the rear of your vehicle 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.

You can unhook the net so that it will lie flat when you're not using it.

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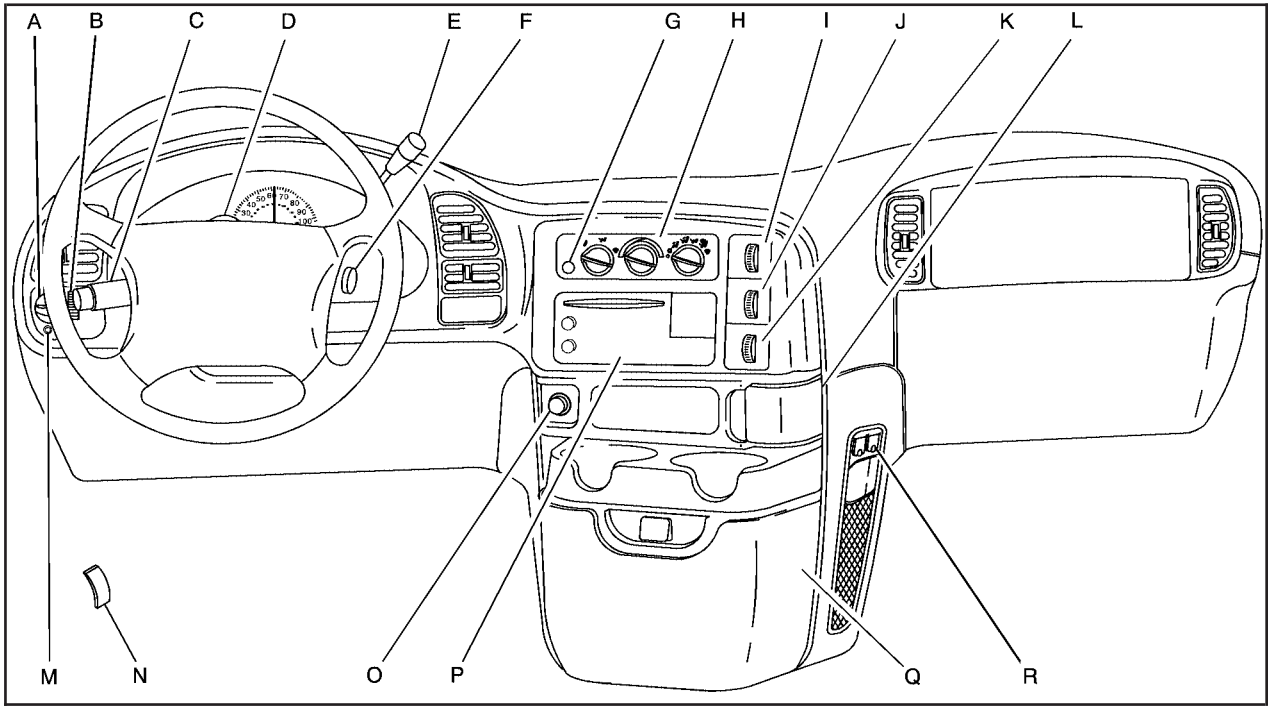
NOTES

Instrument Panel Overview



The main components of your instrument panel are the following:

A. Exterior Lamps. See *Exterior Lamps on page 3-14*.

B. Instrument Panel Brightness Control. See *Instrument Panel Brightness on page 3-16*.

C. Turn Signal/Multifunction Lever. See *Turn Signal/Multifunction Lever on page 3-7*.

D. Hazard Warning Flasher Button. See *Hazard Warning Flashers on page 3-6*.

E. Shift Lever. See *Automatic Transmission Operation on page 2-20*.

F. Ignition Switch. See *Ignition Positions on page 2-17*.

G. Rear Defogger Button. See *Climate Control System on page 3-19*.

H. Climate Control System. See *Climate Control System on page 3-19*.

I. Rear Air Conditioning Control. See *Rear Air Conditioning System on page 3-22*.

J. Rear Heater Control. See *Rear Heating System on page 3-21*.

K. Rear Window Washer/Wiper Switch. See *Turn Signal/Multifunction Lever on page 3-7*.

L. Ashtray. See *Ashtrays and Cigarette Lighter on page 3-18*.

M. Dome Override Button. See *Dome Lamps on page 3-16*.

N. Hood Release. See *Hood Release on page 5-11*.

O. Cigarette Lighter. See *Ashtrays and Cigarette Lighter on page 3-18*.

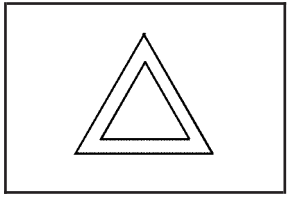
P. Audio System(s). See *Audio System(s) on page 3-39*.

Q. Front Storage Compartment. See *Storage Areas on page 2-33*.

R. Accessory Power Outlets. See *Accessory Power Outlets on page 3-17*.

Hazard Warning Flashers

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



The hazard warning flasher button is located on top of the steering column.

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

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

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

Other Warning Devices

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

Horn

Press the horn symbol in the middle of the steering wheel to sound the horn.

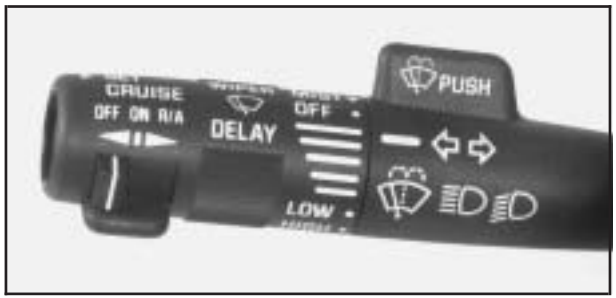
Tilt Wheel

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

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

To tilt the wheel, hold the steering wheel and pull the lever. Move the steering wheel to a comfortable level, then release the lever to lock the wheel in place.

Turn Signal/Multifunction Lever



The lever on the driver's side of the steering column includes the following:

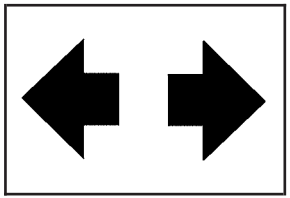
- Turn and Lane Change Signals. See *Turn Signal/Multifunction Lever on page 3-7*.
- Headlamp High/Low-Beam Changer. *Headlamp High/Low-Beam Changer on page 3-8*.
- Flash-to-Pass. See *Flash-to-Pass on page 3-8*.
- Windshield Wipers. See *Windshield Wipers on page 3-9*.
- Windshield Washer. See *Windshield Washer on page 3-10*.
- Cruise Control (Option). See *Cruise Control on page 3-11*.

For information on the exterior lamps, see *Exterior Lamps on page 3-14*.

Turn and Lane-Change Signals

The turn signal has two upward (for right) and two downward (for left) positions. These positions allow you to 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 will return automatically.



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

To signal a lane change, just raise or lower the lever until the arrow starts to flash. Hold it there until you complete your lane change. The lever will return by itself when you release it.

As you signal a turn or a lane change, if the arrows flash faster, a signal bulb may be burned out and other drivers will not see your turn signal.

If a bulb is burned out, replace it to help avoid an accident. If the arrows don't go on at all when you signal a turn, check for burned-out bulbs and a blown fuse. See *Fuses and Circuit Breakers on page 5-95*.

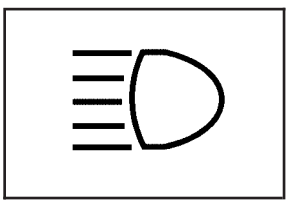
If you have a trailer towing option with added wiring for the trailer lamps, a different turn signal flasher is used. With this flasher installed, the signal indicator will flash even if a turn signal bulb is burned out. Check the front and rear turn signal lamps regularly to make sure they are working.

Turn Signal On Chime

If your turn signal is left on for more than 3/4 of a mile (1.2 km), a chime will sound at each flash of the turn signal. To turn off the chime, move the turn signal lever to the center position.

Headlamp High/Low-Beam Changer

To change the headlamps from low beam to high or high to low, pull the multifunction lever all the way toward you. Then release it.



When the high beams are on, this indicator light located on the instrument panel cluster also will be on.

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. It works even if your headlamps are in automatic.

To use it, pull the turn signal lever toward you, but not so far that you hear a click.

If your headlamps are in automatic or on low beam, your high-beam headlamps will turn on. They will stay on as long as you hold the lever toward you and the high-beam indicator located on the cluster comes on. Release the lever to return to normal operation.

Windshield Wipers

To operate the windshield wipers, turn the band, located on the multifunction lever, upward or downward.

MIST: Turn the band to MIST for a single wiping cycle. Hold it there until the windshield wipers start, then let it go. The wipers will stop after one wipe. If you want more wipes, hold the band on mist longer.

OFF: Turn the band to turn off the windshield wipers.

LOW (Low Speed): Turn the band to LOW for steady wiping at low speed.

HIGH (High Speed): Turn the band to HIGH for steady wiping at high speed.

DELAY: Turn the band to one of the five delay settings located between OFF and LOW, to choose the delayed wiping cycle. The closer the band is turned to OFF, the shorter the delay will be. For fewer wipes, choose a setting closer to LOW. Use this setting for light rain and snow.

Be sure to clear ice and snow from the wiper blades before using them. If they're frozen to the windshield, carefully loosen or thaw them. If your blades do become worn or damaged, get new blades or blade inserts.

Windshield Washer

(Washer Fluid): There is a paddle marked with the windshield washer symbol at the top of the multifunction lever. To spray washer fluid on the windshield, push the paddle. The wipers will clear the window and then either stop or return to your preset speed.

⚠ 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.

The wipers will clear the window and then either stop or return to your preset speed.

Rear Window Washer/Wiper

Your vehicle may have this feature. The rear window washer/wiper is controlled by using the switch located on the instrument panel, next to the audio system.

To turn the wiper on, slide the switch all the way up to ON.

For delay wiping, slide the switch up to the center position next to the word DELAY on the rear wiper control. The wiper will cycle every nine seconds.

To wash the window, push in on the switch. Window washer fluid will continue to spray until the switch is released. The wiper will continue with three more wipes and then return to the setting that was chosen before the lever was pushed.

Move the switch to OFF to turn off the rear window washer.

The rear window washer uses the same fluid bottle as the front windshield washer. If the fluid level is low in the washer bottle, you may not be able to wash your rear window. If you can wash your windshield, but not your rear window, check the fluid level.

Cruise Control

Your vehicle may have this feature. With cruise control, you can 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 about 25 mph (40 km/h).

When you apply your brakes, the cruise control shuts off.

⚠ CAUTION:

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

Cruise control can be dangerous on slippery roads. On such roads, fast changes in tire traction can cause needless wheel spinning, 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.

1. Move the cruise control switch to ON.
2. Get up to the speed you want.

3. Press in the SET button at the end of the lever and release it.
4. Take your foot off the accelerator pedal.

Resuming a Set Speed

Suppose you set your cruise control at a desired speed and then you apply the brake. This, of course, shuts off the cruise control. But you don't need to reset it.

Once you're going about 25 mph (40 km/h) or more, you can move the cruise control switch from ON to R/A (Resume/Acclerate) briefly.

You'll go right back up to your chosen speed and stay there.

If you hold the switch at R/A, the vehicle will keep going faster until you release the switch or apply the brake. So unless you want to go faster, don't hold the switch at R/A.

Increasing Speed While Using Cruise Control

There are two ways to go to a higher speed:

- Use the accelerator pedal to get to the higher speed. Press the button at the end of the lever, then release the button and the accelerator pedal. You'll now cruise at the higher speed.
- Move the cruise switch from ON to R/A. Hold it there until you get up to the speed you want, and then release the switch. To increase your speed in very small amounts, move the switch to R/A briefly. Each time you do this, your vehicle will go about 1 mph (1.6 km/h) faster.

Reducing Speed While Using Cruise Control

There are two ways to reduce your speed while using cruise control:

- Press the button at the end of the lever until you reach the lower speed you want, then release it.
- To slow down in very small amounts, press the button briefly. Each time you do this, you'll go about 1 mph (1.6 km/h) slower.

Passing Another Vehicle While Using Cruise Control

Use the accelerator pedal to increase your speed. When you take your foot off the pedal, your vehicle will slow down to the cruise control speed you set earlier.

Using Cruise Control on Hills

How well your cruise control will work on hills depends upon your speed, load and the steepness of the hills. When going up steep hills, you may want to step on the accelerator pedal to maintain your speed. When going downhill, you may have to brake or shift to a lower gear to keep your speed down. Of course, applying the brake takes you out of cruise control. Many drivers find this to be too much trouble and don't use cruise control on steep hills.

Ending Cruise Control

There are two ways to turn off the cruise control:

- Step lightly on the brake pedal.
- Move the cruise switch to OFF.

Erasing Speed Memory

When you turn off the cruise control or the ignition, your cruise control set speed memory is erased.

Exterior Lamps

The exterior lamp control is located on the driver's side of the instrument panel.

The exterior lamp control has three positions:

(Off): Turning the control to this position turns off all lamps except the Daytime Running Lamps (DRL).

(Parking Lamps): Turning the control to this position turns on the parking lamps, together with the following:

- Sidemarker Lamps
- Taillamps
- License Plate Lamps
- Instrument Panel Lights
- Ashtray Lamp

(Headlamps): Turning the control to this position turns on the headlamps, together with the previously listed lamps and lights.

Headlamps on Reminder

A reminder tone will sound when your headlamps or parking lamps are manually turned on and your ignition is in OFF, LOCK or ACCESSORY. To disable the tone, turn the instrument panel brightness thumbwheel all the way down. In the automatic mode, the headlamps turn off once the ignition key is in OFF.

Daytime Running Lamps (DRL)

Daytime Running Lamps (DRL) can make it easier for others to see the front of your vehicle during the day. DRL can be helpful in many different driving conditions, but they can be especially helpful in the short periods after dawn and before sunset. Fully functional daytime running lamps are required on all vehicles first sold in Canada.

The DRL system will make your headlamps come on at a reduced brightness when the following conditions are met:

- The ignition is on,
- the exterior lamp control is off,
- the automatic transmission is not in PARK (P),
- the light sensor determines it is daytime, and
- the parking brake is released.

When the DRL are on, only your DRL lamps will be on. The taillamps, sidemarker and other lamps won't be on. Your instrument panel won't be lit up either.

When it begins to get dark, the automatic headlamp system will switch from DRL to the headlamps or the last chosen headlamp setting that was used.

To idle your vehicle with the DRL off, put the transmission in PARK (P). The DRL will stay off until you shift out of PARK (P).

The following does not apply to vehicles first sold in Canada.

When necessary, you may turn off the automatic headlamp system and the Daytime Running Lamps (DRL) feature by following the steps below:

1. Turn the ignition to RUN.
2. Press the DOME OVERRIDE button four times within six seconds. After the fourth press of the button, a chime will sound informing you that the system is off.

To return to the automatic mode, push the DOME OVERRIDE button four times within six seconds (the chime will sound), or turn the ignition to off and then to RUN again.

As with any vehicle, you should turn on the regular headlamp system when you need it.

Automatic Headlamp System

When it is dark enough outside, your automatic headlamp system will turn on your 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 dim.

Your vehicle is equipped with a light sensor on the top of the instrument panel in the defroster grille. Be sure it is not covered, or the system will be on whenever the ignition is on.

The system may also turn on your headlamps when driving through a parking garage, heavy overcast weather or a tunnel. This is normal.

There is a delay in the transition between the daytime and nighttime operation of the Daytime Running Lamps (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 system will only be affected when the light sensor sees a change in lighting lasting longer than the delay.

To idle your vehicle with the automatic headlamp system off, set the parking brake while the ignition is off. Then start your vehicle. The automatic headlamp system will stay off until you release the parking brake.

You may be able to turn off your automatic headlamp system. See *Daytime Running Lamps (DRL) on page 3-15* for more information.

As with any vehicle, you should turn on the regular headlamps when you need them.

Instrument Panel Brightness

The thumbwheel for this feature is located to the right of the exterior lamps control. Turn the thumbwheel up to brighten the lights or down to dim them.

Moving the thumbwheel up to the first position will activate the interior dome lamps.

Dome Lamps

The dome lamps will come on when you open a door. The dome lamps will not come on if only the rear door is opened.

Press the DOME OVERRIDE button in to cancel automatic operation of the dome lamps. The button is located near the exterior lamp control. Press the button again to return it to the out position for normal operation.

You can also turn the dome lamps on by turning the thumbwheel, located next to the exterior lamp control, all the way up. In this position, the dome lamps will remain on whether a door is opened or closed.

You can use the DOME OVERRIDE button to set the dome lamps to come on automatically when a door is opened, or to remain off. To turn the lamps off, press the button into the in position, the dome lamps will remain off when a door is open. To return the lamps to automatic operation, press the button again and return it to the out position. With the button in this position, the dome lamps will come on when you open a door.

Entry Lighting

Your vehicle is equipped with an illuminated entry feature.

When a door is opened, the dome lamps will come on if the DOME OVERRIDE button is in the out position. The dome lamps will not come on when the Dutch, or rear doors are opened. When all the doors are closed, the lamps will stay on for a short period of time and will then go out. If the DOME OVERRIDE button is pressed in, the lamps will not come on.

Exit Lighting

With exit lighting, the interior lamps will come on when you remove the key from the ignition. The interior lamps will not come on if the DOME OVERRIDE button is pressed in.

Battery Run-Down Protection

This feature shuts off the dome, courtesy, vanity, reading and glove box lights if they are left on for more than 20 minutes when the ignition is off. This will keep your battery from running down.

If the battery run-down protection shuts off the interior lamps, it may be necessary to do one of the following to return to normal operation:

- Shut off all lamps and close all doors, or
- turn the ignition key to RUN.

Accessory Power Outlets

You can plug accessory electrical equipment into an accessory power outlet. Just pull on the outlet cover to remove it and follow the proper installation instructions that are included with any electrical equipment that you install.

The accessory power outlet is located on the passenger's side of the front storage compartment.

These circuits are protected by a fuse and have maximum current levels.

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

Notice: **Leaving electrical equipment on for extended periods will drain the battery. Always turn off electrical equipment when not in use and do not plug in equipment that exceeds the maximum amperage rating.**

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.**

Ashtrays and Cigarette Lighter

The cigarette lighter is on the left of the engine cover console.

To use the lighter, press it in all the way and let go. When it's done heating, it will pop back out by itself.

Notice: **Holding a cigarette lighter in while it is heating will not allow the lighter to back away from the heating element when it is hot. Damage from overheating may occur to the lighter or heating element, or a fuse could be blown. Do not hold a cigarette lighter in while it is heating. Do not use anything other than the cigarette lighter in the heating element.**

Notice: **Leaving electrical equipment on for extended periods will drain the battery. Always turn off electrical equipment when not in use and do not plug in equipment that exceeds the maximum amperage rating.**

The front ashtray is located above the passenger's side front cupholder. To remove the front ashtray, open it and gently pull it slightly past its stop.

To remove the ashtray on the sliding door, open it, then press down on the inside tab and pull it out.

You may have another ashtray on the driver's sidewall. Press the right side to turn the ashtray around for use. To remove the ashtray, open it and gently pull it off the hinge.

Notice: **If you put papers or other flammable items in the ashtray, hot cigarettes or other smoking materials could ignite them and possibly damage your vehicle. Never put flammable items in the ashtray.**

Climate Controls

Climate Control System

With this system you can control the heating, cooling and ventilation for your vehicle.

Turn the right knob clockwise or counterclockwise to direct the airflow inside of your vehicle.

To change the current mode, select one of the following:

(Bi-Level): This mode directs approximately half of the air to the instrument panel outlets and directs most of the remaining air to the floor outlets. Some air may be directed toward the windshield.

(Vent): This mode directs air to the instrument panel outlets.

(Floor): This mode directs most of the air to the floor outlets with some air directed to the outboard outlets (for the side windows) and some air directed to the windshield.

A/C (Air Conditioning): This setting brings in outside air, cools and dehumidifies it.

MAX A/C (Maximum Air Conditioning): This setting cools the air the fastest, by recirculating the inside air.

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

(Fan): Turn the left knob clockwise or counterclockwise to increase or decrease the fan speed.

Temperature Control: Turn the center knob clockwise or counterclockwise to increase or decrease the temperature inside your vehicle.

Defogging and Defrosting

Turn the right knob to select the defog or defrost mode.

(Floor/Defog): With this setting, the outside air comes out of both the floor and defroster outlets. Adjust the temperature knob for warmer or cooler air. The air conditioning compressor may operate in this setting to dehumidfy the air.

(Defrost): This setting operates the defroster. Most of the air comes out near the windshield, with some going to the floor outlets and front side windows. The air conditioning compressor may operate in this setting to dehumidify the air.

The bi-level setting is useful for cold weather with a large number of passengers or very humid conditions to help keep the windshield clear. Use defrost to remove fog or ice from the windshield quickly in extremely cold conditions. The temperature knob should be in the red area and the fan control toward high.

Rear Window Defogger

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

The rear window defogger will only work when the ignition is in RUN.

Press this button to turn the rear window defogger on or off. Be sure to clear as much snow from the window as possible.

The rear window defogger will turn off several minutes after the button is pressed. If turned on again, the defogger will run for several more minutes before turning off. The defogger can also be turned off by pressing the button again or by turning off the engine.

Notice: **Using a razor blade or sharp object to clear the inside rear window may damage the rear window defogger. Repairs would not be covered by your warranty. Do not clear the inside of the rear window with sharp objects.**

Outlet Adjustment

Move the thumbwheel in the center of the outlets up or down to change the direction of airflow.

Operation Tips

- Clear away any ice, snow or leaves from the air inlets at the base of the windshield that may block the flow of air into your vehicle.
- Use of non-GM approved hood deflectors may adversely affect the performance of the system.
- Keep the path under the front seats clear of objects to help circulate the air inside of your vehicle more effectively.

Rear Heating System

Your vehicle may have a rear heating system that allows you to adjust the amount of air flowing into the rear of the vehicle, from the front seating area. This feature works with the main climate control system in your vehicle.

The thumbwheel for this system is located to the right of the audio system.

Turn the thumbwheel up or down to increase or decrease the amount of heated air sent to the rear seating area.

Rear Air Conditioning System

Your vehicle may have a rear air conditioning system that allows you to adjust the fan speed in the rear seating area, from the front seating area. This feature works with the main climate control system in your vehicle.

The thumbwheel for this system is located to the right of the controls for the climate control system.

Turn the thumbwheel up or down to increase or decrease the amount of cooled air sent to the rear seating area.

To direct the airflow to the rear seating area, use the right knob located on the main climate control panel.

Generally the upper outlets are used for air conditioning and the floor outlets are used for heating.

(Fan): Move the thumbwheel up or down to HIGH, MED (Medium) or LOW to increase or decrease the fan speed in the rear seating area. Move the thumbwheel to OFF to turn off the fan.

To increase or decrease the temperature for the entire vehicle, use the center knob located on the main climate control panel.

The air conditioning system on the main climate control panel must be turned on to direct cooled air to the rear of the vehicle. If it is not on, then the temperature in the rear of the vehicle will remain at cabin temperature.

Be sure to keep the area under the front seats clear of any objects so that the air inside of your vehicle can circulate effectively.

For information on how to use the main climate control system, see *Climate Control System on page 3-19*. For information on ventilation, see *Outlet Adjustment on page 3-21*.

Warning Lights, Gages, and Indicators

This part describes the warning lights and gages that may be on your vehicle. The pictures will help you locate them.

Warning lights and gages can signal that something is wrong before it becomes serious enough to cause an expensive repair or replacement. Paying attention to your warning lights and gages could also save you or others from injury.

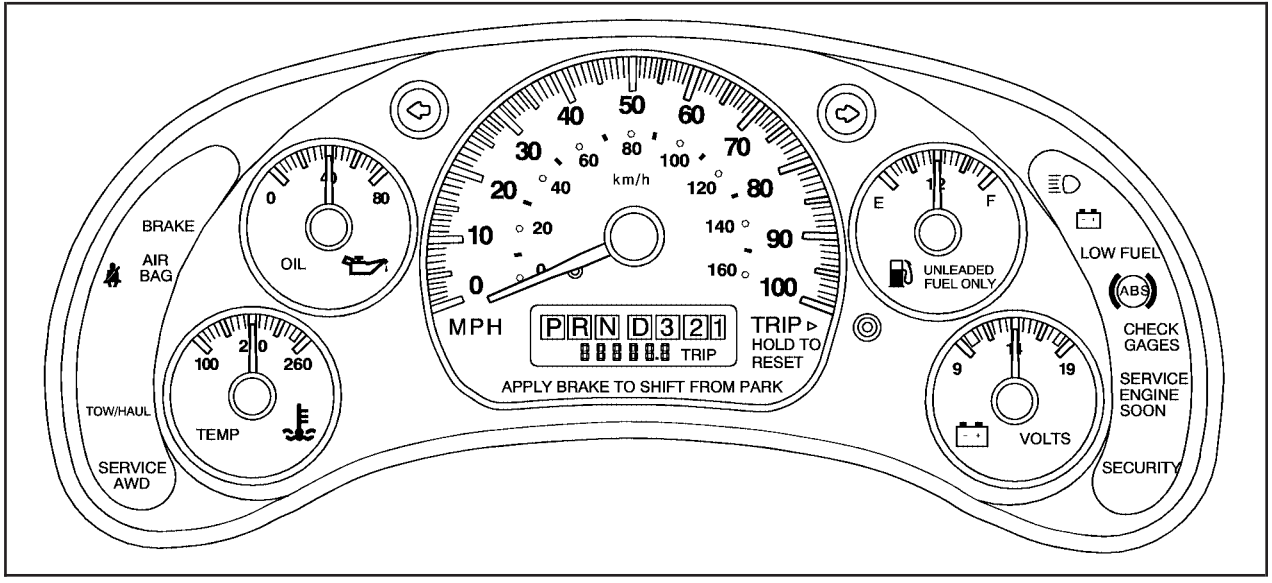
Warning lights come on when there may be or is a problem with one of your vehicle's functions. As you will see in the details on the next few pages, some warning lights come on briefly when you start the engine just to let you know they're working. If you are familiar with this section, you should not 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's a problem with your vehicle.

When one of the warning lights comes on and stays on when you are driving, or when one of the gages shows there may be a problem, check the section that tells you what to do about it. Please follow this manual's advice. Waiting to do repairs can be costly – and even dangerous. So please get to know your warning lights and gages. They're 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'll know how fast you're going, about how much fuel you've used, and many other things you'll need to know to drive safely and economically.



United States version shown, Canada similar

Speedometer and Odometer

Your speedometer lets you see your speed in both miles per hour (mph) and kilometers per hour (km/h).

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's 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 your vehicle has been driven since you last set the trip odometer to zero.

The trip odometer will appear in place of your regular odometer when you press the TRIP button.

To reset the trip odometer, press and hold the TRIP button. To change back to the regular odometer, press the TRIP button again.

Safety Belt Reminder Light

When the key is turned to RUN or START, a tone will come on to remind people to fasten their safety belts, unless the driver's safety belt is already buckled.

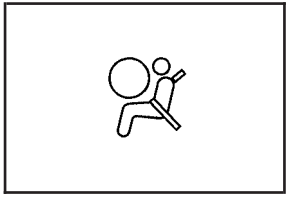
The safety belt light will also come on and stay on for several seconds, then it will flash for several more.

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

Airbag Readiness Light

There is an airbag readiness light on the instrument panel, which shows AIR BAG or 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 airbag modules, the wiring and the crash sensing and diagnostic module. For more information on the airbag system, see *Airbag System on page 1-63*.

United States



Canada

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.

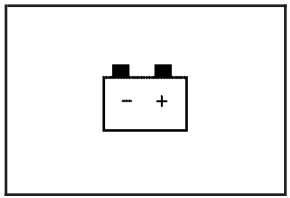
If the airbag readiness light stays on after you start the vehicle or comes on when you are driving, your airbag system may not work properly. Have your vehicle serviced right away.

⚠ 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 RUN. If the light doesn't come on then, have it fixed so it will be ready to warn you if there is a problem.

Charging System Light

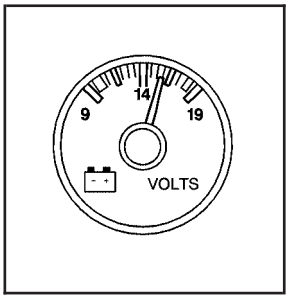


This light should come on briefly when you turn on the ignition, before starting the engine, as a check to show you it is working.

After the engine starts, the light should go out. If it stays on or comes on while you are driving, you may have a problem with your charging system. It could indicate a problem with the generator drive belt, or some other charging system problem. Have it checked right away. Driving while this light is on could drain your battery.

If you must drive a short distance with this light on, it helps to turn off all your accessories, such as the radio and air conditioner.

Voltmeter Gage



When your engine is not running, but the ignition is on (in the RUN position), the gage shows your battery's state of charge in DC volts.

When the engine is running, the gage shows the condition of the charging system. Readings between the low and high warning zones indicate the normal operating range.

Readings in the low warning zone may occur when a large number of electrical accessories are operating in the vehicle and the engine is left at an idle for an extended period. This condition is normal since the charging system is not able to provide full power at engine idle. As engine speeds are increased, this condition should correct itself as higher engine speeds allow the charging system to create maximum power.

You can only drive for a short time with the readings in either warning zone. If you must drive, turn off all unnecessary accessories.

Readings in either warning zone indicate a possible problem in the electrical system. Have the vehicle serviced as soon as possible.

Brake System Warning Light

When the ignition is on, the brake system warning light will come on when you set your parking brake. The light will stay on if your parking brake doesn't release fully. If it stays on after your parking brake is fully released, it means you have a brake problem.

Your vehicle's hydraulic brake system is divided into two parts. If one part isn't working, the other part can still work and stop you. For good braking, though, you need both parts working well.

If the warning light comes on, there could be a brake problem. Have your brake system inspected right away.

BRAKE

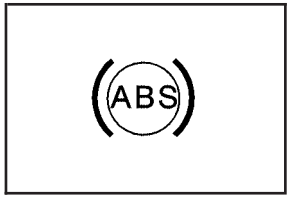
This light should come on briefly when you turn the ignition key to RUN. If it doesn't come on then, have it fixed so it will be ready to warn you if there's a problem.

If the light comes on while you are driving, pull off the road and stop carefully. You may notice that the pedal is harder to push. Or, the pedal may go closer to the floor. It may take longer to stop. If the light is still on, have the vehicle towed for service. See *Towing Your Vehicle on page 4-33*.

⚠ CAUTION:

Your brake system may not be working properly if the brake system warning light is on. Driving with the brake system warning light on can lead to an accident. If the light is still on after you have pulled off the road and stopped carefully, have the vehicle towed for service.

Anti-Lock Brake System Warning Light

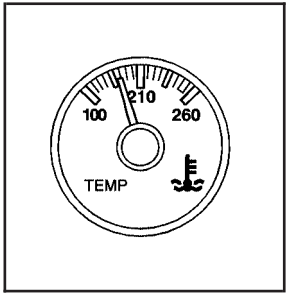


With the anti-lock brake system, this light will come on when you start your engine and may stay on for several seconds. That's normal.

If the light stays on, or comes on when you're driving, your vehicle needs service. If the regular brake system warning light isn't on, you still have brakes, but you don't have anti-lock brakes. If the regular brake system warning light is also on, you don't have anti-lock brakes and there's a problem with your regular brakes. See "Brake System Warning Light" earlier in this section.

The anti-lock brake system warning light should come on briefly when you turn the ignition key to RUN. If the light doesn't come on then, have it fixed so it will be ready to warn you if there is a problem.

Engine Coolant Temperature Gage



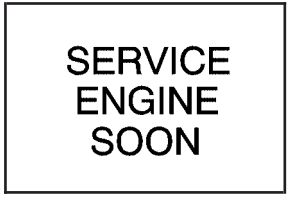
This gage shows the engine coolant temperature. If the gage pointer moves to the red area, your engine is too hot!

It means that your engine coolant has overheated. If you have been operating your vehicle under normal driving conditions, you should pull off the road, stop your vehicle and turn off the engine as soon as possible.

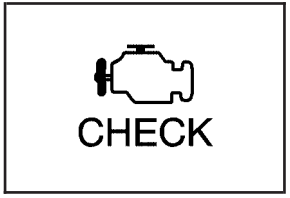
See *Engine Overheating on page 5-28*.

Malfunction Indicator Lamp

Service Engine Soon Light in the United States or Check Engine Light in Canada



United States



Canada

Your vehicle is equipped with a computer which monitors operation of the fuel, ignition, and emission control systems.

This system is called OBD II (On-Board Diagnostics-Second Generation) and is intended to assure that emissions are at acceptable levels for the life of the vehicle, helping to produce a cleaner environment. The SERVICE ENGINE SOON or CHECK ENGINE light comes on and a chime will sound to indicate that there is a problem and service is required.

Malfunctions often will be indicated by the system before any problem is apparent. This may prevent more serious damage to your vehicle. This system is also designed to assist your service technician in correctly diagnosing any malfunction.

Notice: **If you keep driving your vehicle with this light on, after awhile, your emission controls may not work as well, your fuel economy may not be as good, and your engine may not run as smoothly. This could lead to costly repairs that may not be covered by your warranty.**

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

This light should come on, as a check to show you it is working, when the ignition is on and the engine is not running. If the light does not come on, have it repaired. This light will also come on during a malfunction in one of two ways:

- **Light Flashing** — A misfire condition has been detected. A misfire increases vehicle emissions and may damage the emission control system on your vehicle. Diagnosis and service may be required.
- **Light On Steady** — An emission control system malfunction has been detected on your vehicle. Diagnosis and service may be required.

If the Light Is Flashing

The following may prevent more serious damage to your vehicle:

- Reducing vehicle speed
- Avoiding hard accelerations
- Avoiding steep uphill grades
- If you are towing a trailer, reduce the amount of cargo being hauled as soon as it is possible

If the light stops flashing and remains on steady, see “If the Light Is On Steady” following.

If the light continues to flash, when it is safe to do so, stop the vehicle. Find a safe place to park your vehicle. Turn the key off, wait at least 10 seconds and restart the engine. If the light remains on steady, see “If the Light Is On Steady” following. If the light is still flashing, follow the previous steps, and see your dealer for service as soon as possible.

If the Light Is On Steady

You may be able to correct the emission system malfunction by considering the following:

Did you recently put fuel into your vehicle?

If so, reinstall the fuel cap, making sure to fully install the cap. See *Filling Your Tank on page 5-8*. The diagnostic system can determine if the fuel cap has been left off or improperly installed. A loose or missing fuel cap will allow fuel to evaporate into the atmosphere. A few driving trips with the cap properly installed should turn the light off.

Did you just drive through a deep puddle of water?

If so, your electrical system may be wet. The condition will usually be corrected when the electrical system dries out. A few driving trips should turn the light off.

Have you recently changed brands of fuel?

If so, be sure to fuel your vehicle with quality fuel. See *Gasoline Octane on page 5-5*. Poor fuel quality will cause your engine not to run as efficiently as designed. You may notice this as stalling after start-up, stalling when you put the vehicle into gear, misfiring, hesitation on acceleration, or stumbling on acceleration. (These conditions may go away once the engine is warmed up.) This will be detected by the system and cause the light to turn on.

If you experience one or more of these conditions, change the fuel brand you use. It will require at least one full tank of the proper fuel to turn the light off.

If none of the above steps have made the light turn off, your dealer can check the vehicle. Your dealer has the proper test equipment and diagnostic tools to fix any mechanical or electrical problems that may have developed.

Emissions Inspection and Maintenance Programs

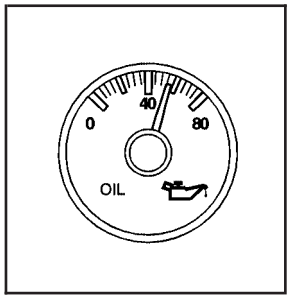
Some state/provincial and local governments have or may begin programs to inspect the emission control equipment on your vehicle. Failure to pass this inspection could prevent you from getting a vehicle registration.

Here are some things you need to know to help your vehicle pass an inspection:

Your vehicle will not pass this inspection if the SERVICE ENGINE SOON or CHECK ENGINE light is on or not working properly.

Your vehicle will not pass this inspection if the OBD (on-board diagnostic) system determines that critical emission control systems have not been completely diagnosed by the system. The vehicle would be considered not ready for inspection. This can happen if you have recently replaced your battery or if your battery has run down. The diagnostic system is designed to evaluate critical emission control systems during normal driving. This may take several days of routine driving. If you have done this and your vehicle still does not pass the inspection for lack of OBD system readiness, your GM dealer can prepare the vehicle for inspection.

Oil Pressure Gage



The oil pressure gage shows the engine oil pressure in psi (pounds per square inch) when the engine is running.

Canadian vehicles indicate pressure in kPa (kilopascals). Oil pressure may vary with engine speed, outside temperature and oil viscosity, but readings above the low pressure zone indicate the normal operating range.

A reading in the low pressure zone may be caused by a dangerously low oil level or other problems causing low oil pressure.

⚠ 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.**

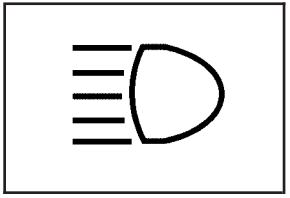
Security Light

This light will come on briefly when you turn the ignition key to START.

The light will stay on until the engine starts. If the light flashes, the Passlock® System has entered a tamper mode. If the vehicle fails to start, see *Passlock® on page 2-16*.

If the light comes on continuously while driving and stays on, there may be a problem with the Passlock® System. Your vehicle will not be protected by Passlock®, and you should see your GM dealer.

Highbeam On Light



This light will illuminate when the headlamp high beams are in use.

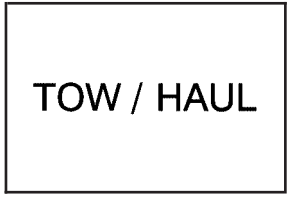
See *Headlamp High/Low-Beam Changer on page 3-8*.

Service All-Wheel Drive Light

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

The SERVICE AWD light comes on to indicate that there may be a problem with the drive system and service is required. Malfunctions can be indicated by the system before any problem is apparent, which may prevent serious damage to the vehicle. This system is also designed to assist your service technician in correctly diagnosing a malfunction.

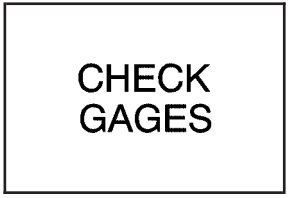
Tow/Haul Mode Light



This light should come on when the tow/haul mode has been selected.

For more information, see “Tow/Haul Mode” in *Towing a Trailer on page 4-34*.

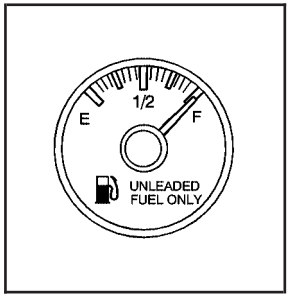
Check Gages Warning Light



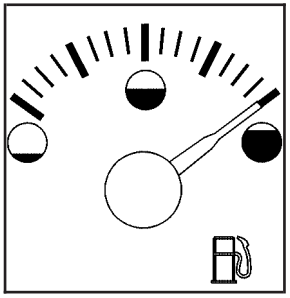
The CHECK GAGES light will come on briefly when you are starting the engine.

If the light comes on and stays on while you are driving, check your coolant temperature and engine oil pressure gages to see if they are in the warning zones.

Fuel Gage



United States



Canada

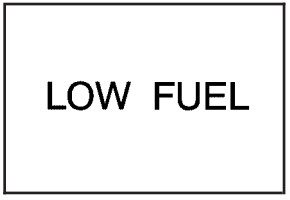
The fuel gage tells you approximately how much fuel you have remaining when the ignition is on.

When the gage first indicates empty, you still have a little fuel left, but you should get more fuel as soon as possible.

Here are things some owners ask about. None of these indicate a problem with your fuel gage:

- At the gas station, the gas pump shuts off before the gage reads full.
- The fuel tank will take either a little more or a little less fuel to fill up than the gage shows.
- The gage moves a little when you turn a corner or speed up.
- The gage doesn't go back to empty when you turn off the ignition.

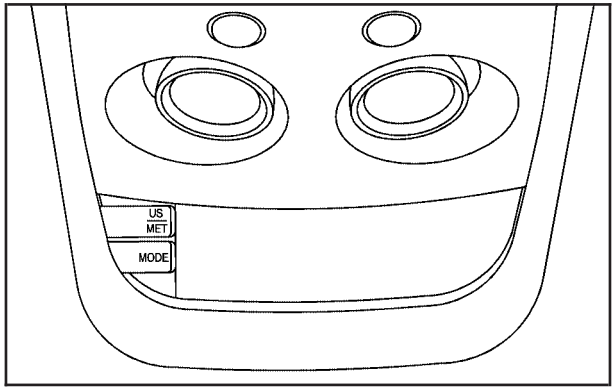
Low Fuel Warning Light



The LOW FUEL light will come on briefly when you are starting the engine.

This light comes on when the fuel tank is low on fuel. To turn it off, add fuel to the fuel tank. See *Fuel on page 5-5*.

Driver Information Center (DIC)



Your vehicle may have a Driver Information Center (DIC) located on the overhead console. This DIC displays the outside air temperature, compass direction and trip information in the overhead console. The temperature, compass display and trip computer will work when the ignition is in RUN or ACCESSORY or when Retained Accessory Power (RAP) is active. See *Retained Accessory Power (RAP) on page 2-18*.

US/MET (United States/Metric) Button

The US/MET button allows you to switch the display between the English and metric system.

MODE Button

The MODE button can be used to toggle between three modes of operation: OFF, COMP/TEMP and TRIP.

OFF: No driver information is displayed in this mode of operation.

COMP/TEMP (Compass/Temperature): This display provides the outside temperature and one of eight compass readings to indicate the direction the vehicle is facing.

Before you turn on the ignition and move the vehicle, the temperature indicated will be the last outside temperature recorded with the ignition on. If the outside temperature is 37°F (3°C) or lower, the display will toggle between the word ICE and the current temperature every eight seconds. This is a warning to the driver that road conditions may be icy, and that appropriate precautions should be taken.

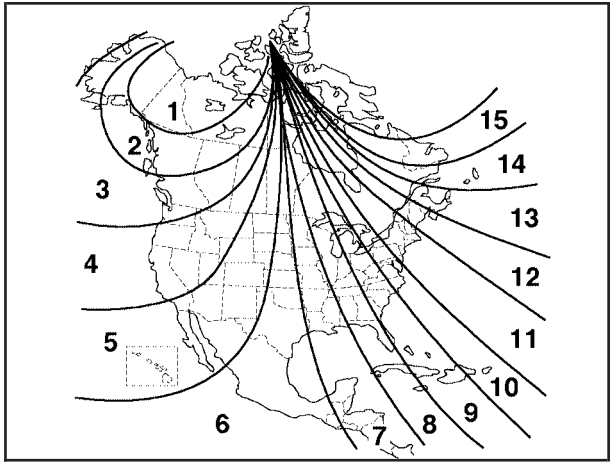
See “Compass Variance” later in this section for more information.

TRIP: In the TRIP mode, pressing the MODE button cycles through the five TRIP displays. See “Trip Computer” later in this section for more information.

Compass Variance

Variance is the difference between magnetic north and geographic north. In some areas, the difference between the two can be great enough to cause false compass readings. If this happens, follow these instructions to set the variance for your particular location:

Setting the Variance



1. Find your location on the zone map. Record your zone number.
2. Press and hold both the US/MET and the MODE buttons while in the COMP/TEMP mode.
3. After five seconds, the compass will acknowledge the variation mode by displaying the current zone number. When it does, release both buttons.
4. Press US/MET until your zone number appears on the display.
5. Press MODE to enter your zone number. Your variance is now set and the display will return to the COMP/TEMP mode.

Automatic Compass Calibration

The compass is self-calibrating, so it does not need to be manually set. However, if C (Calibration) is displayed, the compass will need to be calibrated. You may also place the compass in a noncalibrated mode by pressing and holding the US/MET and MODE buttons simultaneously while in the COMP/TEMP mode. After about 10 seconds, the compass will display C and you can release the buttons. Drive the vehicle in a complete 360° circle three times at a speed of less than 5 mph (8 km/h), and the compass will function normally. Once the calibration is complete, the display will return to a compass reading.

Trip Computer

There are five trip computer displays available by pushing the MODE button. The information will appear in the following order:

AVG ECON (Average Economy): This display shows the average fuel economy since the last reset.

INST ECON (Instantaneous Economy): This display shows fuel economy for the most recent second of driving.

RANGE: This display shows the estimated distance that can be traveled with the remaining fuel. The fuel economy used to calculate range is based on the last few hours of driving.

FUEL USED: This display shows the accumulated fuel used since the last reset.

AVG SPEED (Average Speed): This display shows the average speed since the last reset.

Resetting the Trip Computer

To reset the trip computer, press the MODE and US/MET buttons simultaneously for at least two seconds. All functions will be displayed briefly once the system is reset. Reset can only be performed in the AVG ECON, FUEL USED and AVG SPEED modes. All three modes are reset simultaneously.

Audio System(s)

Notice: **Before adding any sound equipment to your vehicle, like a tape player, CB radio, mobile telephone, or two-way radio, make sure that it can be added by checking with your dealer. Also, check federal rules covering mobile radio and telephone units. If sound equipment can be added, it is very important to do it properly. Added sound equipment may interfere with the operation of your vehicle's engine, radio, or other systems, and even damage them. Your vehicle's systems may interfere with the operation of sound equipment that has been added improperly.**

Figure out which audio system is in your vehicle, find out what your audio system can do, and how to operate all of its controls.

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 2-18* for more information.

Setting the Time for Radios with the Set Button

Press and release the SET button. Within five seconds, press and hold the left SEEK arrow until the correct hour appears on the display. Press and hold the right SEEK arrow until the correct minute appears on the display.

Setting the Time for Radios with HR and MN Buttons

Press and hold HR until the correct hour appears on the display. Press and hold MN until the correct minute appears on the display. To display the time with the ignition off, press RECALL, HR, or MN and the time will appear on the display for a few seconds. There is an initial two-second delay before the clock goes into the time-set mode.

AM-FM Radio

Playing the Radio

Power: Turn the VOLUME knob to turn the system on and off.

VOLUME: Turn this knob to increase or to decrease the volume.

RECALL: Press this knob to switch the display between the radio station frequency and the time. When the ignition is off, press this knob to display the time.

Finding a Station

AM-FM: Press this knob to switch between FM1, FM2, and AM. The display will show the selection.

TUNE: Turn this knob to select radio stations.

◁ **SEEK** ▷ **:** Press the right or the left arrow to go to the next or to the previous station and stay there.

The radio will only seek stations with a strong signal that are in the selected band.

◁ **SCAN** ▷ **:** Press both SCAN arrows at the same time. SCAN will appear on the display. The radio will go to the next station, play for a few seconds, then go on to the next station. Press the RECALL knob or either SCAN arrow to stop scanning.

The radio will only scan stations with a strong signal that are in the selected band.

Setting Preset Stations

Up to 21 stations (seven FM1, seven FM2, and seven AM) can be programmed on the four numbered pushbuttons, by performing the following steps:

1. Turn the radio on.
2. Press AM-FM to select FM1, FM2, or AM.
3. Tune in the desired station.
4. Press SET. SET will appear on the display.
5. Press one of the four pushbuttons within five seconds. Whenever that numbered pushbutton is pressed, the station that was set will return.
6. Repeat the steps for each pushbutton.

In addition to the four stations already set, up to three more stations may be preset on each band by pressing two adjoining pushbuttons at the same time and by performing the following steps:

1. Tune in the desired station.
2. Press SET. SET will appear on the display.
3. Press two adjoining pushbuttons at the same time, within five seconds. Whenever you press the same two pushbuttons, the station you set will return.
4. Repeat the steps for each pushbutton.

Setting the Tone (Bass/Treble)

BASS: Slide this lever up or down to increase or to decrease bass.

TREB (Treble): Slide this lever up or down to increase or to decrease treble. If a station is weak or noisy, decrease the treble.

Adjusting the Speakers (Balance/Fade)

BAL (Balance): Turn the control ring behind the upper knob to move the sound toward the left or the right speakers.

FADE: Turn the control ring behind the lower knob to move the sound toward the front or the rear speakers.

Radio with CD

Playing the Radio

PWR (Power): Press this knob to turn the system on and off.

VOL (Volume): Turn this knob to increase or to decrease the volume. The knob is capable of rotating continuously.

RECALL: Press this button to switch the display between the radio station frequency and the time. When the ignition is off, press this button to display the time.

SCV (Speed-Compensated Volume): With SCV, the audio system adjusts automatically to make up for road and wind noise as you drive.

Set the volume at the desired level. Turn the control ring behind the upper knob clockwise to increase the SCV. Each notch on the control ring allows for more volume compensation at faster vehicle speeds. Then, as you drive, SCV automatically increases the volume, as necessary, to overcome noise at any speed. The volume level should always sound the same to you as you drive. To turn SCV off, turn the control all the way down.

Finding a Station

AM FM: Press this button to switch between FM1, FM2, and AM. The display will show the selection.

TUNE: Press this knob lightly so it extends. Turn it to select radio stations. Push the knob back into its stored position when you are not using it.

◁ **SEEK** ▷ **:** Press the right or the left arrow to go to the next or previous station and stay there.

To scan stations, press and hold either SEEK arrow for two seconds until SCAN appears on the display. The radio will go to a station, play for a few seconds, then go on to the next station. Press either SEEK arrow again to stop scanning.

The radio will only seek and scan stations with a strong signal that are in the selected band.

P.SCAN (Preset Scan): Press this button and the radio will go to the first preset station stored on the pushbuttons, play for a few seconds then go on to the next preset station. P.SCAN will appear on the display. Press this button again or one of the pushbuttons to stop scanning presets.

The radio will only scan the preset stations with a strong signal that are in the selected band.

Setting Preset Stations

Up to 18 stations (six FM1, six FM2, and six AM), can be programmed on the six numbered pushbuttons, by performing the following steps:

1. Turn the radio on.
2. Press AM FM to select FM1, FM2, or AM.
3. Tune in the desired station.
4. Press AUTO TONE to select the equalization.
5. Press and hold one of the six numbered pushbuttons. The sound will mute. When it returns, release the pushbutton. Whenever that numbered pushbutton is pressed, the station that was set will return and the equalization that was selected will be stored for that pushbutton.
6. Repeat the steps for each pushbutton.

Setting the Tone (Bass/Treble)

BASS: Press this knob lightly so it extends. Turn the knob to increase or to decrease the bass.

TREB (Treble): Press this knob lightly so it extends. Turn the knob to increase or to decrease the treble. If a station is weak or noisy, decrease the treble.

Return these knobs to their stored positions when you are not using them.

AUTO TONE (Automatic Tone): Press this knob to select customized equalization settings designed for country/western, jazz, talk, pop, rock, and classical.

To return the bass and treble to the manual mode, either press and release the AUTO TONE button until the display goes blank or press and release the BASS or TREB knobs and turn them until the display goes blank.

Adjusting the Speakers (Balance/Fade)

BAL (Balance): Press this knob lightly so it extends. Turn the knob to move the sound toward the right or the left speakers.

FADE: Press this knob lightly so it extends. Turn the knob to move the sound toward the front or the rear speakers.

Return these knobs to their stored positions when you are not using them.

Playing a CD

Insert a CD partway into the slot, label side up. The player will pull it in and the CD should begin playing. If you want to insert a CD when the ignition is off, first press the EJECT button. If you insert a CD with the radio off and the ignition on, it will start to play.

If the ignition or radio is turned off with a CD in the player, it will stay in the player. When the ignition or radio is turned on, the CD will start playing where it stopped, if it was the last selected audio source.

When a CD is inserted, CD and a CD symbol will appear on the display. As each new track starts to play, the track number will appear on the display.

The CD player can play the smaller 3 inch (8 cm) single CDs with an adapter ring. Full-size CDs and the smaller CDs are loaded in the same manner.

If playing a CD-R the sound quality may be reduced due to CD-R quality, the method of recording, the quality of the music that has been recorded, and the way the CD-R has been handled. There may be an increase in skipping, difficulty in finding tracks, and/or difficulty in loading and ejecting. If these problems occur try a known good CD.

Do not add paper labels to CDs, they could get caught in the CD player.

If an error appears on the display, see “CD Messages” later in this section.

1 PREV (Previous): Press this pushbutton to go to the start of the current track if more then eight seconds have played. If this pushbutton is held or pressed more than once, the player will continue moving backward through the CD.

2 RDM (Random): Press this pushbutton to hear the tracks in random, rather than sequential, order. RANDOM will appear on the display. Press this pushbutton again to turn off random play.

3 NEXT: Press this pushbutton to go to the next track. If this pushbutton is held or pressed more than once, the player will continue moving forward through the CD.

REV 4 (Reverse): Press and hold this pushbutton to reverse quickly within a track. You will hear sound at a reduced volume. Release the pushbutton to play the passage. The elapsed time of the track will appear on the display.

FWD 6 (Forward): Press and hold this pushbutton to advance quickly within a track. You will hear sound at a reduced volume. Release the pushbutton to play the passage. The elapsed time of the track will appear on the display.

◁ SEEK ▷ : The right arrow is the same as the NEXT pushbutton, and the left arrow is the same as the PREV pushbutton. If either arrow is held or pressed more than once, the player will continue moving forward or backward through the CD.

RECALL: Press this button to see what track is playing. Press it again within five seconds to see how long the current track has been playing. Press this button again to return to the time display.

AM FM: Press this button to listen to the radio when a CD is playing. The inactive CD will remain safely inside the radio for future listening.

CD AUX (Auxiliary): Press this button to play a CD when listening to the radio. CD and the CD symbol will appear on the display when a CD is loaded.

EJECT: Press this button to eject the CD. Eject may be activated with either the ignition or radio off. CDs may be loaded with the ignition and radio off if this button is pressed first.

CD Messages

ERR (Error): If this message appears on the display and/or the CD comes out, 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 may have been a problem while burning the CD.
- The label may be caught in the CD player.

Press RECALL to make ERR go off of the display.

If the CD is not playing correctly, for any other reason, try a known good CD.

If any error occurs repeatedly or if an error cannot be corrected, contact your dealer. If the radio displays an error message, write it down and provide it to your dealer when reporting the problem.

Rear Seat Audio (RSA)

This feature allows rear seat passengers to listen to any of the sources: radio and CDs. However, the rear seat passengers can only control the sources that the front seat passengers are not listening to. For example, rear seat passengers may listen to and control a CD through headphones while the driver listens to the radio through the front speakers. The rear seat passengers have control of the volume for each set of headphones.

The front seat audio controls always have priority over the RSA controls. If the front seat passengers switch the source for the main radio to a remote source, the RSA will not be able to control the remote source. You can operate the RSA when the main radio is off.

PWR (Power): Press this button to turn the system on or off. The rear speakers will be muted when the power is turned on.

VOL (Volume): Press this knob lightly so it extends. Turn the knob to increase or to decrease the volume. Push the knob back into it's stored position when you are not using it. The upper knob controls the upper headphones and the lower knob controls the lower headphones.

AM FM: Press this button to switch between FM1, FM2, or AM. If the front seat passengers are listening to the radio, the RSA will not switch between the bands or change the frequency.

Press AM FM to listen to the radio when a CD is playing. The inactive CD will remain safely inside the radio for future listening.

△ **SEEK** ▽**:** When listening to the radio, press the up or the down arrow to go to the next or to the previous station and stay there. This function is inactive if the front seat passengers are listening to the radio.

To scan preset stations, press and hold either SEEK arrow until SCAN appears on the radio display. The radio will go to a station, play for a few seconds, then go on to the next station. Press either SEEK arrow again to stop scanning. This function is inactive if the front seat passengers are listening to the radio.

When a CD is playing, press the up arrow to go to the next track on the CD. Press the down arrow to go to the start of the current track if more than eight seconds have played. This function is inactive if the front seat passengers are listening to a CD.

P.SET PROG (Preset Program): Press this button to scan the preset radio stations set on the pushbuttons on the main radio. The radio will go to a preset station, play for a few seconds, then go on to the next preset station. Press this button again to stop scanning. This function is inactive if the front seat passengers are listening to the radio.

TAPE CD: Press this button to play CD when listening to the radio.

Theft-Deterrent Feature

THEFTLOCK® is designed to discourage theft of your vehicle's radio. It works by using a secret code to disable all radio functions whenever battery power is interrupted.

The THEFTLOCK® feature for the radio may be used or ignored. If ignored, the radio plays normally and the radio is not protected by the feature. If THEFTLOCK® is activated, the radio will not operate if stolen.

When THEFTLOCK® is activated, LOC will appear on the radio display to indicate a locked condition anytime battery power has been interrupted. If the battery loses power for any reason, you must unlock the radio with the secret code before it will operate.

Activating the Theft-Deterrent Feature

The instructions which follow explain how to enter your secret code to activate the THEFTLOCK® system. Read through all nine steps before starting the procedure.

If you allow more than 15 seconds to elapse between any steps, the radio automatically reverts to time and you must start the procedure over at Step 4.

1. Write down any three or four-digit number from 000 to 1999 and keep it in a safe place separate from the vehicle.
2. Turn the ignition on.
3. Turn the radio off.
4. Press the 1 and 4 pushbuttons at the same time. Hold them down until --- appears on the display. Next you will use the secret code number which you have written down.
5. Press MN and 000 will appear on the display.
6. Press MN again to make the last two digits agree with your code.
7. Press HR to make the first one or two digits agree with your code.
8. Press AM FM after you have confirmed that the code matches the secret code you have written down. REP will appear on the display to indicate that Steps 5 through 7 need to be repeated to confirm your secret code.
9. Press AM FM again. SEC will appear on the display to indicate that the radio is secure. The LED indicator by the volume knob will begin flashing when the ignition is turned off.

Unlocking the Theft-Deterrent Feature After a Power Loss

Enter your secret code as follows; pause no more than 15 seconds between steps:

1. Turn the ignition on. LOC will appear on the display.
2. Press MN and 000 will appear on the display.
3. Press MN again to make the last two digits agree with your code.
4. Press HR to make the first one or two digits agree with your code.
5. Press AM FM after you have confirmed that the code matches the secret code you have written down. The display will show SEC, indicating the radio is now operable and secure.

If you enter the wrong code eight times, INOP will appear on the display. You will have to wait an hour with the ignition on before you can try again. When you try again, you will only have three chances, eight tries per chance, to enter the correct code before INOP appears.

If you lose or forget your code, contact your GM dealer.

Disabling the Theft-Deterrent Feature

Enter your secret code as follows; pause no more than 15 seconds between steps:

1. Turn the ignition on.
2. Turn the radio off.
3. Press and hold the 1 and 4 pushbuttons at the same time until SEC appears on the display.
4. Press MN and 000 will appear on the display.
5. Press MN again to make the last two digits agree with your code.
6. Press HR to make the first one or two digits agree with your code.
7. Press AM FM after you have confirmed that the code matches the secret code you have written down. --- will appear on the display, indicating that the radio is no longer secured.

If the code entered is incorrect, SEC will appear on the display. The radio will remain secured until the correct code is entered.

When battery power is removed and later applied to a secured radio, the radio will not turn on and LOC will appear on the display.

To unlock a secured radio, see *Unlocking the Theft-Deterrent Feature After a Power Loss* earlier in this section.

Radio Reception

AM

The range for most AM stations is greater than for FM, especially at night. The longer range, however, can cause stations to interfere with each other. AM can pick up noise from things like storms and power lines. Try reducing the treble to reduce this noise.

FM

FM stereo will give you the best sound, but FM signals will reach only about 10 to 40 miles (16 to 65 km). Tall buildings or hills can interfere with FM signals, causing the sound to come and go.

Care of Your CDs

Handle CDs carefully. Store them in their original cases or other protective cases and away from direct sunlight and dust. If the surface of a CD is soiled, dampen a clean, soft cloth in a mild, neutral detergent solution and clean it, wiping from the center to the edge.

Be sure never to touch the side without writing when handling CDs. Pick up CDs by grasping the outer edges or the edge of the hole and the outer edge.

Care of Your CD Player

The use of CD lens cleaners for CD players is not advised, due to the risk of contaminating the lens of the CD optics with lubricants internal to the CD mechanism.

Fixed Mast Antenna

The fixed mast antenna can withstand most car washes without being damaged. If the mast should ever become slightly bent, straighten it out by hand. If the mast is badly bent, replace it.

Check occasionally to make sure the mast is still tightened to the fender. If tightening is required, tighten by hand, then with a wrench one quarter turn.

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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 1-18*.

Defensive driving really means “be ready for anything.” On city streets, rural roads, or freeways, 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. Be ready for their mistakes.

Rear-end collisions are about the most preventable of accidents. Yet they are common. Allow enough following distance. It is the best defensive driving maneuver, in both city and rural driving. You never know when the vehicle in front of you is going to brake or turn suddenly.

Defensive driving requires that a driver concentrate on the driving task. Anything that distracts from the driving task — such as concentrating on a cellular telephone call, reading, or reaching for something on the floor — makes proper defensive driving more difficult and can even cause a collision, with resulting injury. Ask a passenger to help do things like this, or pull off the road in a safe place to do them yourself. 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.

Braking

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 (wet, dry, icy); tire tread; the condition of your brakes; the weight of the vehicle and the amount of brake force applied.

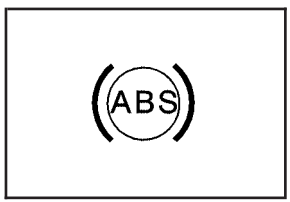
Avoid needless heavy braking. Some people drive in spurts — heavy acceleration followed by heavy braking — rather than keeping pace with traffic. This is a mistake. Your brakes may not have time to cool between hard stops. Your brakes will wear out much faster if you do a lot of heavy braking. If you 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 engine ever stops while you are driving, brake normally but do not pump your brakes. If you do, the pedal may get harder to push down. If your 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.

Anti-Lock Brake System (ABS)

Your vehicle has anti-lock brakes. ABS is an advanced electronic braking system that will help prevent a braking skid.

When you start your engine and begin to drive away, your anti-lock brake system will check itself. You may hear a momentary motor or clicking noise while this test is going on. This is normal.



If there is a problem with the anti-lock brake system, this warning light will stay on. See *Anti-Lock Brake System Warning Light on page 3-29*.

Let us say the road is wet and you are driving safely. Suddenly, an animal jumps out in front of you. You slam on the brakes and continue braking. Here is what happens with ABS:

A computer senses that wheels are slowing down. If one of the wheels is about to stop rolling, the computer will separately work the brakes at each front wheel and at both rear wheels.

The anti-lock system can change the brake pressure faster than any driver could. The computer is programmed to make the most of available tire and road conditions. This can help you steer around the obstacle while braking hard.

As you brake, your computer keeps receiving updates on wheel speed and controls braking pressure accordingly.

Remember: Anti-lock does not change the time you need to get your foot up to the brake pedal or always decrease stopping distance. If you get too close to the vehicle in front of you, you will not have time to apply your brakes if that vehicle suddenly slows or stops. Always leave enough room up ahead to stop, even though you have anti-lock brakes.

Using Anti-Lock

Do not pump the brakes. Just hold the brake pedal down firmly and let anti-lock work for you. You may feel the brakes vibrate, or you may notice some noise, but this is normal.

Braking in Emergencies

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

Locking Rear Axle

If your vehicle has this feature, your locking rear axle can give you additional traction on snow, mud, ice, sand or gravel. It works like a standard axle most of the time, but when one of the rear wheels has no traction and the other does, this feature will allow the wheel with traction to move the vehicle.

Steering

Power Steering

If you lose power steering assist because the engine stops or the system is not functioning, you can steer but it will take much more effort.

Steering Tips

Driving on Curves

It is important to take curves at a reasonable speed.

A lot of the “driver lost control” accidents mentioned on the news happen on curves. Here is why:

Experienced driver or beginner, each of us is subject to the same laws of physics when driving on curves. The traction of the tires against the road surface makes it possible for the vehicle to change its path when you turn the front wheels. If there is no traction, inertia will keep the vehicle going in the same direction. If you have ever tried to steer a vehicle on wet ice, you will understand this.

The traction you can get in a curve depends on the condition of your tires and the road surface, the angle at which the curve is banked, and your speed. While you are in a curve, speed is the one factor you can control.

Suppose you are steering through a sharp curve. Then you suddenly accelerate. Both control systems — steering and acceleration — have to do their work where the tires meet the road. Adding the sudden acceleration can demand too much of those places. You can lose control.

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

Speed limit signs near curves warn that you should adjust your speed. Of course, the posted speeds are based on good weather and road conditions. Under less favorable conditions you will want to go slower.

If you need to reduce your speed as you approach a curve, do it before you enter the curve, while your front wheels are straight ahead.

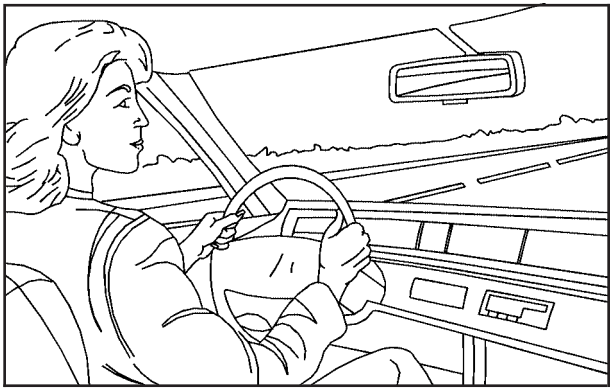
Try to adjust your speed so you can “drive” through the curve. Maintain a reasonable, steady speed. Wait to accelerate until you are out of the curve, and then accelerate gently into the straightaway.

Steering in Emergencies

There are times when steering can be more effective than braking. For example, you come over a hill and find a truck stopped in your lane, or a car suddenly pulls out from nowhere, or a child darts out from between parked cars and stops right in front of you. You can avoid these problems by braking — if you can stop in time. But sometimes you cannot; there is not room. That is the time for evasive action — steering around the problem.

Your vehicle can perform very well in emergencies like these. First apply your brakes.

See *Braking on page 4-6*. It is better to remove as much speed as you can from a possible collision. Then steer around the problem, to the left or right depending on the space available.

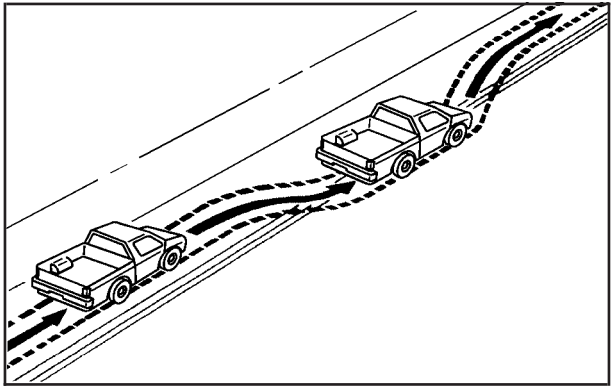


An emergency like this requires close attention and a quick decision. If you are holding the steering wheel at the recommended 9 and 3 o'clock positions, you can turn it a full 180 degrees very quickly without removing either hand. But you have to act fast, steer quickly, and just as quickly straighten the wheel once you have avoided the object.

The fact that such emergency situations are always possible is a good reason to practice defensive driving at all times and wear safety belts properly.

Off-Road Recovery

You may find that your right wheels have dropped off the edge of a road onto the shoulder while you are driving.



If the level of the shoulder is only slightly below the pavement, recovery should be fairly easy. Ease off the accelerator and then, if there is nothing in the way, steer so that your vehicle straddles the edge of the pavement. You can turn the steering wheel up to one-quarter turn until the right front tire contacts the pavement edge. Then turn your steering wheel to go straight down the roadway.

Passing

The driver of a vehicle about to pass another on a two-lane highway waits for just the right moment, accelerates, moves around the vehicle ahead, then goes back into the right lane again. A simple maneuver?

Not necessarily! Passing another vehicle on a two-lane highway is a potentially dangerous move, since the passing vehicle occupies the same lane as oncoming traffic for several seconds. A miscalculation, an error in judgment, or a brief surrender to frustration or anger can suddenly put the passing driver face to face with the worst of all traffic accidents — the head-on collision.

So here are some tips for passing:

- Drive ahead. Look down the road, to the sides and to crossroads for situations that might affect your passing patterns. If you have any doubt whatsoever about making a successful pass, wait for a better time.
- Watch for traffic signs, pavement markings and lines. If you can see a sign up ahead that might indicate a turn or an intersection, delay your pass. A broken center line usually indicates it is all right to pass, providing the road ahead is clear. Never cross a solid line on your side of the lane or a double solid line, even if the road seems empty of approaching traffic.

- Do not get too close to the vehicle you want to pass while you are awaiting an opportunity. For one thing, following too closely reduces your area of vision, especially if you are following a larger vehicle. Also, you will not have adequate space if the vehicle ahead suddenly slows or stops. Keep back a reasonable distance.
- When it looks like a chance to pass is coming up, start to accelerate but stay in the right lane and do not get too close. Time your move so you will be increasing speed as the time comes to move into the other lane. If the way is clear to pass, you will have a running start that more than makes up for the distance you would lose by dropping back. And if something happens to cause you to cancel your pass, you need only slow down and drop back again and wait for another opportunity.
- If other vehicles are lined up to pass a slow vehicle, wait your turn. But take care that someone is not trying to pass you as you pull out to pass the slow vehicle. Remember to glance over your shoulder and check the blind spot.
- Check your 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 inside mirror, activate your right lane change signal and move back into the right lane. Remember that your right outside mirror is convex. The vehicle you just passed may seem to be farther away from you than it really is.
- Try not to pass more than one vehicle at a time on two-lane roads. Reconsider before passing the next vehicle.
- Do not overtake a slowly moving vehicle too rapidly. Even though the brake lamps are not flashing, it may be slowing down or starting to turn.
- If you are being passed, make it easy for the following driver to get ahead of you. Perhaps you can ease a little to the right.

Loss of Control

Let us review what driving experts say about what happens when the three control systems — brakes, steering, and acceleration — do not have enough friction where the tires meet the road to do what the driver has asked.

In any emergency, do not give up. Keep trying to steer and constantly seek an escape route or area of less danger.

Skidding

In a skid, a driver can lose control of the vehicle. Defensive drivers avoid most skids by taking reasonable care suited to existing conditions, and by not overdriving those conditions. But skids are always possible.

The three types of skids correspond to your vehicle's three control systems. In the braking skid, your wheels are not rolling. In the steering or cornering skid, too much speed or steering in a curve causes tires to slip and lose cornering force. And in the acceleration skid, too much throttle causes the driving wheels to spin.

A cornering skid is best handled by easing your foot off the accelerator pedal.

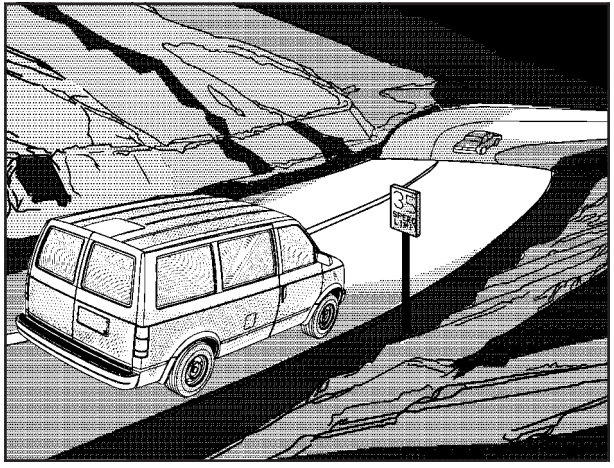
If your vehicle starts to slide, ease your foot off the accelerator pedal and quickly steer the way you want the vehicle to go. If you start steering quickly enough, your vehicle may straighten out. Always be ready for a second skid if it occurs.

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 engine braking 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 your inside rearview mirror to reduce the glare from headlamps behind you.
- Since you cannot see as well, you may need to slow down and keep more space between you and other vehicles.
- Slow down, especially on higher speed roads. Your headlamps can light up only so much road ahead.
- In remote areas, watch for animals.
- If you are tired, pull off the road in a safe place and rest.

No one can see as well at night as in the daytime. But as we get older these differences increase. A 50-year-old driver may require at least twice as much light to see the same thing at night as a 20-year-old.

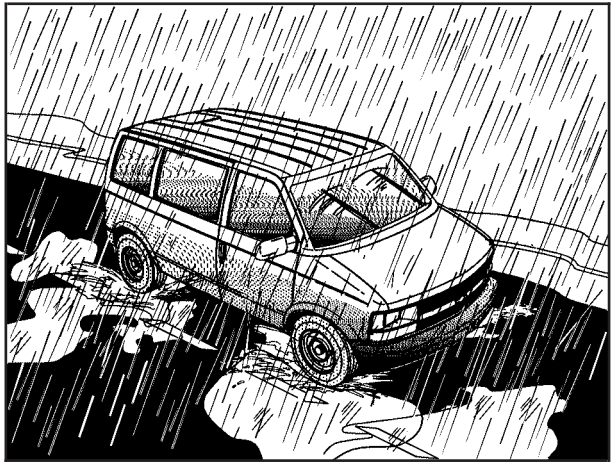
What you do in the daytime can also affect your night vision. For example, if you spend the day in bright sunshine you are wise to wear sunglasses. Your eyes will have less trouble adjusting to night. But if you are driving, do not wear sunglasses at night. They may cut down on glare from headlamps, but they also make a lot of things invisible.

You can be temporarily blinded by approaching headlamps. It can take a second or two, or even several seconds, for your eyes to re-adjust to the dark. When you are faced with severe glare, as from a driver who does not lower the high beams, or a vehicle with misaimed headlamps, slow down a little. Avoid staring directly into the approaching headlamps.

Keep your 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 your 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 your 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.

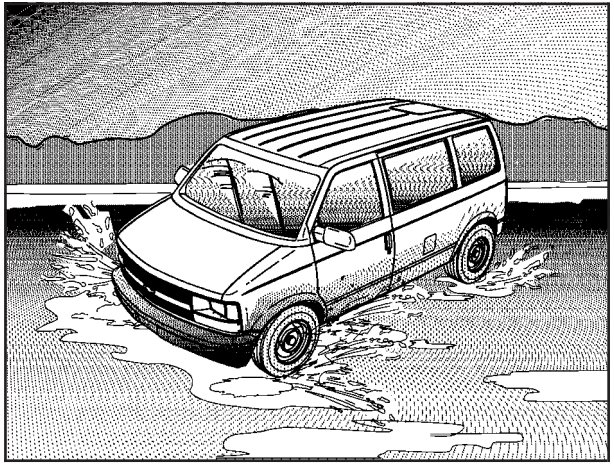
Driving in Rain and on Wet Roads



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 wiping equipment in good shape and keep your windshield washer tank 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.



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.

⚠ CAUTION:

Wet brakes can cause accidents. They will not work as well in a quick stop and may cause pulling to one side. You could lose control of the vehicle.

After driving through a large puddle of water or a car wash, apply your brake pedal lightly until your brakes work normally.

Hydroplaning

Hydroplaning is dangerous. So much water can build up under your tires that they can actually ride on the water. This can happen if the road is wet enough and you are going fast enough. When your vehicle is hydroplaning, it has little or no contact with the road.

Hydroplaning does not happen often. But it can if your tires do not have much tread or if the pressure in one or more is low. It can happen if a lot of water is standing on the road. If you can see reflections from trees, telephone poles, or other vehicles, and raindrops dimple the water's surface, there could be hydroplaning.

Hydroplaning usually happens at higher speeds. There just is not a hard and fast rule about hydroplaning. The best advice is to slow down when it is raining.

Driving Through Deep Standing Water

Notice: **If you drive too quickly through deep puddles or standing water, water can come in through your engine's air intake and badly damage your engine. Never drive through water that is slightly lower than the underbody of your vehicle. If you cannot avoid deep puddles or standing water, drive through them very slowly.**

Driving Through Flowing Water

⚠ CAUTION:

Flowing or rushing water creates strong forces. If you try to drive through flowing water, as you might at a low water crossing, your vehicle can be carried away. As little as six inches of flowing water can carry away a smaller vehicle. If this happens, you and other vehicle occupants could drown. Do not ignore police warning signs, and otherwise be very cautious about trying to drive through flowing water.

Some Other Rainy Weather Tips

- Besides slowing down, allow some extra following distance. And be especially careful when you pass another vehicle. Allow yourself more clear room ahead, and be prepared to have your view restricted by road spray.
- Have good tires with proper tread depth. See *Tires on page 5-58*.

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 4-19*.
- Treat a green light as a warning signal. A traffic light is there because the corner is busy enough to need it. When a light turns green, and just before you start to move, check both ways for vehicles that have not cleared the intersection or may be running the red light.

Freeway Driving

Mile for mile, freeways — also called thruways, parkways, expressways, turnpikes, or superhighways — are the safest of all roads. But they have their own special rules.

The most important advice on freeway driving is: Keep up with traffic and keep to the right. Drive at the same speed most of the other drivers are driving. Too-fast or too-slow driving breaks a smooth traffic flow. Treat the left lane on a freeway as a passing lane.

At the entrance, there is usually a ramp that leads to the freeway. If you have a clear view of the freeway as you drive along the entrance ramp, you should begin to check traffic. Try to determine where you expect to blend with the flow. Try to merge into the gap at close to the prevailing speed. Switch on your turn signal, check your mirrors, and glance over your shoulder as often as necessary. Try to blend smoothly with the traffic flow.

Once you are on the freeway, adjust your speed to the posted limit or to the prevailing rate if it is slower. Stay in the right lane unless you want to pass.

Before changing lanes, check your mirrors. Then use your turn signal.

Just before you leave the lane, glance quickly over your shoulder to make sure there is not another vehicle in your blind spot.

Once you are moving on the freeway, make certain you allow a reasonable following distance. Expect to move slightly slower at night.

When you want to leave the freeway, move to the proper lane well in advance. If you miss your exit, do not, under any circumstances, stop and back up. Drive on to the next exit.

The exit ramp can be curved, sometimes quite sharply. The exit speed is usually posted.

Reduce your speed according to your speedometer, not to your sense of motion. After driving for any distance at higher speeds, you may tend to think you are going slower than you actually are.

Before Leaving on a Long Trip

Make sure you are ready. Try to be well rested. If you must start when you are not fresh — such as after a day's work — do not plan to make too many miles that first part of the journey. Wear comfortable clothing and shoes you can easily drive in.

Is your vehicle ready for a long trip? If you keep it serviced and maintained, it is ready to go. If it needs service, have it done before starting out. Of course, you will find experienced and able service experts in GM dealerships all across North America. They will be ready and willing to help if you need it.

Here are some things you can check before a trip:

- *Windshield Washer Fluid:* Is the reservoir full? Are all windows clean inside and outside?
- *Wiper Blades:* Are they in good shape?
- *Fuel, Engine Oil, Other Fluids:* Have you checked all levels?
- *Lamps:* Are they all working? Are the lenses clean?
- *Tires:* They are vitally important to a safe, trouble-free trip. Is the tread good enough for long-distance driving? Are the tires all inflated to the recommended pressure?
- *Weather Forecasts:* What is the weather outlook along your route? Should you delay your trip a short time to avoid a major storm system?
- *Maps:* Do you have up-to-date maps?

Highway Hypnosis

Is there actually such a condition as highway hypnosis? Or is it just plain falling asleep at the wheel? Call it highway hypnosis, lack of awareness, or whatever.

There is something about an easy stretch of road with the same scenery, along with the hum of the tires on the road, the drone of the engine, and the rush of the wind against the vehicle that can make you sleepy. Do not let it happen to you! If it does, your vehicle can leave the road in less than a second, and you could crash and be injured.

What can you do about highway hypnosis? First, be aware that it can happen.

Then here are some tips:

- Make sure your vehicle is well ventilated, with a comfortably cool interior.
- Keep your eyes moving. Scan the road ahead and to the sides. Check your 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 transmission. These parts can work hard on mountain roads.
- 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.

⚠ CAUTION:

If you do not shift down, your brakes could get so hot that they would not work well. You would then have poor braking or even none going down a hill. You could crash. Shift down to let your engine assist your brakes on a steep downhill slope.

⚠ CAUTION:

Coasting downhill in NEUTRAL (N) or with the ignition off is dangerous. Your brakes will have to do all the work of slowing down. They could get so hot that they would not work well. You would then have poor braking or even none going down a hill. You could crash. Always have your engine running and your vehicle in gear when you go downhill.

- Know how to go uphill. You may want to shift down to a lower gear. The lower gears help cool your engine and transmission, and you can climb the hill better.
- Stay in your own lane when driving on two-lane roads in hills or mountains. Do not swing wide or cut across the center of the road. Drive at speeds that let you stay in your own lane.
- As you go over the top of a hill, be alert. There could be something in your lane, like a stalled car or an accident.
- You may see highway signs on mountains that warn of special problems. Examples are long grades, passing or no-passing zones, a falling rocks area, or winding roads. Be alert to these and take appropriate action.

Winter Driving

Here are some tips for winter driving:

- Have your vehicle in good shape for winter.
- You may want to put winter emergency supplies in your vehicle.

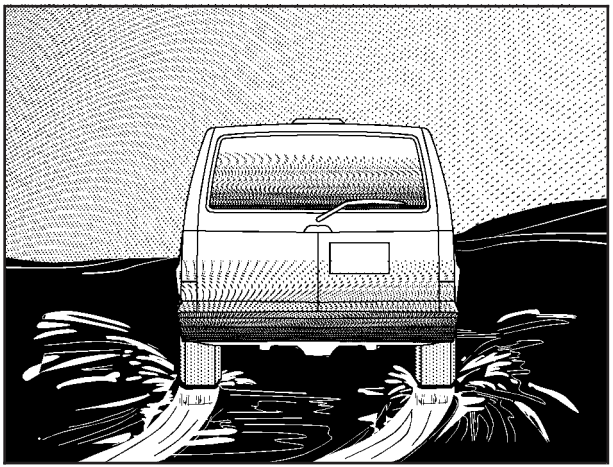
Also see *Tires on page 5-58*.

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 reflective warning triangles. And, if you will be driving under severe conditions, include a small bag of sand, a piece of old carpet or a couple of burlap bags to help provide traction. Be sure you properly secure these items in your vehicle.

Driving on Snow or Ice

Most of the time, those places where your tires meet the road probably have good traction.

However, if there is snow or ice between your tires and the road, you can have a very slippery situation. You will have a lot less traction, or grip, and will need to be very careful.



What is the worst time for this? Wet ice. Very cold snow or ice can be slick and hard to drive on. But wet ice can be even more trouble because it may offer the least traction of all. You can get wet ice when it is about freezing (32°F; 0°C) and freezing rain begins to fall. Try to avoid driving on wet ice until salt and sand crews can get there.

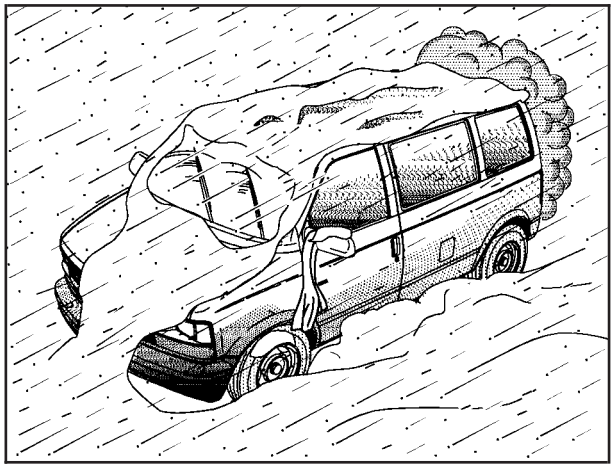
Whatever the condition — smooth ice, packed, blowing, or loose snow — drive with caution.

Accelerate gently. Try not to break the fragile traction. If you accelerate too fast, the drive wheels will spin and polish the surface under the tires even more.

Your anti-lock brakes improve your vehicle's stability when you make a hard stop on a slippery road. Even though you have an anti-lock braking system, you will want to begin stopping sooner than you would on dry pavement. See *Anti-Lock Brake System (ABS) on page 4-7*.

- Allow greater following distance on any slippery road.
- Watch for slippery spots. The road might be fine until you hit a spot that is covered with ice. On an otherwise clear road, ice patches may appear in shaded areas where the sun cannot reach: around clumps of trees, behind buildings, or under bridges. Sometimes the surface of a curve or an overpass may remain icy when the surrounding roads are clear. If you see a patch of ice ahead of you, brake before you are on it. Try not to brake while you are actually on the ice, and avoid sudden steering maneuvers.

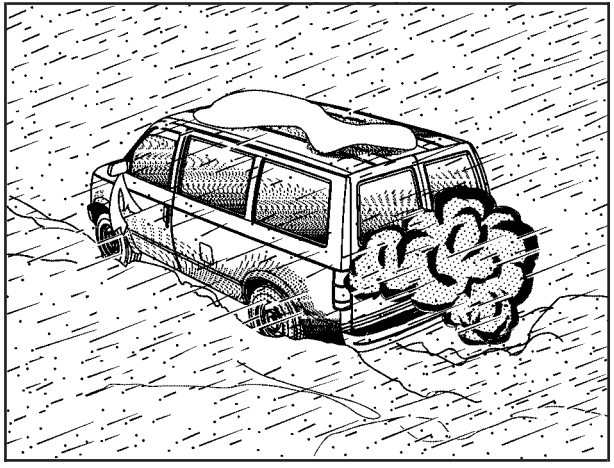
If You Are Caught in a Blizzard



If you are stopped by heavy snow, you could be in a serious situation. You should probably stay with your vehicle unless you know for sure that you are near help and you can hike through the snow. Here are some things to do to summon help and keep yourself and your passengers safe:

- Turn on your hazard flashers.
- Tie a red cloth to your vehicle to alert police that you have been stopped by the snow.

- Put on extra clothing or wrap a blanket around you. If you have no blankets or extra clothing, make body insulators from newspapers, burlap bags, rags, floor mats — anything you can wrap around yourself or tuck under your clothing to keep warm.



You can run the engine to keep warm, but be careful.

⚠ CAUTION:

Snow can trap exhaust gases under your vehicle. This can cause deadly CO (carbon monoxide) gas to get inside. CO could overcome you and kill you. You cannot see it or smell it, so you might not know it is in your vehicle. Clear away snow from around the base of your vehicle, especially any that is blocking your exhaust pipe. And check around again from time to time to be sure snow does not collect there.

Open a window just a little on the side of the vehicle that is away from the wind. This will help keep CO out.

Run your engine only as long as you must. This saves fuel. When you run the engine, make it go a little faster than just idle. That is, push the accelerator slightly. This uses less fuel for the heat that you get and it keeps the battery charged. You will need a well-charged battery to restart the vehicle, and possibly for signaling later on with your headlamps. Let the heater run for a while.

Then, shut the engine off and close the window almost all the way to preserve the heat. Start the engine again and repeat this only when you feel really uncomfortable from the cold. But do it as little as possible. Preserve the fuel as long as you can. To help keep warm, you can get out of the vehicle and do some fairly vigorous exercises every half hour or so until help comes.

If You Are 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 tires spin at high speed, they can explode, and you or others could be injured. And, the transmission 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 your wheels can destroy parts of your vehicle as well as the tires. If you spin the wheels too fast while shifting your transmission back and forth, you can destroy your transmission.**

For more information about using tire chains on your vehicle, see *Tire Chains on page 5-71*.

Rocking Your Vehicle to Get It Out

First, turn your steering wheel left and right. That will clear the area around your front wheels. Then shift back and forth between REVERSE (R) and a forward gear, spinning the wheels as little as possible. Release the accelerator pedal while you shift, and press lightly on the accelerator pedal when the transmission is in gear. By slowly spinning your wheels in the forward and reverse directions, you will cause a rocking motion that may free your vehicle. If that does not get you out after a few tries, you may need to be towed out. If you do need to be towed out, see *Towing Your Vehicle on page 4-33*.

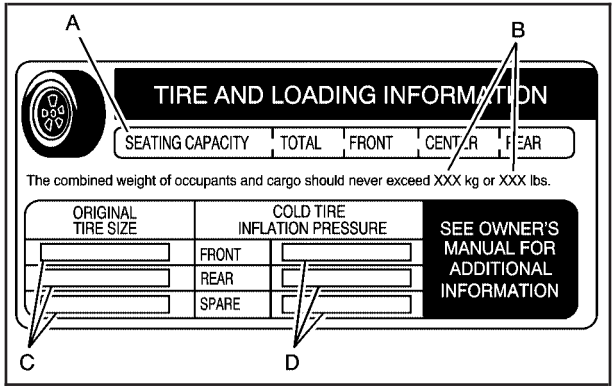
Loading Your Vehicle

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.

⚠ CAUTION:

Do not load your vehicle any heavier than the Gross Vehicle Weight Rating (GVWR), or either the maximum front or rear Gross Axle Weight Rating (GAWR). If you do, parts on your vehicle can break, and it can change the way your vehicle handles. These could cause you to lose control and crash. Also, overloading can shorten the life of your vehicle.

Tire and Loading Information Label



Label Example

A specific Tire and Loading Information label is attached to the center pillar (B-pillar). With the driver's door open, you will find the label attached below the door lock post (striker). The tire and loading information label shows the number of occupant seating positions (A), and the maximum vehicle capacity weight (B) in kilograms and pounds.

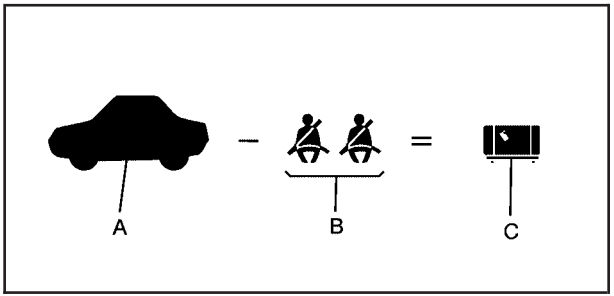
The Tire and Loading Information label also shows the size of the original equipment tires (C) and the recommended cold tire inflation pressures (D). For more information on tires and inflation see *Tires on page 5-58* and *Inflation - Tire Pressure on page 5-64*.

There is also important loading information on the vehicle Certification/Tire 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/Tire Label" later in this section.

Steps for Determining Correct Load Limit

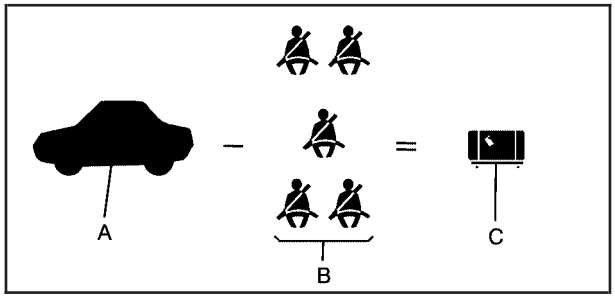
1. Locate the statement "The combined weight of occupants and cargo should never exceed XXX kg or XXX pounds" on your vehicle's placard.
2. Determine the combined weight of the driver and passengers that will be riding in your vehicle.
3. Subtract the combined weight of the driver and passengers from XXX kilograms or XXX pounds.
4. The resulting figure equals the available amount of cargo and luggage load capacity. For example, if the "XXX" amount equals 1400 lbs and there will be five 150 lb passengers in your vehicle, the amount of available cargo and luggage load capacity is 650 lbs (1400 – 750 (5 x 150) = 650 lbs).

5. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity calculated in Step 4.
6. If your vehicle will be towing a trailer, the load from your trailer will be transferred to your vehicle. Consult this manual to determine how this reduces the available cargo and luggage load capacity of your vehicle. See *Towing a Trailer on page 4-34* for important information on towing a trailer, towing safety rules and trailering tips.



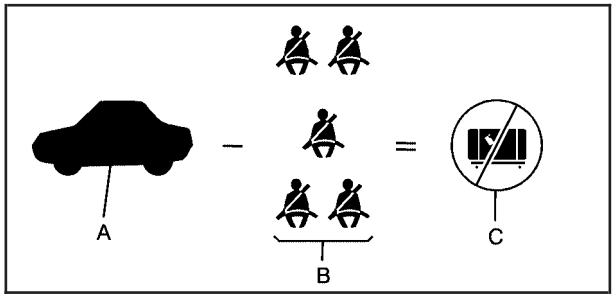
Example 1

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



Example 2

Item	Description	Total
A	Vehicle Capacity Weight for Example 2 =	1,000 lbs (453 kg)
B	Subtract Occupant Weight 150 lbs (68 kg) × 5 =	750 lbs (136 kg)
C	Available Cargo Weight =	250 lbs (113 kg)

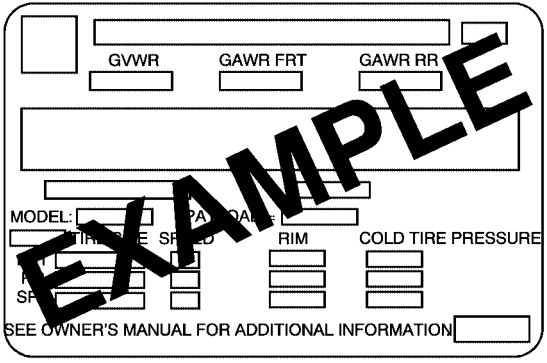


Example 3

Item	Description	Total
A	Vehicle Capacity Weight for Example 3 =	1,000 lbs (453 kg)
B	Subtract Occupant Weight 200 lbs (91 kg) × 5 =	1,000 lbs (453 kg)
C	Available Cargo Weight =	0 lbs (0 kg)

Refer to your vehicle's tire and loading information label for specific information about your vehicle's capacity weight and seating positions. The combined weight of the driver, passengers and cargo should never exceed your vehicle's capacity weight.

Certification/Tire Label



A vehicle specific Certification/Tire label is attached to the rear edge of the driver's door.

This label shows the size of your original tires and the inflation pressures needed to obtain the gross weight capacity of your vehicle. This is called the Gross Vehicle Weight Rating (GVWR). The GVWR includes the weight of the vehicle, all occupants, fuel, cargo and tongue weight, if pulling a trailer.

The Certification/Tire label also tells you the maximum weights for the front and rear axles, called Gross Axle Weight Rating (GAWR). To find out the actual loads on your front and rear axles, you need to go to a weigh station and weigh your vehicle. Your dealer can help you with this. Be sure to spread out your load equally on both sides of the centerline.

Never exceed the GVWR for your vehicle, or the GAWR for either the front or rear axle.

And, if you do have a heavy load, you should spread it out.

⚠ 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.

Using heavier suspension components to get added durability might not change your weight ratings. Ask your dealer to help you load your vehicle the right way.

Notice: **Overloading your vehicle may cause damage. Repairs would not be covered by your warranty. Do not overload your vehicle.**

If you put things inside of your vehicle — like suitcases, tools, packages, or anything else — they will go as fast as the vehicle goes. If you have to stop or turn quickly, or if there is a crash, they'll 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 cargo area of your vehicle. 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.**

Trailering Package

There is a load rating which includes the weight of the vehicle and the trailer it tows. This rating is called the Gross Combination Weight Rating (GCWR).

When you weigh your trailer, be sure to include the weight of everything you put in it. And, remember to figure the weight of the people inside the vehicle as part of your load.

Add-On Equipment

When you carry removable items, you may need to put a limit on how many people you carry inside your vehicle. Be sure to weigh your vehicle before you buy and install the new equipment.

Towing

Towing Your Vehicle

Consult your dealer or a professional towing service if you need to have your disabled vehicle towed. See *Roadside Assistance Program on page 7-6*.

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”).

Notice: **Towing an all-wheel-drive vehicle with all four wheels on the ground, or even with only two of its wheels on the ground, will damage drivetrain components. Do not tow an all-wheel-drive vehicle if any of its wheels will be on the ground.**

Your vehicle was not designed to be towed with any of its wheels on the ground. If your vehicle must be towed, it should be placed on a platform trailer.

Towing a Trailer

⚠ CAUTION:

If you do not use the correct equipment and drive properly, you can lose control when you pull a trailer. For example, if the trailer is too heavy, the brakes may not work well — or even at all. You and your passengers could be seriously injured. Pull a trailer only if you have followed all the steps in this section. Ask your dealer for advice and information about towing a trailer with your vehicle.

Notice: **Pulling a trailer improperly can damage your vehicle and result in costly repairs that would not be covered by your warranty. Always follow the instructions in this section and check with your dealer for more information about towing a trailer with your vehicle.**

To identify the trailering capacity of your vehicle, you should read the information in “Weight of the Trailer” that appears later in this section.

If yours was built with trailering options, as many are, it’s ready for heavier trailers. But trailering is different than just driving your vehicle by itself. Trailering means changes in handling, acceleration, braking, durability and fuel economy. Successful, safe trailering takes correct equipment, and it has to be used properly.

That’s the reason for this part. In it are many time-tested, important trailering tips and safety rules. Many of these are important for your safety and that of your passengers. So please read this section carefully before you pull a trailer.

If You Do Decide To Pull A Trailer

If you do, here are some important points:

- There are many different laws, including speed limit restrictions, having to do with trailering. Make sure your rig will be legal, not only where you live but also where you’ll be driving. A good source for this information can be state or provincial police.
- Consider using a sway control. See “Hitches” later in this section.
- Don’t tow a trailer at all during the first 500 miles (800 km) your new vehicle is driven. Your engine, axle or other parts could be damaged.
- Then, during the first 500 miles (800 km) that you tow a trailer, don’t drive over 50 mph (80 km/h) and don’t make starts at full throttle. This helps your engine and other parts of your vehicle wear in at the heavier loads.
- See “Driving on Grades” later in this section for more information.

Three important considerations have to do with weight:

- the weight of the trailer
- the weight of the trailer tongue
- and the weight on your vehicle’s tires

Tow/Haul Mode

Tow/haul is designed to assist while your vehicle is pulling a large or heavy load or trailer. Tow/haul is most useful while pulling such a load in rolling terrain, in stop-and-go traffic, or when you need improved low-speed control, such as when parking. The purpose of the tow/haul mode is to:

- Reduce the frequency and improve the predictability of transmission shifts,
- provide the same solid shift feel when pulling a heavy load as when the vehicle is unloaded, and
- improve control of vehicle speed while requiring less throttle pedal activity.

Press the button on the end of the shift lever to turn tow/haul mode on and off. While activated, the indicator light on the instrument panel will be on. Tow/haul mode will turn off automatically when the ignition is turned off. See *Tow/Haul Mode Light on page 3-35*.

Tow/haul is most effective when the vehicle and trailer combined weight is at least 75 percent of the vehicle's Gross Combined Weight Rating (GCWR). See "Weight of the Trailer" later in this section.

Driving with tow/haul activated without a heavy load will cause reduced fuel economy and unpleasant engine and transmission driving characteristics, but will not cause damage.

Weight of the Trailer

How heavy can a trailer safely be?

It depends on how you plan to use your rig. For example, speed, altitude, road grades, outside temperature and how much your vehicle is used to pull a trailer are all important. And, it can also depend on any special equipment that you have on your vehicle.

The following chart shows how much your trailer can weigh, based upon your vehicle model and options.

Vehicle	Axle Ratio	Max. Trailer Wt. (lbs) (kg)	GCWR (lbs) (kg)
Two-Wheel Drive (Cargo)	3.42 3.73	5,300 (2404) 5,800 (2631)	9,500 (4309) 10,000 (4536)
Two-Wheel Drive (Passenger)	3.42 3.73	4,900 (2223) 5,400 (2449)	9,500 (4309) 10,000 (4536)
All-Wheel Drive (Cargo)	3.42 3.73	5,000 (2268) 5,500 (2495)	9,500 (4309) 10,000 (4536)
All-Wheel Drive (Passenger)	3.42 3.73	4,700 (2132) 5,200 (2359)	9,500 (4309) 10,000 (4536)

The Gross Combined Weight Rating (GCWR) is the total allowable weight of the completely loaded vehicle and trailer including any passengers, cargo equipment and conversion. The GCWR for your vehicle should not be exceeded.

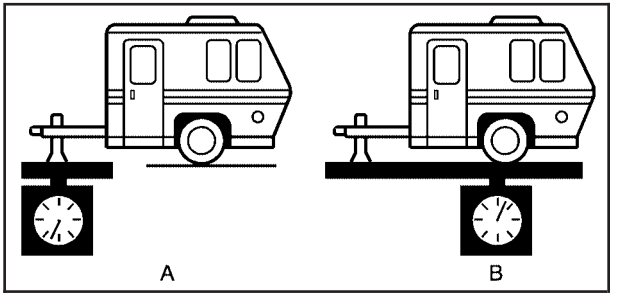
You can ask your dealer for our trailering information or advice, or you can write us at the address listed in your Warranty and Owner Assistance Information Booklet.

In Canada, write to:

General Motors of Canada Limited
Customer Communication Centre, 163-005
1908 Colonel Sam Drive
Oshawa, Ontario L1H 8P7

Weight of the Trailer Tongue

The tongue load (A) of any trailer is an important weight to measure because it affects the total or gross weight of your vehicle. The Gross Vehicle Weight (GVW) includes the curb weight of the vehicle, any cargo you may carry in it, and the people who will be riding in the vehicle. If you have a lot of options, equipment, passengers or cargo in your vehicle, it will reduce the tongue weight your vehicle can carry, which will also reduce the trailer weight your vehicle can tow. And if you will tow a trailer, you must add the tongue load to the GVW because your vehicle will be carrying that weight, too. See *Loading Your Vehicle on page 4-28* for more information about your vehicle's maximum load capacity.



The trailer tongue weight (A) should be 10 percent to 15 percent of the total loaded trailer weight, up to a maximum of 200 lbs (92 kg) with a weight carrying hitch. The trailer tongue weight (A) should be 10 percent to 15 percent of the total loaded trailer weight, up to a maximum of 750 lbs (341 kg) with a weight distributing hitch.

After you've loaded your trailer, weigh the trailer and then the tongue, separately, to see if the weights are proper. If they aren't, you may be able to get them right simply by moving some items around in the trailer.

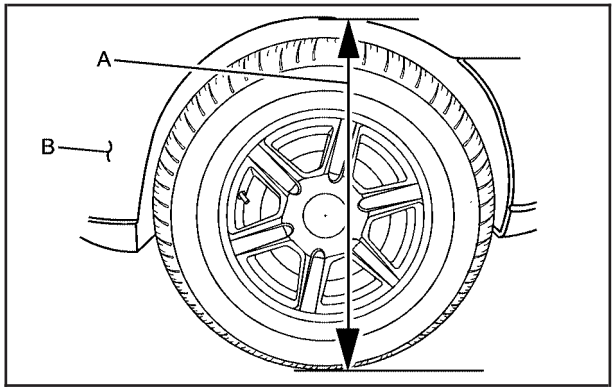
Total Weight on Your Vehicle's Tires

Be sure your vehicle's tires are inflated to the upper limit for cold tires. You'll find these numbers on the Certification/Tire label at the rear edge of the driver's door or see *Loading Your Vehicle on page 4-28*. Then be sure you don't go over the GVW limit for your vehicle, including the weight of the trailer tongue. If you use a weight distributing hitch, make sure you don't go over the rear axle limit before you apply the weight distribution spring bars.

Hitches

It's important to have the correct hitch equipment. Crosswinds, large trucks going by and rough roads are a few reasons why you'll need the right hitch.

Weight-Distributing Hitches and Weight Carrying Hitches



(A) Body to Ground Distance, (B) Front of Vehicle

When using a weight-distributing hitch, the hitch must be adjusted so that the distance (A) remains the same both before and after coupling the trailer to the tow vehicle.

If you'll be pulling a trailer that, when loaded, will weigh more than 2,000 lbs (900 kg), be sure to use a properly mounted, weight-distributing hitch and sway control of the proper size. This equipment is very important for proper vehicle loading and good handling when you're driving. You should always use a sway control if your trailer will weigh more than these limits. You can ask a hitch dealer about sway controls.

Will you have to make any holes in the body of your vehicle when you install a trailer hitch?

If you're using the wiring provided with the factory-installed trailering package, you should not need to make any holes in the body of your vehicle. However, if you have an aftermarket hitch installed, you may need to make holes in the body.

If you do, then be sure to seal the holes later when you remove the hitch. If you don't seal them, deadly carbon monoxide (CO) from your exhaust can get into your vehicle as well as dirt and water. See "Carbon Monoxide" under *Engine Exhaust on page 2-26*.

Safety Chains

You should always attach chains between your vehicle and your trailer. Cross the safety chains under the tongue of the trailer to help prevent the tongue from contacting the road if it becomes separated from the hitch. Instructions about safety chains may be provided by the hitch manufacturer or by the trailer manufacturer.

Follow the manufacturer's recommendation for attaching safety chains and do not attach them to the bumper. Always leave just enough slack so you can turn with your rig. Never allow safety chains to drag on the ground.

Trailer Brakes

If your trailer weighs more than 1,000 lbs (450 kg) loaded, then it needs its own brakes — and they must be adequate. Be sure to read and follow the instructions for the trailer brakes so you'll be able to install, adjust and maintain them properly.

Your trailer brake system can tap into your vehicle's hydraulic brake system, except:

- Don't tap into your vehicle's brake system if the trailer's brake system will use more than 0.02 cubic inch (0.3 cc) of fluid from your vehicle's master cylinder. If it does, both braking systems won't work well. You could even lose your brakes.
- Will the trailer parts take 3,000 psi (20 650 kPa) of pressure? If not, the trailer brake system must not be used with your vehicle.
- If everything checks out this far, then make the brake fluid tap at the port on the master cylinder that sends fluid to the rear brakes. But don't use copper tubing for this. If you do, it will bend and finally break off. Use steel brake tubing.

Driving with a Trailer

⚠ CAUTION:

If you have a rear-most window open and you pull a trailer with your vehicle, carbon monoxide (CO) could come into your vehicle. You can not see or smell CO. It can cause unconsciousness or death. See *Engine Exhaust on page 2-26*. To maximize your safety when towing a trailer:

- **Have your exhaust system inspected for leaks, and make necessary repairs before starting on your trip.**
- **Keep the rear-most windows closed.**
- **If exhaust does come into your vehicle through a window in the rear or another opening, drive with your front, main heating or cooling system on and with the fan on any speed. This will bring fresh, outside air into your vehicle. Do not use the climate control setting for maximum air because it only recirculates the air inside your vehicle. See Climate Control System in the Index.**

Towing a trailer requires a certain amount of experience. Before setting out for the open road, you'll want to get to know your rig. Acquaint yourself with the feel of handling and braking with the added weight of the trailer. And always keep in mind that the vehicle you are driving is now a good deal longer and not nearly as responsive as your vehicle is by itself.

Before you start, check the trailer hitch and platform (and attachments), safety chains, electrical connector, lamps, tires and mirror adjustment. If the trailer has electric brakes, start your vehicle and trailer moving and then apply the trailer brake controller by hand to be sure the brakes are working. This lets you check your electrical connection at the same time.

During your trip, check occasionally to be sure that the load is secure, and that the lamps and any trailer brakes are still working.

Following Distance

Stay at least twice as far behind the vehicle ahead as you would when driving your vehicle without a trailer. This can help you avoid situations that require heavy braking and sudden turns.

Passing

You'll need more passing distance up ahead when you're towing a trailer. And, because you're a good deal longer, you'll need to go much farther beyond the passed vehicle before you can return to your lane.

Backing Up

Hold the bottom of the steering wheel with one hand. Then, to move the trailer to the left, just move that hand to the left. To move the trailer to the right, move your hand to the right. Always back up slowly and, if possible, have someone guide you.

Making Turns

Notice: **Making very sharp turns while trailering could cause the trailer to come in contact with the vehicle. Your vehicle could be damaged. Avoid making very sharp turns while trailering.**

When you're turning with a trailer, make wider turns than normal. Do this so your trailer won't strike soft shoulders, curbs, road signs, trees or other objects. Avoid jerky or sudden maneuvers. Signal well in advance.

Turn Signals When Towing a Trailer

When you tow a trailer, your vehicle has to have extra wiring (included in the optional trailering package).

The arrows on your instrument panel will flash whenever you signal a turn or lane change. Properly hooked up, the trailer lamps will also flash, telling other drivers you're about to turn, change lanes or stop.

When towing a trailer, the arrows on your instrument panel will flash for turns even if the bulbs on the trailer are burned out. Thus, you may think drivers behind you are seeing your signal when they are not. It's important to check occasionally to be sure the trailer bulbs are still working.

Driving On Grades

Reduce speed and shift to a lower gear *before* you start down a long or steep downgrade. If you don't shift down, you might have to use your brakes so much that they would get hot and no longer work well.

You can tow in DRIVE (D). You may want to shift the transmission to THIRD (3) or, if necessary, a lower gear selection if the transmission shifts too often (e.g., under heavy loads and/or hilly conditions).

When towing at high altitude on steep uphill grades, consider the following: Engine coolant will boil at a lower temperature than at normal altitudes. If you turn your engine off immediately after towing at high altitude on steep uphill grades, your vehicle may show signs similar to engine overheating. To avoid this, let the engine run while parked (preferably on level ground) with the transmission in PARK (P) for a few minutes before turning the engine off. If you do get the overheat warning, see *Engine Overheating on page 5-28*.

Parking on Hills

⚠ CAUTION:

You really should not park your vehicle, with a trailer attached, on a hill. If something goes wrong, your rig could start to move. People can be injured, and both your vehicle and the trailer can be damaged.

But if you ever have to park your rig on a hill, here's how to do it:

1. Apply your regular brakes, but don't shift into PARK (P) yet.
2. Have someone place chocks under the trailer wheels.
3. When the wheel chocks are in place, release the regular brakes until the chocks absorb the load.
4. Reapply the regular brakes. Then apply your parking brake, and shift to PARK (P).
5. Release the regular brakes.

When You Are Ready to Leave After Parking on a Hill

1. Apply your regular brakes and hold the pedal down while you:
   - start your engine,
   - shift into a gear, and
   - release the parking brake.
2. Let up on the brake pedal.
3. Drive slowly until the trailer is clear of the chocks.
4. Stop and have someone pick up and store the chocks.

Maintenance When Trailer Towing

Your vehicle will need service more often when you're pulling a trailer. See the Maintenance Schedule for more on this. Things that are especially important in trailer operation are automatic transmission fluid (don't overfill), engine oil, axle lubricant, belt, cooling system and brake system. Each of these is covered in this manual, and the Index will help you find them quickly. If you're trailering, it's a good idea to review these sections before you start your trip.

Check periodically to see that all hitch nuts and bolts are tight.

Trailer Wiring Harness

If you have the optional trailering package, your vehicle will have an eight-wire harness, including the center high-mounted stoplamp battery feed wire. The harness is stored on the passenger's side of the vehicle near the rear wheel well. This harness has a 30 amp battery feed wire and no connector, and should be wired by a qualified electrical technician. After choosing an aftermarket trailer mating connector pair, have the technician attach one connector to the eight-wire trailer harness and the other connector to the wiring harness on the trailer.

Be sure the wiring harness on the trailer is taped or strapped to the trailer's frame rail and leave it loose enough so the wiring doesn't bend or break, but not so loose that it drags on the ground. The eight-wire harness must be routed out of your vehicle between the rear door and the floor, with enough of the harness left on both sides so that the trailer or the body won't pull it.

If you do not have the optional trailering package, your vehicle will still have a trailering harness. The harness is located near the passenger's side rear wheel well. It consists of six wires that may be used by after-market trailer hitch installers.

The technician can use the following color code chart when connecting the wiring harness to your trailer.

- Brown: Rear lamps
- Yellow: Left stoplamp and turn signal
- Dark Green: Right stoplamp and turn signal
- White (Heavy Gage): Ground
- Light Green: Back-up lamps
- White (Light Gage): Center High-Mounted Stoplamp
- Blue: Auxiliary circuit (eight-wire harness only)
- Orange: Fused auxiliary (eight-wire harness only)

Store the harness in its original place. Wrap the harness together and tie it neatly so it won't be damaged.

NOTES

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Service

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

We hope you will want to keep your GM vehicle all GM. Genuine GM parts have one of these marks:

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

If you want to do some of your own service work, you will want to use the proper service manual. It tells you much more about how to service your vehicle than this manual can. To order the proper service manual, see *Service Publications Ordering Information on page 7-12*.

Your vehicle has an airbag system. Before attempting to do your own service work, see *Servicing Your Airbag-Equipped Vehicle on page 1-69*.

You should keep a record with all parts receipts and list the mileage and the date of any service work you perform. See *Part E: Maintenance Record on page 6-31*.

⚠ 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 dealer before adding equipment to the outside of your vehicle.

Fuel

Use of the recommended fuel is an important part of the proper maintenance of your vehicle.

Gasoline Octane

Use regular unleaded gasoline with a posted octane of 87 or higher. If the octane is less than 87, you may get a heavy knocking noise when you drive. If this occurs, use a gasoline rated at 87 octane or higher as soon as possible. Otherwise, you might damage your engine. A little pinging noise when you accelerate or drive uphill is considered normal. This does not indicate a problem exists or that a higher-octane fuel is necessary. If you are using 87 octane or higher-octane fuel and hear heavy knocking, your engine needs service.

Gasoline Specifications

It is recommended that gasoline meet specifications which were developed by automobile manufacturers around the world and contained in the World-Wide Fuel Charter which is available from the Alliance of Automobile Manufacturers at www.autoalliance.org/fuel_charter.htm. Gasoline meeting these specifications could provide improved driveability and emission control system performance compared to other gasoline.

California Fuel

If your vehicle is certified to meet California Emission Standards (see the underhood emission control label), it is designed to operate on fuels that meet California specifications. 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 3-30*. If this occurs, return to your authorized GM dealer for diagnosis. If it is determined that the condition is caused by the type of fuel used, repairs may not be covered by your warranty.

Additives

To provide cleaner air, all gasolines in the United States are now required to contain additives that will help prevent engine and fuel system deposits from forming, allowing your emission control system to work properly. In most cases, you should not have to add anything to your fuel. However, some gasolines contain only the minimum amount of additive required to meet U.S. Environmental Protection Agency regulations. General Motors recommends that you buy gasolines that are advertised to help keep fuel injectors and intake valves clean. If your vehicle experiences problems due to dirty injectors or valves, try a different brand of gasoline. Also, your GM dealer has additives that will help correct and prevent most deposit-related problems.

Gasolines containing oxygenates, such as ethers and ethanol, and reformulated gasolines may be available in your area to contribute to clean air. General Motors recommends that you use these gasolines, particularly if they comply with the specifications described earlier.

Notice: **Your vehicle was not designed for fuel that contains methanol. Do not use fuel containing methanol. It can corrode metal parts in your fuel system and also damage the plastic and rubber parts. That damage would not be covered under your warranty.**

Some gasolines that are not reformulated for low emissions may contain an octane-enhancing additive called methylcyclopentadienyl manganese tricarbonyl (MMT); ask the attendant where you buy gasoline whether the fuel contains MMT. General Motors does not recommend 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 authorized GM dealer for service.

Fuels in Foreign Countries

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

To check the fuel availability, ask an auto club, or contact a major oil company that does business in the country where you will be driving.

Filling Your Tank

⚠ CAUTION:

Fuel vapor burns violently and a fuel fire can cause bad injuries. To help avoid injuries to you and others, read and follow all the instructions on the pump island. Turn off your engine when you are refueling. Do not smoke if you are near fuel or refueling your vehicle. Keep sparks, flames and smoking materials away from fuel. Do not leave the fuel pump unattended when refueling your vehicle — this is against the law in some places. Keep children away from the fuel pump; never let children pump fuel.

The tethered fuel cap is located behind a hinged fuel door on the driver's side of the vehicle.

To 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:

If you spill fuel and then something ignites it, you could be badly burned. Fuel can spray out on you if you open the fuel cap too quickly. This spray can happen if your tank is nearly full, and is more likely in hot weather. Open the fuel cap slowly and wait for any hiss noise to stop. Then unscrew the cap all the way.

Be careful not to spill fuel. Do not top off or overfill the tank and wait a few seconds after you have finished pumping before removing the nozzle. Clean fuel from painted surfaces as soon as possible. See *Washing Your Vehicle on page 5-88*.

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 3-30*.

⚠ CAUTION:

If a fire starts while you are refueling, do not remove the nozzle. Shut off the flow of fuel by shutting off the pump or by notifying the station attendant. Leave the area immediately.

Notice: **If you need a new fuel cap, be sure to get the right type. Your dealer can get one for you. If you get the wrong type, it may not fit properly. This may cause your malfunction indicator lamp to light and may damage your fuel tank and emissions system. See *Malfunction Indicator Lamp on page 3-30*.**

Filling a Portable Fuel Container

⚠ CAUTION:

Never fill a portable fuel container while it is in your vehicle. Static electricity discharge from the container can ignite the gasoline vapor. You can be badly burned and your vehicle damaged if this occurs. To help avoid injury to you and others:

- **Dispense gasoline only into approved containers.**
- **Do not fill a container while it is inside a vehicle, in a vehicle's trunk, pickup bed or on any surface other than the ground.**
- **Bring the fill nozzle in contact with the inside of the fill opening before operating the nozzle. Contact should be maintained until the filling is complete.**
- **Do not smoke while pumping gasoline.**

Checking Things Under the Hood

⚠ CAUTION:

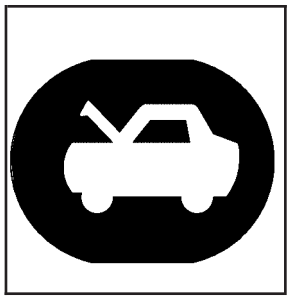
An electric fan under the hood can start up and injure you even when the engine is not running. Keep hands, clothing and tools away from any underhood electric fan.

⚠ CAUTION:

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

Hood Release

To open the hood, do the following:



1. Pull the handle with this symbol on it. It is located inside the vehicle on the lower driver's side of the instrument panel.

2. Then go to the front of the vehicle and release the secondary hood release.
3. Lift the hood, release the hood prop from its retainer and put the hood prop into the slot marked PROP ROD.

Before closing the hood, be sure all the filler caps are on properly. Then lift the hood to relieve pressure on the hood prop and remove the hood prop from the slot in the hood. Return the prop to its retainer and pull the hood down. Then close the hood firmly.

Engine Compartment Overview

When you open the hood, you will see the following:

A. Windshield Washer Fluid Reservoir. See “Adding Washer Fluid” under *Windshield Washer Fluid on page 5-37*.

B. Engine Coolant Recovery Tank. See *Cooling System on page 5-30*.

C. Engine Oil Dipstick. See “Checking Engine Oil” under *Engine Oil on page 5-13*.

D. Automatic Transmission Fluid Dipstick. See “Checking the Fluid Level” under *Automatic Transmission Fluid on page 5-23*.

E. Engine Air Cleaner/Filter. See *Engine Air Cleaner/Filter on page 5-21*.

F. Engine Oil Fill Cap. See “When to Add Engine Oil” under *Engine Oil on page 5-13*.

G. Brake Master Cylinder Reservoir. See “Brake Fluid” under *Brakes on page 5-38*.

H. Power Steering Fluid Reservoir. See *Power Steering Fluid on page 5-36*.

I. Battery. See *Battery on page 5-42*.

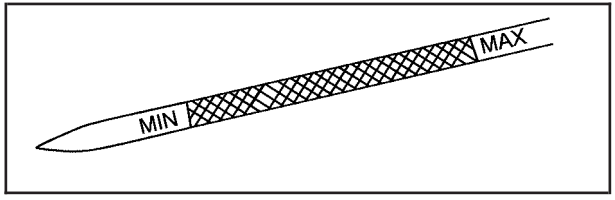
Engine Oil

Checking Engine Oil

It is a good idea to check your 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 5-12* 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 at or below the MIN line, then you will need to add at least one quart 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 5-101*.

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

See *Engine Compartment Overview on page 5-12* for the location of the engine oil fill cap.

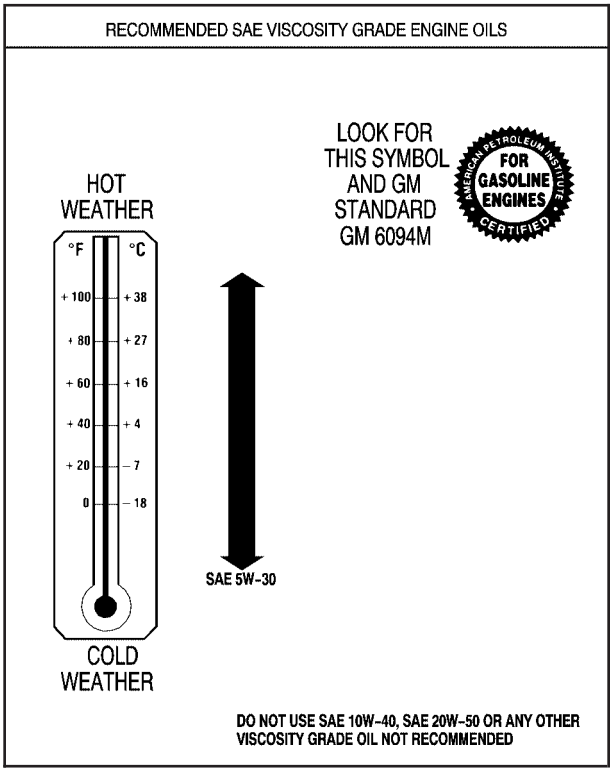
Be sure to add enough oil to put the level somewhere in the proper operating range. Push the dipstick all the way back in when you are through.

What Kind of Engine Oil to Use

Look for two things:

- GM6094M

  Your vehicle's engine requires oil meeting GM Standard GM6094M. You should look for and use only an oil that meets GM Standard GM6094M.



- SAE 5W-30

  As shown in the viscosity chart, SAE 5W-30 is best for your vehicle.

  These numbers on an oil container show its viscosity, or thickness. Do not use other viscosity oils such as SAE 20W-50.

Oils meeting these requirements should also have the starburst symbol on the container. This symbol indicates that the oil has been certified by the American Petroleum Institute (API).

You should look for this information on the oil container, and use *only* those oils that are identified as meeting GM Standard GM6094M and have the starburst symbol on the front of the oil container.

Notice: **Use only engine oil identified as meeting GM Standard GM6094M and showing the American Petroleum Institute Certified For Gasoline Engines starburst symbol. Failure to use the recommended oil can result in engine damage not covered by your warranty.**

GM Goodwrench® oil meets all the requirements for your vehicle.

If you are in an area of extreme cold, where the temperature falls below –20°F (–29°C), it is recommended that you use either an SAE 5W-30 synthetic oil or an SAE 0W-30 oil. Both will provide easier cold starting and better protection for your engine at extremely low temperatures.

Engine Oil Additives

Do not add anything to your oil. The recommended oils with the starburst symbol that meet GM Standard GM6094M are all you will need for good performance and engine protection.

When to Change Engine Oil

If any one of these are true for you, use the short trip/city maintenance schedule:

- Most trips are less than 5 miles (8 km). This is particularly important when outside temperatures are below freezing.
- Most trips include extensive idling, such as frequent driving in stop-and-go traffic.
- You frequently tow a trailer or use a carrier on top of your vehicle.
- The vehicle is used for delivery service, police, taxi, or other commercial application.

Driving under these conditions causes engine oil to break down sooner. If any one of these is true for your vehicle, then you need to change your oil and filter every 3,000 miles (5 000 km) or 3 months — whichever occurs first.

If none of them is true, use the long trip/highway maintenance schedule. Change the oil and filter every 7,500 miles (12 500 km) or 12 months — whichever occurs first. Driving a vehicle with a fully warmed engine under highway conditions will cause engine oil to break down slower.

What to Do with Used Oil

Used engine oil contains certain elements that may be unhealthy for your skin and could even cause cancer. Do not let used oil stay on your skin for very long. Clean your skin and nails with soap and water, or a good hand cleaner. Wash or properly dispose of clothing or rags containing used engine oil. See the manufacturer's warnings about the use and disposal of oil products.

Used oil can be a threat to the environment. If you change your own oil, be sure to drain all the oil from the filter before disposal. Never dispose of oil by putting it in the trash, pouring it on the ground, into sewers, or into streams or bodies of water. Instead, recycle it by taking it to a place that collects used oil. If you have a problem properly disposing of your used oil, ask your dealer, a service station or a local recycling center for help.

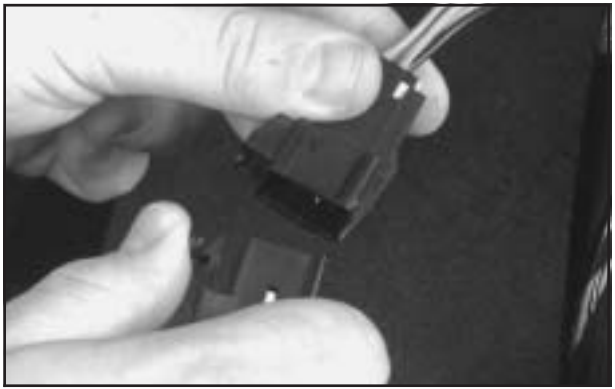
Engine Cover

Removing the Engine Cover

1. Move both front seats as far back as they will go.

2. Remove the instrument panel extension by removing the two nuts that secure it in place. The nuts are located at the bottom of the extension on the driver's and passenger's side corners.

3. Remove the screws located near the top on each side of the extension. Grasp the extension from both sides and gently remove it.



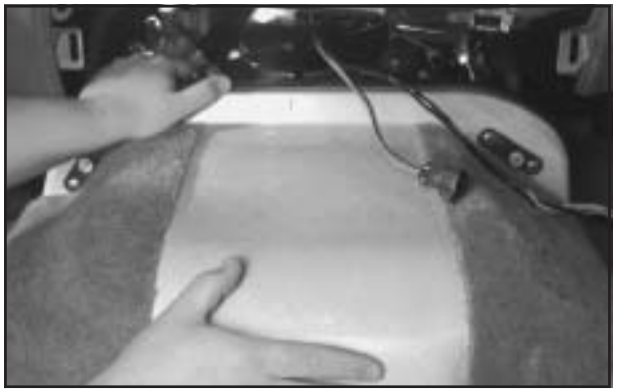
4. Disconnect the electrical connectors and set the extension aside.

5. Grasp the top of the heater duct and pull down gently to remove it.

6. Loosen the two bolts on the engine cover. The bolts are not supposed to come out of the cover, only from the front of the dash.

   When removing the cover, be careful not to damage the instrument panel or the trim.

7. Disconnect the AM radio ground strap.



8. Grasp the bottom of the cover and slide it rearward. Then, lift it up and out of the vehicle.

   If the seal does not release, use the pull strap on the driver's side above the rear mount.

Reinstalling the Engine Cover

1. Lift the engine cover into the front of the vehicle and slide it all the way forward. Make sure the rubber seal is over the latches.
2. Tighten the two bolts located on the engine cover to reinstall the cover to the front of the dash.
3. Put the heater duct over the engine cover studs. Push up on the duct gently until it snaps into place.
4. Reconnect the electrical connectors.
5. Reconnect the AM radio ground strap.
6. Reinstall the engine cover extension by gently squeezing the sides and sliding it into place. Make sure all of the fastener clips engage and the extension fits properly in place. Reinstall and tighten the two screws.
7. Reinstall the two nuts to secure the extension in place.

Engine Air Cleaner/Filter

See *Engine Compartment Overview on page 5-12* for the location of the engine air cleaner/filter.

When to Inspect the Engine Air Cleaner/Filter

Inspect the engine air cleaner/filter every 15,000 miles (25 000 km) and replace every 45,000 miles (75 000 km). 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. Unsnap both clips on the filter cover.
2. Remove the cover.
3. Inspect or replace the engine air cleaner/filter.
4. Replace the cover.
5. Snap both clips to secure the cover.

⚠ CAUTION:

Operating the engine with the air cleaner/filter off can cause you or others to be burned. The air cleaner not only cleans the air; it helps to stop flame 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 Transmission Fluid

When to Check and Change

A good time to check your automatic transmission fluid level is when the engine oil is changed.

Change both the fluid and filter every 15,000 miles (25,000 km) 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, change the fluid and filter every 50,000 miles (83 000 km).

See *Part A: Scheduled Maintenance Services on page 6-4*.

How to Check

Because this operation can be a little difficult, you may choose to have this done at the dealership service department.

If you do it yourself, be sure to follow all the instructions here, or you could get a false reading on the dipstick.

Notice: **Too much or too little fluid can damage your transmission. Too much can mean that some of the fluid could come out and fall on hot engine part or exhaust system parts, starting a fire. Too little fluid could cause the transmission to overheat. Be sure to get an accurate reading if you check your transmission fluid.**

Wait at least 30 minutes before checking the transmission fluid level if you have been driving:

- When outside temperatures are above 90°F (32°C).
- At high speed for quite a while.
- In heavy traffic — especially in hot weather.
- While pulling a trailer.

To get the right reading, the fluid should be at normal operating temperature, which is 180°F to 200°F (82°C to 93°C).

Get the vehicle warmed up by driving about 15 miles (24 km) when outside temperatures are above 50°F (10°C). If it is colder than 50°F (10°C), drive the vehicle in DRIVE (D) until the engine temperature gage moves and then remains steady for 10 minutes.

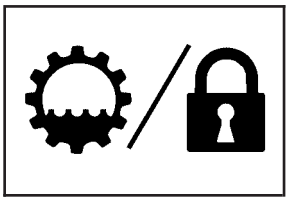
A cold fluid check can be made after the vehicle has been sitting for eight hours or more with the engine off, but this is used only as a reference. Let the engine run at idle for five minutes if outside temperatures are 50°F (10°C) or more. If it is colder than 50°F (10°C), you may have to idle the engine longer. Should the fluid level be low during this cold check, you must check the fluid hot before adding fluid. Checking the fluid hot will give you a more accurate reading of the fluid level.

Checking the Fluid Level

Prepare your vehicle as follows:

- Park your vehicle on a level place. Keep the engine running.
- With the parking brake applied, place the shift lever in PARK (P).
- With your foot on the brake pedal, move the shift lever through each gear range, pausing for about three seconds in each range. Then, position the shift lever in PARK (P).
- Let the engine run at idle for three minutes or more.

Then, without shutting off the engine, follow these steps:



The transmission dipstick is located near the center of the engine compartment and will be labeled with the graphic shown.

See *Engine Compartment Overview on page 5-12* for more information on location.

1. Flip the handle up and then pull out the dipstick and wipe it with a clean rag or paper towel.
2. Push it back in all the way, wait three seconds and then pull it back out again.

3. Check both sides of the dipstick, and read the lower level. The fluid level must be in the COLD area for a cold check or in the HOT or cross-hatched area for a hot check. Be sure to keep the dipstick pointed down to get an accurate reading.
4. If the fluid level is in the acceptable range, push the dipstick back in all the way; then flip the handle down to lock the dipstick in place.

How to Add Fluid

Refer to the Maintenance Schedule to determine what kind of transmission fluid to use. See *Part D: Recommended Fluids and Lubricants on page 6-29*.

If the fluid level is low, add only enough of the proper fluid to bring the level up to the HOT area for a hot check.

1. Pull out the dipstick.
2. Using a funnel, add fluid down the transmission dipstick tube only after checking the transmission fluid while it is hot. A cold check is used only as a reference.

   It does not take much fluid, generally less than one pint (0.5 L). *Do not overfill*.

Notice: **Use of automatic transmission fluid labeled other than DEXRON®-III, Approved for the H-Specification, may damage your vehicle, and the damages may not be covered by your warranty. Always use automatic transmission fluid labeled DEXRON®-III, Approved for the H-Specification.**

3. After adding fluid, recheck the fluid level as described under “How to Check,” earlier in this section.
4. When the correct fluid level is obtained, push the dipstick back in all the way; then flip the handle down to lock the dipstick in place.

Engine Coolant

The cooling system in your vehicle is filled with DEX-COOL® engine coolant. This coolant is designed to remain in your vehicle for 5 years or 150,000 miles (240 000 km), whichever occurs first, if you add only DEX-COOL® extended life coolant.

The following explains your cooling system and how to add coolant when it is low. If you have a problem with engine overheating, see *Engine Overheating on page 5-28*.

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

- Give freezing protection down to –34°F (–37°C).
- Give boiling protection up to 265°F (129°C).
- Protect against rust and corrosion.
- Help keep the proper engine temperature.
- Let the warning lights and gages work as they should.

Notice: **Using coolant other than DEX-COOL® may cause premature engine, heater core or radiator corrosion. In addition, the engine coolant may require changing sooner, at 30,000 miles (50 000 km) or 24 months, whichever occurs first. Any repairs would not be covered by your warranty. Always use DEX-COOL® (silicate-free) coolant in your vehicle.**

What to Use

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

⚠ CAUTION:

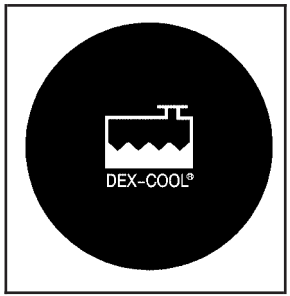
Adding only plain water to your cooling system can be dangerous. Plain water, or some other liquid such as alcohol, can boil before the proper coolant mixture will. Your vehicle's coolant warning system is set for the proper coolant mixture. With plain water or the wrong mixture, your engine could get 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 the proper 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 check your cooling system.

Notice: **If you use the proper coolant, you do not have to add extra inhibitors or additives which claim to improve the system. These can be harmful.**

Checking Coolant



The engine coolant recovery tank is located in the engine compartment on the passenger's side of the vehicle. See *Engine Compartment Overview on page 5-12* for more information on location.

The vehicle must be on a level surface. When your engine is cold, the coolant level should be at ADD or a little higher. When your engine is warm, the level should be up to FULL HOT or a little higher.

Adding Coolant

If you need more coolant, add the proper DEX-COOL® coolant mixture *at the coolant recovery tank,* but be careful not to spill it.

⚠ CAUTION:

Turning the radiator pressure cap when the engine and radiator are hot can allow steam and scalding liquids to blow out and burn you badly. With the coolant recovery tank, you will almost never have to add coolant at the radiator. Never turn the radiator pressure cap — even a little — when the engine and radiator are hot.

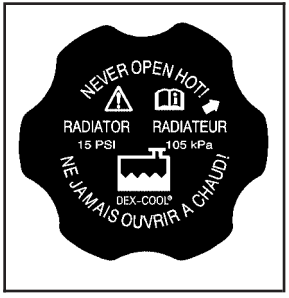
⚠ CAUTION:

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.

Occasionally check the coolant level in the radiator. For information on how to add coolant to the radiator, see *Cooling System on page 5-30*.

Radiator 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.**



The radiator pressure cap is located in the engine compartment on the passenger's side of the vehicle. See *Engine Compartment Overview on page 5-12* for more information on location.

Engine Overheating

You will find an engine coolant temperature gage on your vehicle's instrument panel. See *Engine Coolant Temperature Gage on page 3-29*.

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

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. See “Driving on Grades” under *Towing a Trailer on page 4-34*.

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 you no longer have the overheat warning, you can drive. Just to be safe, drive slower for about 10 minutes. If the warning does not come back on, you can drive normally.

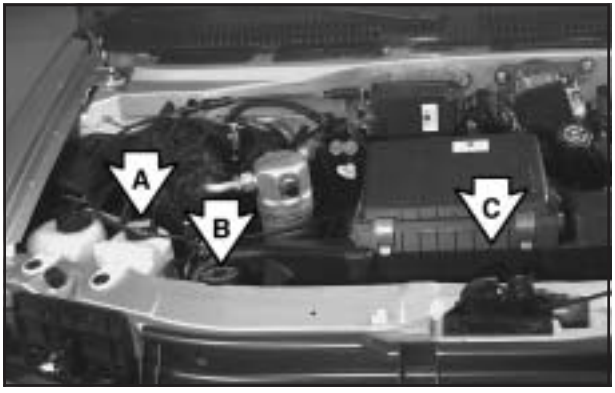
If the warning continues and you have not stopped, pull over, stop, and park your vehicle right away.

If there is still no sign of steam, you can push down the accelerator until the engine speed is about twice as fast as normal idle speed for at least 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. Coolant Recovery Tank
B. Radiator Pressure Cap
C. Engine Cooling Fan

If the coolant inside the coolant recovery 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 the ADD mark if the engine is cold, or the FULL HOT mark if the engine is warm. 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, start the engine again. The engine cooling fan speed should increase when idle speed is doubled by pushing the accelerator pedal down. If it does not, your vehicle needs service. Turn off the engine.

Notice: **Engine damage from running your engine without coolant is not covered by your warranty.**

Notice: **Using coolant other than DEX-COOL® may cause premature engine, heater core or radiator corrosion. In addition, the engine coolant may require changing sooner, at 30,000 miles (50 000 km) or 24 months, whichever occurs first. Any repairs would not be covered by your warranty. Always use DEX-COOL® (silicate-free) coolant in your vehicle.**

How to Add Coolant to the Coolant Recovery Tank

⚠ 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.**

If you have not found a problem yet, but the coolant level is not at the ADD mark, add a 50/50 mixture of *clean, drinkable water* and DEX-COOL® engine coolant at the coolant recovery tank. See *Engine Coolant on page 5-26* for more information.

⚠ 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 the coolant in the coolant recovery tank is at the ADD mark, start your vehicle.

If the overheat warning continues, there is one more thing you can try. You can add the proper coolant mixture directly to the radiator, but be sure the cooling system is cool before you do it.

⚠ CAUTION:

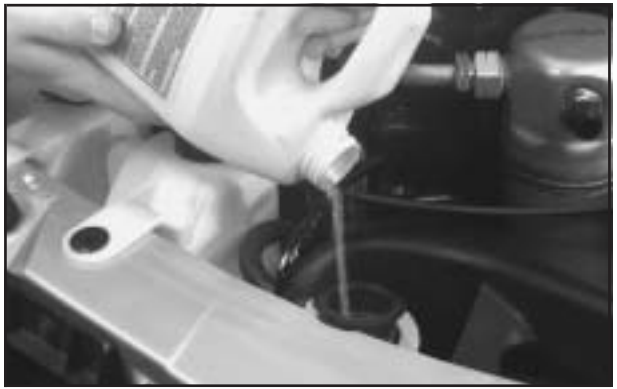
Steam and scalding liquids from a hot cooling system can blow out and burn you badly. They are under pressure, and if you turn the radiator pressure cap — even a little — they can come out at high speed. Never turn the cap when the cooling system, including the radiator pressure cap, is hot. Wait for the cooling system and radiator pressure cap to cool if you ever have to turn the pressure cap.

How to Add Coolant to the Radiator

1. You can remove the radiator pressure cap when the cooling system, including the radiator pressure cap and upper radiator hose, is no longer hot. Turn the pressure cap slowly counterclockwise until it first stops. Do not press down while turning the pressure cap.

   If you hear a hiss, wait for that to stop. A hiss means there is still some pressure left.

2. Then keep turning the pressure cap, but now push down as you turn it. Remove the pressure cap.



3. Fill the radiator with the proper DEX-COOL® coolant mixture, up to the base of the filler neck. See *Engine Coolant on page 5-26* for more information about the proper coolant mixture.
4. Then fill the coolant recovery tank to the ADD mark.
5. Put the cap back on the coolant recovery tank, but leave the radiator pressure cap off.

6. Start the engine and let it run until you can feel the upper radiator hose getting hot. Watch out for the engine cooling fan.
7. By this time, the coolant level inside the radiator filler neck may be lower. If the level is lower, add more of the proper DEX-COOL® coolant mixture through the filler neck until the level reaches the base of the filler neck.

   Then replace the pressure cap. At any time during this procedure if coolant begins to flow out of the filler neck, reinstall the pressure cap. Be sure the arrow on the pressure cap lines up properly.

Engine Fan Noise

This vehicle has a clutched engine cooling fan. When the clutch is engaged, the fan spins faster to provide more air to cool the engine. In most everyday driving conditions, the clutch is not fully engaged. This improves fuel economy and reduces fan noise. Under heavy vehicle loading, trailer towing and/or high outside temperatures, the fan speed increases when the clutch engages. So you may hear an increase in fan noise. This is normal and should not be mistaken as the transmission slipping or making extra shifts. It is merely the cooling system functioning properly. The fan will slow down when additional cooling is not required and the clutch disengages.

You may also hear this fan noise when you start the engine. It will go away as the fan clutch disengages.

Power Steering Fluid

See *Engine Compartment Overview on page 5-12* for the power steering fluid reservoir location.

When to Check Power Steering Fluid

It is not necessary to regularly check power steering fluid unless you suspect there is a leak in the system or you hear an unusual noise. A fluid loss in this system could indicate a problem. Have the system inspected and repaired.

How to Check Power Steering Fluid

To check the power steering fluid, do the following:

1. Turn the key off and let the engine compartment cool down.
2. Wipe the cap and the top of the reservoir clean.
3. Unscrew the cap and wipe the dipstick with a clean rag.
4. Replace the cap and completely tighten it.
5. Remove the cap again and look at the fluid level on the dipstick.

The level should be at the FULL COLD mark. If necessary, add only enough fluid to bring the level up to the mark.

What to Use

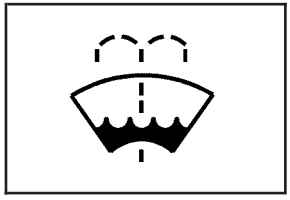
To determine what kind of fluid to use, see *Part D: Recommended Fluids and Lubricants on page 6-29*. Always use the proper fluid. Failure to use the proper fluid can cause leaks and damage hoses and seals.

Windshield Washer Fluid

What to Use

When you need windshield washer fluid, be sure to read the manufacturer's instructions before use. If you will be operating your vehicle in an area where the temperature may fall below freezing, use a fluid that has sufficient protection against freezing.

Adding Washer Fluid



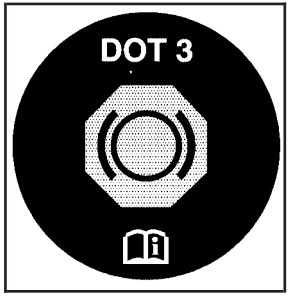
Open the cap with the washer symbol on it. Add washer fluid until the tank is full. See *Engine Compartment Overview on page 5-12* for reservoir location.

Notice:

- **When using concentrated washer fluid, follow the manufacturer's instructions for adding water.**
- **Do not mix water with ready-to-use washer fluid. Water can cause the solution to freeze and damage your washer fluid tank and other parts of the washer system. Also, water does not clean as well as washer fluid.**
- **Fill your washer fluid tank only three-quarters full when it is very cold. This allows for expansion if freezing occurs, which could damage the tank if it is completely full.**
- **Do not use engine coolant (antifreeze) in your windshield washer. It can damage your washer system and paint.**

Brakes

Brake Fluid



Your brake master cylinder reservoir is filled with DOT-3 brake fluid. See *Engine Compartment Overview on page 5-12* 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 system. If it is, you should have your brake system fixed, since a leak means that sooner or later your brakes will not work well, or will not work at all.

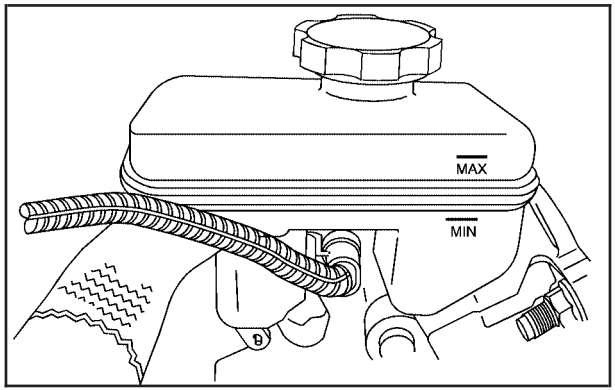
So, it is not a good idea to top off your brake fluid. Adding brake fluid will not correct a leak. If you add fluid when your linings are worn, then you will have too much fluid when you get new brake linings. You should add or remove brake fluid, as necessary, only when work is done on the brake hydraulic system.

⚠ CAUTION:

If you have 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. See “Checking Brake Fluid” in this section.

Refer to the Maintenance Schedule to determine when to check your brake fluid. See *Part C: Periodic Maintenance Inspections on page 6-28*.

Checking Brake Fluid



You can check the brake fluid without taking off the cap.

Just look at the brake fluid reservoir. The fluid level should be above MIN. If it is not, have your brake system checked to see if there is a leak.

After work is done on the brake hydraulic system, make sure the level is above the MIN but not over the MAX mark.

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 *Part D: Recommended Fluids and Lubricants on page 6-29*.

Always clean the brake fluid reservoir cap and the area around the cap before removing it. This will help keep dirt from entering the reservoir.

⚠ CAUTION:

With the wrong kind of fluid in your brake system, your brakes may not work well, or they may not even work at all. This could cause a crash. Always use the proper brake fluid.

Notice:

- **Using the wrong fluid can badly damage brake system parts. For example, just a few drops of mineral-based oil, such as engine oil, in your brake system can damage brake system parts so badly that they will have to be replaced. Do not let someone put in the wrong kind of fluid.**
- **If you spill brake fluid on your vehicle's painted surfaces, the paint finish can be damaged. Be careful not to spill brake fluid on your vehicle. If you do, wash it off immediately. See *Appearance Care on page 5-84*.**

Brake Wear

Your vehicle has four-wheel disc brakes.

Disc brake pads have built-in wear indicators that make a high-pitched warning sound when the brake pads are worn and new pads are needed. The sound may come and go or be heard all the time your vehicle is moving, except when you are pushing on the brake pedal firmly.

⚠ CAUTION:

The brake wear warning sound means that soon your brakes will not work well. That could lead to an accident. When you hear the brake wear warning sound, have your vehicle serviced.

Notice: **Continuing to drive with worn-out brake pads could result in costly brake repair.**

Some driving conditions or climates may cause a brake squeal when the brakes are first applied or lightly applied. This does not mean something is wrong with your brakes.

Properly torqued wheel nuts are necessary to help prevent brake pulsation. When tires are rotated, inspect brake pads for wear and evenly tighten wheel nuts in the proper sequence to GM torque specifications.

Brake linings should always be replaced as complete axle sets.

See *Brake System Inspection on page 6-29*.

Brake Pedal Travel

See your dealer if the brake pedal does not return to normal height, or if there is a rapid increase in pedal travel. This could be a sign of brake trouble.

Brake Adjustment

Every time you make a brake stop, your disc brakes adjust for wear.

Replacing Brake System Parts

The braking system on a vehicle is complex. Its many parts have to be of top quality and work well together if the vehicle is to have really good braking. Your vehicle was designed and tested with top-quality GM brake parts. When you replace parts of your braking system — for example, when your brake linings wear down and you need new ones put in — be sure you get new approved GM replacement parts. If you do not, your brakes may no longer work properly. For example, if someone puts in brake linings that are wrong for your vehicle, the balance between your front and rear brakes can change — for the worse. The braking performance you have come to expect can change in many other ways if someone puts in the wrong replacement brake parts.

Battery

Your vehicle has a maintenance free battery. When it is time for a new battery, get one that has the replacement number shown on the original battery's label. We recommend an ACDelco® replacement battery. See *Engine Compartment Overview on page 5-12* for battery location.

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

Vehicle Storage

If you are not going to drive your vehicle for 25 days or more, remove the black, negative (–) cable from the battery. This will help keep your battery from running down.

⚠ CAUTION:

Batteries have acid that can burn you and gas that can explode. You can be badly hurt if you are not careful. See *Jump Starting on page 5-42* for tips on working around a battery without getting hurt.

Also, for your audio system, see *Theft-Deterrent Feature on page 3-48*.

Jump Starting

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

⚠ CAUTION:

Batteries can hurt you. They can be dangerous because:

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

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

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

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

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

Notice: **If the other vehicle's system is not a 12-volt system with a negative ground, both vehicles can be damaged. Only use vehicles with 12-volt systems with negative grounds to jump start your vehicle.**

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

   To avoid the possibility of the vehicles rolling, set the parking brake firmly on both vehicles involved in the jump start procedure. Put an automatic transmission in PARK (P) and a manual transmission 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 accessory power outlets. Turn off 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 (–) terminals on each battery.

⚠ CAUTION:

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

Be sure the battery has enough water. You do not need to add water to the battery installed in your new vehicle. But if a battery has filler caps, be sure the right amount of fluid is there. If it is low, add water to take care of that first. If you do not, explosive gas could be present.

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

⚠ CAUTION:

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

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

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

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

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

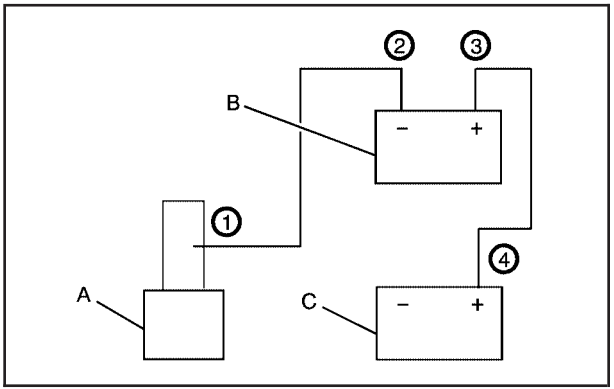
7. Do not let the other end touch metal. Connect it to the positive (+) terminal of the good battery. Use a remote positive (+) terminal if the vehicle has one.

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 with the dead battery. If it will not start after a few tries, it probably needs service.

Notice: **If the jumper cables are removed in the wrong order, electrical shorting may occur and damage the vehicle. The repairs would not be covered by your warranty. 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.

All-Wheel Drive

Lubricant checks in this section also apply to these vehicles. However, there are two additional systems that need lubrication.

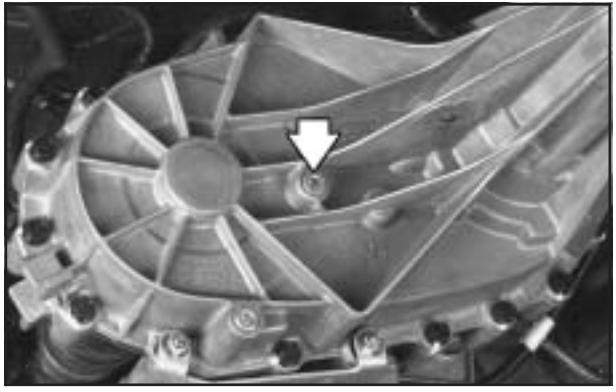
Transfer Case

When to Check Lubricant

Refer to the Maintenance Schedule to determine how often to check the lubricant. See *Part C: Periodic Maintenance Inspections on page 6-28*.

How to Check Lubricant

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



If the level is below the bottom of the filler plug hole, you'll need to add some lubricant. Add enough lubricant to raise the level to the bottom of the filler plug hole. Use care not to overtighten the plug.

What to Use

Refer to the Maintenance Schedule to determine what kind of lubricant to use. See *Part D: Recommended Fluids and Lubricants on page 6-29*.

Rear Axle

When to Check Lubricant

Refer to the Maintenance Schedule to determine how often to check the lubricant. See *Part A: Scheduled Maintenance Services on page 6-4*.

How to Check Lubricant

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

If the level is below the bottom of the filler plug hole, you'll need to add some lubricant. Add enough lubricant to raise the level to the bottom of the filler plug hole.

What to Use

Refer to the Maintenance Schedule to determine what kind of lubricant to use. See *Part D: Recommended Fluids and Lubricants on page 6-29*.

Front Axle

When to Check and Change Lubricant

Refer to the Maintenance Schedule to determine how often to check the lubricant and when to change it. See *Part A: Scheduled Maintenance Services on page 6-4*.

How to Check Lubricant

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

If the level is below the bottom of the filler plug hole, you may need to add some lubricant.

When the differential is cold, add enough lubricant to raise the level to 1/2 inch (12 mm) below the filler plug hole.

When the differential is at operating temperature (warm), add enough lubricant to raise the level to the bottom of the filler plug hole.

What to Use

Refer to the Maintenance Schedule to determine what kind of lubricant to use. See *Part D: Recommended Fluids and Lubricants on page 6-29*.

Bulb Replacement

For the proper type of replacement bulbs, see *Replacement Bulbs on page 5-56*.

For any bulb changing procedure not listed in this section, contact your dealer.

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.

Headlamps and Sidemarker Lamps

Sealed Beam Headlamp

1. Remove the four retainer screws and the retainer from the headlamp.

2. Pull the connector out and unplug the lamp.

3. Plug the new lamp into the connector.
4. Reverse Steps 1 and 2 to reinstall the headlamp.

Composite Headlamps

1. Open the hood. See *Hood Release on page 5-11* for more information.

2. Remove the two screws from the sidemarker/turn signal lamp assembly.

3. Completely remove the sidemarker/turn signal lamp assembly by pulling it out and disconnecting the sidemarker/turn signal lamp sockets from the lamp. Replace the sidemarker/turn signal bulb with a new one if it needs to be replaced.

4. Remove the screw located behind the corner reflector to remove the entire corner reflector.

5. Remove the remaining three screws, the first one from the corner reflector pocket and the two remaining from the composite assembly.
6. Remove the composite assembly.

7. Turn the halogen bulb counterclockwise to remove it from the assembly.
8. Install the new bulb into the composite assembly by turning it clockwise until it is completely tightened.
9. Reinstall the composite assembly by installing and tightening all of the screws previously removed.

Front Turn Signal and Parking Lamps

1. Remove the two screws at the inside edge of the parking/turn signal lamp assembly.
2. Remove the lamp assembly.

3. Squeeze the tab on the side of the lamp socket while turning the socket counterclockwise.
4. Pull the socket out of the lamp assembly.
5. Pull the bulb from the socket.
6. Gently push the new bulb into the socket.
7. Put the socket back into the lamp assembly and turn it clockwise until it locks.
8. Put the parking/turn signal lamp assembly back into the vehicle and tighten the screws.

Taillamps, Turn Signal, Stoplamps and Back-up Lamps

1. Open the rear door. See *Rear Doors on page 2-11* for more information.

2. Remove the two screws from behind the door.

3. Pull out the taillamp assembly so you can see the socket.

4. Press the tab and turn the socket counterclockwise to remove the socket from the bezel. If the socket does not have a tab, turn the socket counterclockwise to remove the socket from the bezel.

5. Remove the old bulb from the socket and replace it with a new one.
6. Reverse Steps 1 through 4 to reinstall the taillamp.

Replacement Bulbs

Exterior Lamp	Bulb Number
Back-Up Lamps	1156
Headlamps	
Composite High-Beam	9005
Composite Low-Beam	9006
Sealed-Beam Headlamps	H6054
Parking, Turn Signal Lamps	3157NA
Sidemarker Lamps	194
Stoplamps	2057

For replacement bulbs not listed here, contact your dealer.

Windshield Wiper Blade Replacement

Windshield wiper blades should be inspected at least twice a year for wear and cracking. See “Wiper Blade Check” in *At Least Twice a Year on page 6-24* for more information.

To replace your windshield wiper blade inserts, do the following:

1. Lift the wiper arm away from the windshield.
2. Pinch the two tabs on the wiper arm and slide the insert out of the blade.
3. Slide the new one in place.

Make sure the tabs are locked into position. See *Normal Maintenance Replacement Parts on page 5-102* for the proper type of replacement blade.

Rear Window Wiper Blade Replacement

If your vehicle is equipped with a rear window wiper blade, follow the procedure above to replace the wiper blade.

Tires

Your new vehicle comes with high-quality tires made by a leading tire manufacturer. If you ever have questions about your tire warranty and where to obtain service, see your GM Warranty booklet for details. For additional information refer to the tire manufacturer's booklet included with your vehicle's Owner's Manual.

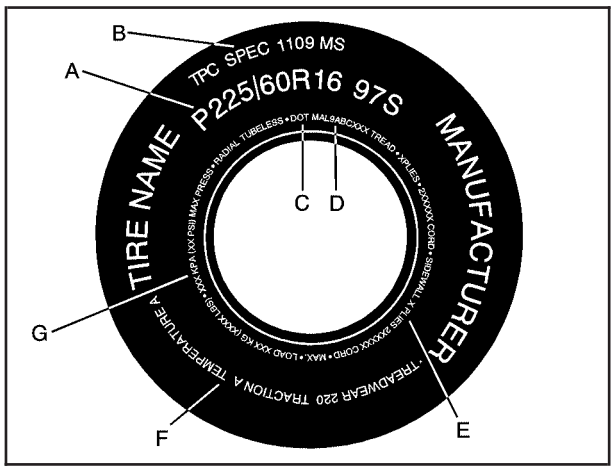
⚠ CAUTION:

Poorly maintained and improperly used tires are dangerous.

- **Overloading your tires can cause overheating as a result of too much friction. You could have an air-out and a serious accident. See *Loading Your Vehicle on page 4-28*.**
- **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 tires are cold. See *Inflation - Tire Pressure on page 5-64*.**
- **Overinflated tires are more likely to be cut, punctured or broken by a sudden impact — such as when you hit a pothole. Keep tires at the recommended pressure.**
- **Worn, old tires can cause accidents. If your tread is badly worn, or if your tires have been damaged, replace them.**

Tire Sidewall Labelling

Useful information about a tire is molded into its sidewall. The examples below show a typical passenger vehicle tire and a compact spare tire sidewall.



Passenger (P-Metric) Tire Example

(A) Tire Size: The tire size is a combination of letters and numbers used to define a particular tire's width, height, aspect ratio, construction type and service description. See the "Tire Size" illustration later in this section for more detail.

(B) TPC Spec (Tire Performance Criteria Specification): Original equipment tires designed to GM's specific tire performance criteria have a TPC specification code molded onto the sidewall. GM's TPC specifications meet or exceed all federal safety guidelines.

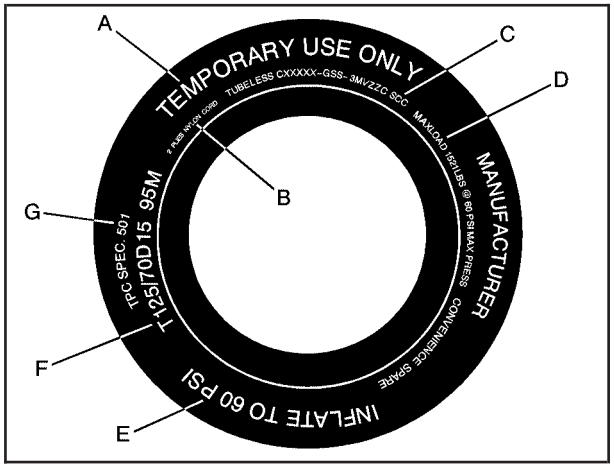
(C) DOT (Department of Transportation): The Department of Transportation (DOT) code indicates that the tire is in compliance with the U.S. Department of Transportation Motor Vehicle Safety Standards.

(D) Tire Identification Number (TIN): The letters and numbers following DOT (Department of Transportation) code is 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 5-68*.

(G) Maximum Cold Inflation Load Limit: Maximum load that can be carried and the maximum pressure needed to support that load.



Compact Spare Tire Example

(A) Temporary Use Only: The compact spare tire or temporary use tire has a tread life of approximately 3,000 miles (5 000 km) and should not be driven at speeds over 65 mph (105 km/h). The compact spare tire is for emergency use when a regular road tire has lost air and gone flat. If your vehicle has a compact spare tire, see *Compact Spare Tire on page 5-84* and *If a Tire Goes Flat on page 5-71*.

(B) Tire Ply Material: The type of cord and number of plies in the sidewall and under the tread.

(C) Tire Identification Number (TIN): The letters and numbers following the DOT (Department of Transportation) code is the Tire Identification Number (TIN). The TIN shows the manufacturer and plant code, tire size, and date the tire was manufactured. The TIN is molded onto both sides of the tire, although only one side may have the date of manufacture.

(D) Maximum Cold Inflation Load Limit: Maximum load that can be carried and the maximum pressure needed to support that load.

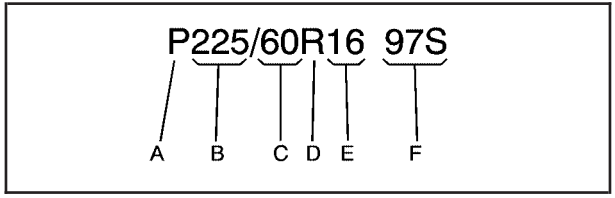
(E) Tire Inflation: The temporary use tire or compact spare tire should be inflated to 60 psi (420 kPa). For more information on tire pressure and inflation see *Inflation - Tire Pressure on page 5-64*.

(F) Tire Size: A combination of letters and numbers define a tire's width, height, aspect ratio, construction type and service description. The letter T as the first character in the tire size means the tire is for temporary use only.

(G) TPC Spec (Tire Performance Criteria Specification): Original equipment tires designed to GM's specific tire performance criteria have a TPC specification code molded onto the sidewall. GM's TPC specifications meet or exceed all federal safety guidelines.

Tire Size

The following illustration shows an example of a typical passenger vehicle 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 60, as shown in item C of the illustration, it would mean that the tire's sidewall is 60 percent as high as it is wide.

(D) Construction Code: A letter code is used to indicate the type of ply construction in the tire. The letter R means radial ply construction; the letter D means diagonal or bias ply construction; and the letter B means belted-bias ply construction.

(E) Rim Diameter: Diameter of the wheel in inches.

(F) Service Description: These characters represent the load range and speed rating of the tire. The load index represents the load carry capacity a tire is certified to carry. The load index can range from 1 to 279. The speed rating is the maximum speed a tire is certified to carry a load. Speed ratings range from A to Z.

Tire Terminology and Definitions

Air Pressure: The amount of air inside the tire pressing outward on each square inch of the tire. Air pressure is expressed in pounds per square inch (psi) or kiloPascal (kPa).

Accessory Weight: This means the combined weight of optional accessories. Some examples of optional accessories are, automatic transmission, 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 Inflation 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 5-64*.

Curb Weight: This means the weight of a motor vehicle with standard and optional equipment including the maximum capacity of fuel, oil and coolant, but without passengers and cargo.

DOT Markings: A code molded into the sidewall of a tire signifying that the tire is in compliance with the U.S. Department of Transportation (DOT) motor vehicle safety standards. The DOT code includes the Tire Identification Number (TIN), an alphanumeric designator which can also identify the tire manufacturer, production plant, brand and date of production.

GVWR: Gross Vehicle Weight Rating, see *Loading Your Vehicle on page 4-28*.

GAWR FRT: Gross Axle Weight Rating for the front axle, see *Loading Your Vehicle on page 4-28*.

GAWR RR: Gross Axle Weight Rating for the rear axle, see *Loading Your Vehicle on page 4-28*.

Intended Outboard Sidewall: The side of an asymmetrical tire, that must always face outward when mounted on a vehicle.

KiloPascal (kPa): The metric unit for air pressure.

Light Truck (LT-Metric) Tire: A tire used on light duty trucks and some multipurpose passenger vehicles.

Load Index: An assigned number ranging from 1 to 279 that corresponds to the load carrying capacity of a tire.

Maximum Inflation Pressure: The maximum air pressure to which a cold tire may be inflated. The maximum air pressure is molded onto the sidewall.

Maximum Load Rating: The load rating for a tire at the maximum permissible inflation pressure for that tire.

Maximum Loaded Vehicle Weight: The sum of curb weight; accessory weight; vehicle capacity weight; and production options weight.

Normal Occupant Weight: The number of occupants a vehicle is designed to seat multiplied by 150 lbs (68 kg). See *Loading Your Vehicle on page 4-28*.

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 and shown on the tire placard. See *Inflation - Tire Pressure on page 5-64* and *Loading Your Vehicle on page 4-28*.

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 5-66*.

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 5-68*.

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 4-28*.

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 4-28*.

Inflation - Tire Pressure

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

Notice: **Do not let anyone tell you that under-inflation or over-inflation is all right. It is not. If your tires do not have enough air (under-inflation), you can get the following:**

- **Too much flexing**
- **Too much heat**
- **Tire overloading**
- **Premature or irregular wear**
- **Poor handling**
- **Reduced fuel economy**

If your tires have too much air (over-inflation), you can get the following:

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

A Tire and Loading Information label is attached to the vehicle's center pillar (B-pillar), below the driver's door latch. 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 4-28*. 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. Do not forget to check the compact spare tire, it should be at 60 psi (420 kPa). For additional information regarding the compact spare tire, see *Compact Spare Tire on page 5-84*.

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.

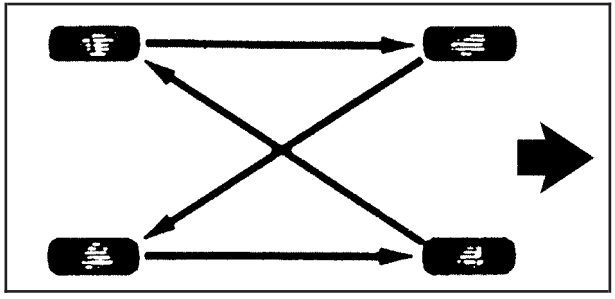
Tire Inspection and Rotation

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 5-66* and *Wheel Replacement on page 5-70* for more information.

Make sure the spare tire is stored securely. Push, pull, and then try to rotate or turn the tire. If it moves, use the ratchet/wheel wrench to tighten the cable. See *Changing a Flat Tire on page 5-72*.

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 *Part A: Scheduled Maintenance Services on page 6-4*.



When rotating your tires, always use the correct rotation patterns shown here.

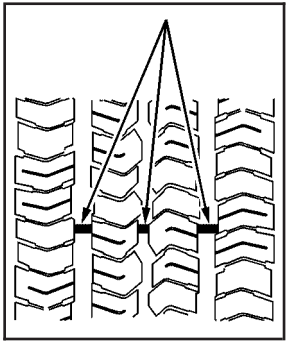
Do not include the compact spare tire in your tire rotation.

After the tires have been rotated, adjust the front and rear inflation pressures as shown on the Tire and Loading Information label. See *Inflation - Tire Pressure on page 5-64* and *Loading Your Vehicle on page 4-28*. Make certain that all wheel nuts are properly tightened. See “Wheel Nut Torque” under *Capacities and Specifications on page 5-101*.

⚠ 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 an accident. When you change a wheel, remove any rust or dirt from places where the wheel attaches to the vehicle. In an emergency, you can use a cloth or a paper towel to do this; but be sure to use a scraper or wire brush later, if you need to, to get all the rust or dirt off. See *Changing a Flat Tire on page 5-72*.

When It Is Time for New Tires



One way to tell when it’s 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. Some commercial truck tires may not have treadwear indicators.

You need a new tire if any of the following statements are true:

- You can see the indicators at three or more places around the tire.
- You can see cord or fabric showing through the tire’s rubber.
- The tread or sidewall is cracked, cut or snagged deep enough to show cord or fabric.
- The tire has a bump, bulge or split.
- The tire has a puncture, cut or other damage that can’t be repaired well because of the size or location of the damage.

Buying New Tires

To find out what kind and size of tires you need, look at the Certification/Tire label or the Tire and Loading Information label. See *Loading Your Vehicle on page 4-28*, for examples of the labels and where they can be found on your vehicle.

The tires installed on your vehicle when it was new had a Tire Performance Criteria Specification (TPC Spec) number on each tire's sidewall. When you get new tires, GM recommends that you get tires with that same TPC Spec number. That way your vehicle will continue to have tires that are designed to give proper endurance, handling, speed rating, traction, ride and other things during normal service on your vehicle. If your tires have an all-season tread design, the TPC number will be followed by an "MS" (for mud and snow).

If you ever replace your tires with those not having a TPC Spec number, make sure they are the same size, load range, speed rating and construction type (bias, bias-belted or radial) as your original tires.

⚠ CAUTION:

Mixing tires could cause you to lose control while driving. If you mix tires of different sizes or types (radial and bias-belted tires), the vehicle may not handle properly, and you could have a crash. Using tires of different sizes may also cause damage to your vehicle. Be sure to use the same size and type tires on all wheels. It's all right to drive with your compact spare temporarily, it was developed for use on your vehicle. See *Compact Spare Tire on page 5-84*.

⚠ 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.

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, 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 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 wheels on your vehicle were aligned and balanced carefully at the factory to give you the longest tire life and best overall performance.

If you notice unusual tire wear or your vehicle pulling one way or the other, the alignment may need to be reset. If you notice your vehicle vibrating when driving on a smooth road, your wheels may need to be rebalanced.

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 dealer if any of these conditions exist.

Your dealer will know the kind of wheel you need.

Each new wheel should have the same load-carrying capacity, diameter, width, offset and be mounted the same way as the one it replaces.

If you need to replace any of your wheels, wheel bolts or wheel nuts, replace them only with new GM original equipment parts. This way, you will be sure to have the right wheel, wheel bolts and wheel nuts for your vehicle.

⚠ CAUTION:

Using the wrong replacement wheels, wheel bolts or wheel nuts on your vehicle can be dangerous. It could affect the braking and handling of your vehicle, make your tires lose air and make you lose control. You could have a collision in which you or others could be injured. Always use the correct wheel, wheel bolts and wheel nuts for replacement.

Notice: **The wrong wheel can also cause problems with bearing life, brake cooling, speedometer or odometer calibration, headlamp aim, bumper height, vehicle ground clearance and tire or tire chain clearance to the body and chassis.**

See *Changing a Flat Tire on page 5-72* for more information.

Used Replacement Wheels

⚠ CAUTION:

Putting a used wheel on your vehicle is dangerous. You can't know how it's been used or how far it's been driven. It could fail suddenly and cause a crash. If you have to replace a wheel, use a new GM original equipment wheel.

Tire Chains

Notice: **Use tire chains only where legal and only when you must. Use only SAE Class "S" type chains that are the proper size for your tires. Install them on the rear axle tires and tighten them as tightly as possible with the ends securely fastened. Drive slowly and follow the chain manufacturer's instructions. If you can hear the chains contacting your vehicle, stop and retighten them. If the contact continues, slow down until it stops. Driving too fast or spinning the wheels with chains on will damage your vehicle.**

If a Tire Goes Flat

It's unusual for a tire to "blowout" while you're driving, especially if you maintain your tires properly. If air goes out of a tire, it's much more likely to leak out slowly. But if you should ever have a "blowout," here are a few tips about what to expect and what to do:

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

A rear blowout, particularly on a curve, acts much like a skid and may require the same correction you'd use in a skid. In any rear blowout, remove your foot from the accelerator pedal. Get the vehicle under control by steering the way you want the vehicle to go. It may be very bumpy and noisy, but you can still steer. Gently brake to a stop, well off the road if possible.

⚠ CAUTION:

Lifting a vehicle and getting under it to do maintenance or repairs is dangerous without the appropriate safety equipment and training. The jack provided with your vehicle is designed only for changing a flat tire. If it is used for anything else, you or others could be badly injured or killed if the vehicle slips off the jack. Use the jack provided with your vehicle only for changing a flat tire.

If a tire goes flat, the next part shows how to use your jacking equipment to change a flat tire safely.

Changing a Flat Tire

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

⚠ CAUTION:

Changing a tire can be dangerous. The vehicle can slip off the jack and roll over or fall on you or other people. You and they could be badly injured or even killed. Find a level place to change your tire. To help prevent the vehicle from moving:

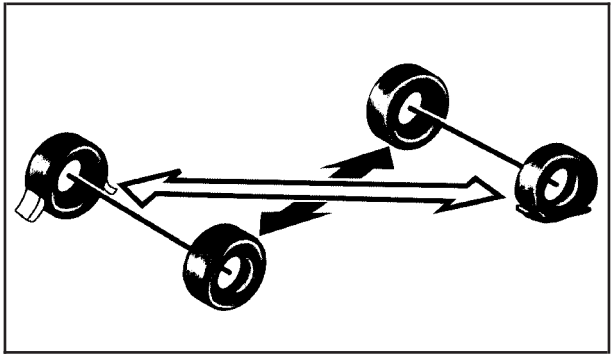
1. **Set the parking brake firmly.**
2. **Put the shift lever in PARK (P).**
3. **Turn off the engine and do not restart while the vehicle is raised.**
4. **Do not allow passengers to remain in the vehicle.**

CAUTION: (Continued)

CAUTION: (Continued)

To be even more certain the vehicle will not move, you should put blocks at the front and rear of the tire farthest away from the one being changed. That would be the tire, on the other side, at the opposite end of the vehicle.

When you have a flat tire, use the following example as a guide to assist you in the placement of wheel blocks.



The following information will tell you next how to use the jack and change a tire.

Removing the Spare Tire and Tools

The jacking equipment you'll need is stored by your vehicle's rear doors, along the passenger's side wall.

1. Remove the jack cover by pulling it away from the side wall and down to release the tabs securing the top of the cover.

2. Remove the wheel blocks by turning the top nut counterclockwise. Remove the nut and washer, then pull the wheel blocks off the bolt.
3. Push down on the bolt and remove the hooked end from the slot. Slide the jack toward the front of the vehicle and lift it from the mounting. Remove the extension and the ratchet from the pouch.

Notice: **If you remove or restow a tire from/to the storage position under the vehicle when it is supported by a jack, you could damage the tire and/or your vehicle. Always remove or restow a tire when the vehicle is on the ground.**

Your compact spare tire is stored underneath the rear of your vehicle. You will use the ratchet and extension to lower the compact spare tire.

The ratchet has an UP side.

It also has a DOWN side.

4. Attach the ratchet to the extension, with the DOWN side facing you. The extension has a socket end and a flat chisel end.

5. Put the flat end of the extension on an angle through the hole in the rear door frame, above the bumper. Be sure the flat end connects into the hoist shaft.

6. Turn the ratchet counterclockwise to lower the compact spare tire to the ground. Keep turning the ratchet until the spare tire can be pulled out from under the vehicle.

7. Tilt the retainer plate at the end of the cable, when the tire has been lowered, and pull it through the wheel opening.

8. Pull the tire out from under the vehicle.

Notice: **If you drive away before the spare tire or secondary latch system cable has been reinstalled, you could damage your vehicle. Always reinstall this cable before driving your vehicle.**

The tools you'll be using include the jack (A), wheel blocks (B), extension (C) and ratchet (D).

Removing the Flat Tire and Installing the Spare Tire

If your vehicle has plastic wheel nut caps, loosen them by turning the wheel wrench counterclockwise. The wheel nut caps are designed to remain with the center cap. Remove the center cap.

If the wheel has a smooth center piece, place the chisel end of the wheel wrench in the slot on the wheel and gently pry it out.

1. Before you start, block the front and rear of the tire farthest away from the one being changed. Then put your compact spare tire near the flat tire.

⚠ CAUTION:

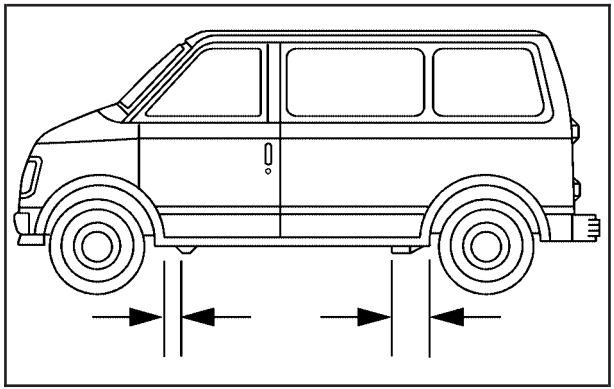
Getting under a vehicle when it is jacked up is dangerous. If the vehicle slips off the jack you could be badly injured or killed. Never get under a vehicle when it is supported only by a jack.

⚠ CAUTION:

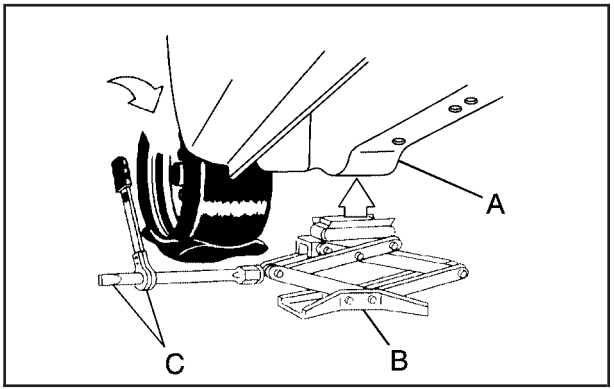
Raising your vehicle with the jack improperly positioned can damage the vehicle and even make the vehicle fall. To help avoid personal injury and vehicle damage, be sure to fit the jack lift head into the proper location before raising the vehicle.

2. With the DOWN side facing you, turn the ratchet and socket to loosen all the wheel nuts counterclockwise. Don't remove them yet.
3. Attach the socket end of the extension to the jack bolt.

4. Attach the ratchet to the extension with the UP side facing you.
5. Turn the ratchet clockwise. That will raise the jack lift head a little.

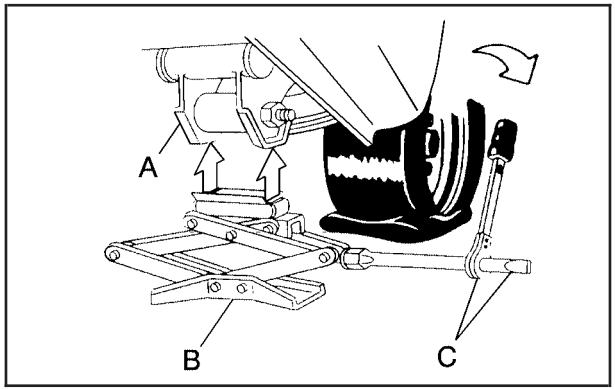


6. Position the jack under the vehicle. Use the above diagram to locate the general positions for placing the jack.



Front Position

A. Front Jack Location
B. Jack
C. Ratchet and Extension



Rear Position

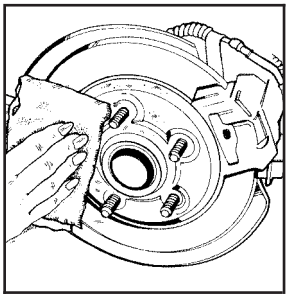
A. Rear Jack Location
B. Jack
C. Ratchet and Extension

7. Raise the vehicle by turning the ratchet clockwise. Make sure the UP mark faces you. Raise the vehicle far enough off the ground so there is enough room for the compact spare tire to fit underneath the wheel well.

8. Remove all the wheel nuts and take off the flat tire.

⚠ CAUTION:

Rust or dirt on the wheel, or on the parts to which it is fastened, can make the wheel nuts become loose after a time. The wheel could come off and cause an accident. When you change a wheel, remove any rust or dirt from the places where the wheel attaches to the vehicle. In an emergency, you can use a cloth or a paper towel to do this; but be sure to use a scraper or wire brush later, if you need to, to get all the rust or dirt off.



9. Remove any rust or dirt from the wheel bolts, mounting surfaces and spare wheel.

⚠ CAUTION:

Never use oil or grease on studs or nuts. If you do, the nuts might come loose. Your wheel could fall off, causing a serious accident.

10. Put on the compact spare tire on the mounting surface.

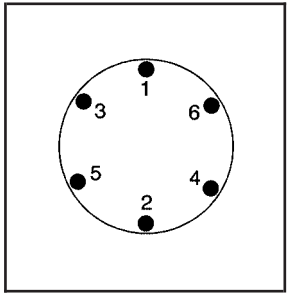
11. Put the nuts on by hand. Make sure the cone-shaped end is toward the wheel. Tighten each nut by hand until the wheel is held against the hub. If a nut cannot be turned by hand, use the extension and see your dealer as soon as possible.

12. Lower the vehicle by turning the ratchet counterclockwise. Lower the jack completely.

⚠ CAUTION:

Incorrect wheel nuts or improperly tightened wheel nuts can cause the wheel to come loose and even come off. This could lead to an accident. Be sure to use the correct wheel nuts. If you have to replace them, be sure to get new GM original equipment wheel nuts. Stop somewhere as soon as you can and have the nuts tightened with a torque wrench to the proper torque specification. See *Capacities and Specifications on page 5-101* for wheel nut torque specification.

Notice: **Improperly tightened wheel nuts can lead to brake pulsation and rotor damage. To avoid expensive brake repairs, evenly tighten the wheel nuts in the proper sequence and to the proper torque specification. See *Capacities and Specifications on page 5-101* for the wheel nut torque specification.**



13. Tighten the wheel nuts firmly in a crisscross sequence as shown. Turn the ratchet clockwise with the UP mark facing you.

14. Remove the wheel blocks.

Notice: **Wheel covers will not fit on your compact spare. If you try to put a wheel cover on the compact spare, you could damage the cover or the spare.**

Do not try to put a wheel cover, center cap, or lug nut caps on your compact spare tire. They will not fit. Store the wheel cover, center cap, or lug nut caps in the trunk until you have the flat tire repaired or replaced.

Storing a Flat or Spare Tire and Tools

⚠ CAUTION:

Storing a jack, a tire, or other equipment in the passenger compartment of the vehicle could cause injury. In a sudden stop or collision, loose equipment could strike someone. Store all these in the proper place.

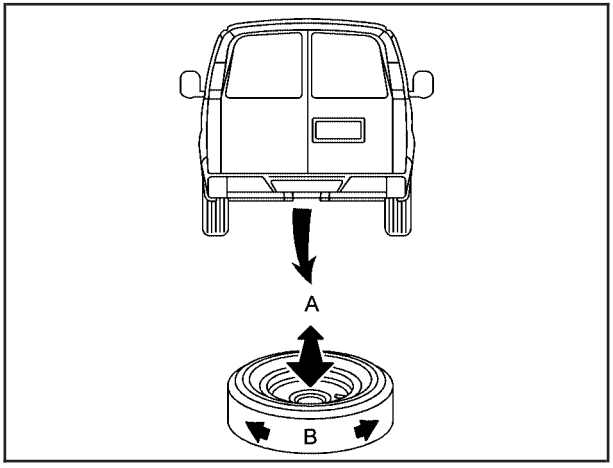
To store a flat tire, do the following:

1. Put the flat tire on the ground at the rear of the vehicle with the valve stem pointed down.
2. Tilt the retainer plate downward and through the wheel opening. Make sure it is fully seated across the underside of the wheel. Attach the ratchet, with the UP side facing you, to the extension.

3. Put the flat end of the extension on an angle through the hole in the rear door frame, above the bumper.

   The compact spare is for temporary use only. Replace the compact spare tire with a full-size tire as soon as you can. See *Compact Spare Tire on page 5-84*. See the storage instructions label to restore your compact spare properly.

4. Raise the tire fully against the underside of the vehicle by turning the ratchet/wheel wrench until you hear two clicks or feel it skip twice. The spare tire hoist cannot be overtightened.



5. Make sure the tire is stored securely. Push and pull (A), and then try to turn (B) the tire. If the tire moves, use the ratchet/wheel wrench to tighten the cable.

6. Return the jacking equipment to its proper location.

Compact Spare Tire

Although the compact spare tire was fully inflated when your vehicle was new, it can lose air after a time. Check the inflation pressure regularly. It should be 60 psi (420 kPa).

After installing the compact spare on your vehicle, you should stop as soon as possible and make sure your spare tire is correctly inflated. The compact spare is made to perform well at speeds up to 65 mph (105 km/h) for distances up to 3,000 miles (5 000 km), so you can finish your trip and have your full-size tire repaired or replaced where you want. Of course, it's best to replace your spare with a full-size tire as soon as you can. Your spare will last longer and be in good shape in case you need it again.

Notice: **When the compact spare is installed, do not take your vehicle through an automatic car wash with guide rails. The compact spare can get caught on the rails. That can damage the tire and wheel, and maybe other parts of your vehicle.**

Don't use your compact spare on other vehicles.

And don't mix your compact spare tire or wheel with other wheels or tires. They won't fit. Keep your spare tire and its wheel together.

Notice: **Tire chains will not fit your compact spare. Using them can damage your vehicle and can damage the chains too. Do not use tire chains on your compact spare.**

Appearance Care

Cleaning products can be hazardous. Some are toxic. Other cleaning products can burst into flames if a match is struck near them or if they get on a hot part of the vehicle. Some are dangerous if their fumes are inhaled in a closed space. When anything from a container is used to clean the vehicle, be sure to follow the manufacturer's warnings and instructions. Always open the doors or windows of the vehicle when cleaning the inside.

Never use these to clean the vehicle:

- Gasoline
- Benzene
- Naphtha
- Carbon Tetrachloride
- Acetone
- Paint Thinner
- Turpentine

- Lacquer Thinner
- Nail Polish Remover

They can all be hazardous — some more than others — and they can all damage the vehicle, too.

Do not use any of these products unless this manual says you can. In many uses, these will damage the vehicle:

- Alcohol
- Laundry Soap
- Bleach
- Reducing Agents

Fabric/Carpet

Use a vacuum cleaner often to get rid of dust and loose dirt. Wipe vinyl, leather, plastic, and painted surfaces with a clean, damp cloth.

GM-approved cleaning products can be obtained from your dealer.

Here are some cleaning tips:

- Always read the instructions on the cleaner label.
- Clean up stains as soon as you can before they set.
- Carefully scrape off any excess stain.
- Use a clean cloth or sponge, and change to a clean area often. A soft brush may be used if stains are stubborn.
- To avoid forming a ring on fabric after spot cleaning, clean the entire area immediately or it will set.

Most stains can be removed with club soda water. To clean, use the following instructions:

1. For liquids: blot with a clean, soft, white cloth. For solids: remove as much as possible and then vacuum or brush.
2. Apply club soda water to a clean, soft, white cloth. Do not over-saturate; the cloth should not drip water.
3. Clean the entire area. Avoid getting the fabric too wet.
4. Start cleaning from the seams into the stain to avoid a ring effect.
5. Continue cleaning, using a clean area of the cloth each time it becomes soiled.
6. When the stain is removed, blot the cleaned area with another dry, clean, soft, white cloth.

Using Cleaner on Fabric

1. First, try the cleaner on an area of the fabric that is not easily seen to make sure the cleaner does not affect the color of the fabric.
2. For liquids: blot with a clean, soft, white cloth. For solids: remove as much as possible and then vacuum or brush.
3. Spray a small amount of the cleaner onto a clean soft, white, cloth. Do not apply spray directly to the fabric.
4. Start cleaning from the seams into the stain to avoid a ring effect.
5. Continue cleaning, using a clean area of the cloth each time it becomes soiled.
6. When the stain is removed, blot the cleaned area with another dry, clean, soft, white cloth.
7. If the cleaner leaves a ring effect, follow up with the club soda water instructions given earlier in this section.

Special Fabric Cleaning Problems

Stains caused by such things as catsup, black coffee, egg, fruit, fruit juice, milk, soft drinks, vomit, urine, and blood can be removed using the club soda water instructions given earlier in this section. If an odor lingers after cleaning vomit or urine, treat the area with a water and baking soda solution: 1 teaspoon (5 ml) of baking soda to 1 cup (250 ml) of lukewarm water. Let dry.

Stains caused by oil and grease can be cleaned with an approved GM cleaner and a clean, white cloth.

1. Carefully scrape off excess stain.
2. Clean with cool water and allow to dry completely.
3. If a stain remains, follow the “Using Cleaner on Fabric” instructions described earlier.

Vinyl

Use warm water and a clean cloth.

- Rub with a clean, damp cloth to remove dirt. This may have to be done more than once.
- Things like tar, asphalt, and shoe polish will stain if they are not removed quickly. Use a clean cloth and vinyl cleaner. See your dealer for this product.

Leather

Use a soft cloth with lukewarm water and a mild soap or saddle soap and wipe dry with a soft cloth. Then, let the leather dry naturally. Do not use heat to dry.

- For stubborn stains, use a leather cleaner.
- Never use oils, varnishes, solvent-based or abrasive cleaners, furniture polish, or shoe polish on leather.
- Soiled or stained leather should be cleaned immediately. If dirt is allowed to work into the finish, it can harm the leather.

Instrument Panel

Use only mild soap and water to clean the top surfaces of the instrument panel. Sprays containing silicones or waxes may cause annoying reflections in the windshield and even make it difficult to see through the windshield under certain conditions.

Interior Plastic Components

Use only a mild soap and water solution on a soft cloth or sponge. Commercial cleaners may affect the surface finish.

Glass Surfaces

Glass should be cleaned often. GM Glass Cleaner or a liquid household glass cleaner will remove normal tobacco smoke and dust films on interior glass.
See *Vehicle Care/Appearance Materials on page 5-92*.

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 and the integrated radio antenna. When cleaning the glass on your vehicle, use only a soft cloth and glass cleaner.**

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.

Washing Your Vehicle

The paint finish on the vehicle provides beauty, depth of color, gloss retention, and durability.

The best way to preserve the vehicle's finish is to keep it clean by washing it often with lukewarm or cold water.

Do not wash the vehicle in the direct rays of the sun. Use a car washing soap. Do not use strong soaps or chemical detergents. Be sure to rinse the vehicle well, removing all soap residue completely. GM-approved cleaning products can be obtained from your dealer. See *Vehicle Care/Appearance Materials on page 5-92*. 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.

Notice: **If you drive your vehicle through an automatic car wash that does not have enough clearance for the wide rear tires and wheels, you could damage your vehicle. Verify with the manager of the car wash that your vehicle will fit before entering the car wash or use a touchless car wash.**

High pressure car washes may cause water to enter the vehicle.

Cleaning Exterior Lamps/Lenses

Use only lukewarm or cold water, a soft cloth and a car washing soap to clean exterior lamps and lenses. Follow instructions under *Washing Your Vehicle on page 5-88*.

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 GM-approved cleaning products from your dealer. See *Vehicle Care/Appearance Materials on page 5-92*.

If 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 garaged or covered whenever possible.

Protecting Exterior Bright Metal Parts

Bright metal parts should be cleaned regularly to keep their luster. Washing with water is all that is usually needed. However, you may use chrome polish on chrome or stainless steel trim, if necessary.

Use special care with aluminum trim. To avoid damaging protective trim, never use auto or chrome polish, steam or caustic soap to clean aluminum. A coating of wax, rubbed to high polish, is recommended for all bright metal parts.

Windshield and Wiper Blades

If the windshield is not clear after using the windshield washer, or if the wiper blade chatters when running, wax, sap, or other material may be on the blade or windshield.

Clean the outside of the windshield with a glass cleaning liquid or powder and water solution. The windshield is clean if beads do not form when it is rinsed with water.

Grime from the windshield will stick to the wiper blades and affect their performance. Clean the blade by wiping vigorously with a cloth soaked in full-strength windshield washer solvent. Then rinse the blade with water.

Check the wiper blades and clean them as necessary; replace blades that look worn.

Aluminum Wheels

Notice: **If you use strong soaps, chemicals, abrasive polishes, cleaners, brushes, or cleaners that contain acid on aluminum or chrome-plated wheels, you could damage the surface of the wheel(s). The repairs would not be covered by your warranty. Use only GM-approved cleaners on aluminum or chrome-plated wheels.**

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.**

Do not take the vehicle through an automatic car wash that has silicone carbide tire cleaning brushes. These brushes can also damage the surface of these wheels.

Tires

To clean the tires, use a stiff brush with tire cleaner.

Notice: **Using petroleum-based tire dressing products on your vehicle may damage the paint finish and/or tires. When applying a tire dressing, always wipe off any overspray from all painted surfaces on your vehicle.**

Sheet Metal Damage

If the vehicle is damaged and requires sheet metal repair or replacement, make sure the body repair shop applies anti-corrosion material to parts repaired or replaced to restore corrosion protection.

Original manufacturer replacement parts will provide the corrosion protection while maintaining the warranty.

Finish Damage

Any stone chips, fractures or deep scratches in the finish should be repaired right away. Bare metal will corrode quickly and may develop into major repair expense.

Minor chips and scratches can be repaired with touch-up materials available from your GM dealer. Larger areas of finish damage can be corrected in your GM dealer's body and paint shop.

Underbody Maintenance

Chemicals used for ice and snow removal and dust control can collect on the underbody. If these are not removed, corrosion and rust can develop on the underbody parts such as fuel lines, frame, floor pan, and exhaust system even though they have corrosion protection.

At least every spring, flush these materials from the underbody with plain water. Clean any areas where mud and debris can collect. Dirt packed in close areas of the frame should be loosened before being flushed. Your GM dealer or an underbody car washing system can do this for you.

Chemical Paint Spotting

Some weather and atmospheric conditions can create a chemical fallout. Airborne pollutants can fall upon and attack painted surfaces on the vehicle. This damage can take two forms: blotchy, ring-shaped discolorations, and small, irregular dark spots etched into the paint surface.

Although no defect in the paint job causes this, GM will repair, at no charge to the owner, the surfaces of new vehicles damaged by this fallout condition within 12 months or 12,000 miles (20 000 km) of purchase, whichever occurs first.

Vehicle Care/Appearance Materials

See your GM dealer for more information on purchasing the following products.

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 tops, upholstery and convertible tops.
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.
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.
See your General Motors parts department for these products.	

Vehicle Identification

Vehicle Identification Number (VIN)

This is the legal identifier for your vehicle. It appears on a plate in the front corner of the instrument panel, on the driver's side. You can see it if you look through the windshield from outside your vehicle. The VIN also appears on the Vehicle Certification and Service Parts labels and the certificates of title and registration.

Engine Identification

The 8th character in your VIN is the engine code. This code will help you identify your engine, specifications and replacement parts.

Service Parts Identification Label

You will find this label on the front passenger door frame. It is very helpful if you ever need to order parts. On this label you will find the following:

- VIN
- Model designation
- Paint information
- Production options and special equipment

Be sure that this label is not removed from the vehicle.

Electrical System

Add-On Electrical Equipment

Notice: **Don't add anything electrical to your vehicle unless you check with your dealer first. Some electrical equipment can damage your vehicle and the damage wouldn't be covered by your warranty. Some add-on electrical equipment can keep other components from working as they should.**

Your vehicle has an air bag system. Before attempting to add anything electrical to your vehicle, see *Servicing Your Airbag-Equipped Vehicle on page 1-69*.

Headlamp Wiring

The headlamp wiring is protected by a circuit breaker in the lamp switch. An electrical overload will cause the lamps to flicker on and off, or in some cases to remain off. If this happens, have your headlamp wiring checked right away.

Windshield Wiper Fuses

The windshield wiper motor is protected by a circuit breaker and a fuse. If the motor overheats due to heavy snow, etc., the wiper will stop until the motor cools. Although the circuit is protected from electrical overload, overload due to heavy snow, etc., may cause wiper linkage damage. Always clear ice and heavy snow from the windshield before using the windshield wipers. If the overload is caused by some electrical problem and not snow, etc., be sure to get it fixed.

Power Windows and Other Power Options

Circuit breakers in the fuse panel protect the power windows and other power accessories. When the current load is too heavy, the circuit breaker opens and closes, protecting the circuit until the problem is fixed or goes away.

Fuses and Circuit Breakers

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

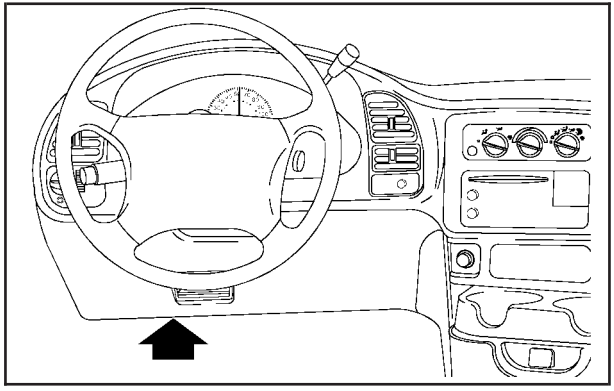
Look at the silver-colored band inside the fuse. If the band is broken or melted, replace the fuse. Be sure you replace a bad fuse with a new one of the identical size and rating.

Spare fuses and a fuse puller are located in the underhood fuse block. You can remove fuses with the fuse puller. Remember to replace any of the spare fuses you use, so you will have some if you ever need them again.

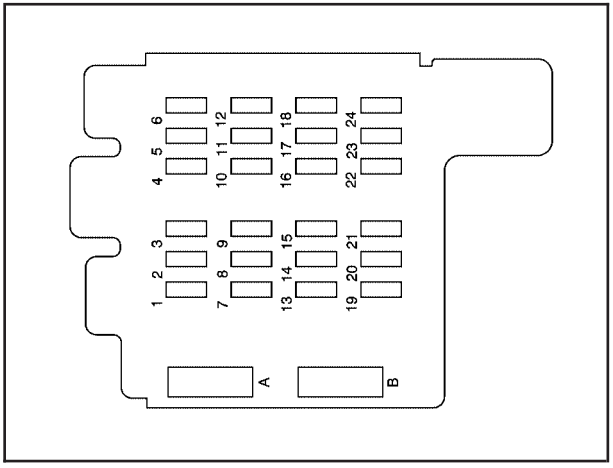
If you ever have a problem on the road and do not have a spare fuse, you can borrow one that has the same amperage. Just pick some feature of your vehicle that you can get along without — like the radio or cigarette lighter — and use its fuse, if it is the correct amperage. Replace it as soon as you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

There are two fuse blocks in your vehicle: one is inside the vehicle and one is in the engine compartment.

Instrument Panel Fuse Block



The fuse block is located on the lower portion of the instrument panel on the driver's side.



Fuse/Circuit Breaker	Usage
1	Stop/Turn/Hazard Lamps, Center High-Mounted Stop Lamp, Anti-Lock Brakes
2	Radio Accessory, Rear Seat Audio Controls

Fuse/Circuit Breaker	Usage
3	Courtesy Lamps, Glove Box Lamp, Dome Reading Lamps, Vanity Mirror Lamps, Courtesy Lamps
4	Daytime Running Lamps Relay, Instrument Panel Cluster
5	Rear Defogger
6	Cruise Module, Truck Body Control Module, Instrument Panel Cluster, Cruise Control Switch, Electrochromic Mirror
7	Power Outlets, Subwoofer Amplifier
8	Crank Circuit Fuse, Park/Neutral Switch, Starter Enabler Relay
9	License Plate Lamp, Tailamps, Parking Lamps, Ashtray Lamp, Panel Lights, Trailer Taillamps, Front and Rear Sidemarker Lamps, Door Switch Illumination, Headlamp Switch Illumination, Rear Seat Audio Illumination, Truck Body Control Module
10	Air Bag System

Fuse/Circuit Breaker	Usage
11	Not Used
12	Blower Motor, Rear Air Conditioning Relay Coil, Front Cont. Temp. Door Motor, HI Blower Relay, Defogger Timer Coil
13	Cigarette Lighter, Door Lock Switches, Dutch Door Release Module
14	Cluster Illumination, Climate Controls, Chime Module, Radio Illumination, Rear Heat Switch Illumination, Rear Wiper/Washer Switch Illumination, Rear Liftgate Switch Illumination, Remote Cassette Illumination, Overhead Console, Truck Body Control Illumination
15	Truck Body Module, Headlamp Relay
16	Front Turn Signals, Rear Turn Signals, Trailer Turn Signals, Back-Up Lamps, Brake Transmission Shift Interlock Solenoid

Fuse/Circuit Breaker	Usage
17	Front Wipers, Front Washer Pump
18	VCM-Ign 3, VCM-Brake, Cruise Stepper Motor Signal, ATC Module
19	Instrument Panel Radio: ATC (Main Feed), 2000 Series (Standby)
20	PRNDL/Odometer, Shift A and Shift B Solenoids, 3–2 Downshift Solenoid, Instrument Panel Cluster, VCM Module
21	Power Adjust Mirrors
22	Not Used
23	Rear Wiper, Rear Washer Pump
24	Not Used

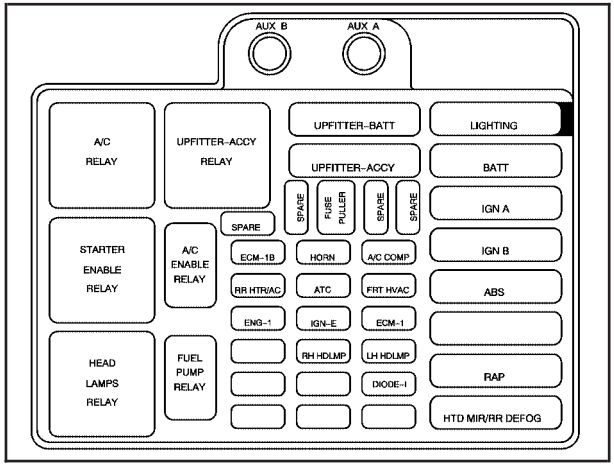
Circuit Breakers	Usage
A	Power Door Lock Relay, 6–Way Power Seats
B	Power Windows

Underhood Fuse Block

The underhood fuse block is located toward the rear of the engine compartment on the driver's side of the vehicle.

Lift the hood and open the cover to gain access to this fuse block.

A fuse puller is included in the underhood fuse block. You will also find spare fuses.



Fuse/Circuit Breaker	Usage
UPFITTER-BATT	Upfitter Battery Power Stud, Trailer Wiring Harness
UPFITTER-ACCY	Upfitter Accessory Relay
SPARE	Spare
SPARE	Spare

Fuse/Circuit Breaker	Usage
SPARE	Spare
ECM-1B	Fuel Pump Relay and Motor, VCM, Oil Pressure Switch/Sender
HORN	Horn Relay and Horn
A/C COMP	Air Conditioning Enable Relay and Compressor
RR HTR/AC	Rear Heater and Air Conditioning
ATC	Active Transfer Case-L Van
FRT HVAC	Front Heater and Air Conditioning
ENG-I	Oxygen Sensors, Camshaft Position Sensor, Mass Air Flow Sensor, Evaporative Emission Canister Vent Solenoid
IGN-E	Air Conditioning Enable Relay Coil
ECM-I	Fuel Injectors 1–6, Crankshaft Position Sensot, VCM, Coil Driver Module (EST), Ignition Coil
BLANK	Not Used
RH HDLMP	Right Headlamp
LH HEADLAMP	Left Headlamp

Fuse/Circuit Breaker	Usage
BLANK	Not Used
BLANK	Not Used
DIODE-1	Air Conditioning
BLANK	Not Used
BLANK	Not Used
BLANK	Not Used
LIGHTING	Courtesy Fuse, Power Adjust Mirrors Fuse, Truck Body Control Battery Fuse
BATT	Power Accessory Circuit Breaker, Stop/Hazard Fuse, Auxiliary Power Fuse, Cigarette Lighter Fuse, Radio Battery Fuse
IGN A	Starter Relay, Ignition Switch
IGN B	Ignition Switch
ABS	Electronic Brake Control Module
BLANK	Not Used
RAP	Radio Accessory, Power Windows
HTD MIR/RR DEFOG	Rear Window Defogger, Climate Control Head

Relays	Usage
A/C RELAY	Rear/Heat and Air Conditioning
UPFITTER-ACCY RELAY	Upfitter Accessory
STARTER ENABLE RELAY	Starter
A/C ENABLE RELAY	Air Conditioning
HEAD LAMPS RELAY	Headlamps
FUEL PUMP RELAY	Fuel Pump

Feed	Usage
AUX B	Upfitter Battery Feed
AUX A	Upfitter Accessory Feed

Capacities and Specifications

The following approximate capacities are given in English and metric conversions. Please refer to *Part D: Recommended Fluids and Lubricants on page 6-29* for more information.

Capacities and Specifications

Application	Capacities	
	English	Metric
Air Conditioning Refrigerant (R134a)		
Front A/C	2.3 lbs	1.0 kg
Front and Rear A/C	3.0 lbs	1.4 kg
Cooling System		
Without Rear Heater	13.5 quarts	12.8 L
With Rear Heater	16.5 quarts	15.6 L
Differential Fluid		
Front Axle	2.6 pints	1.2 L
Rear Axle	3.5 pints	1.7 L
Engine Oil with Filter	4.5 quarts	4.3 L
Fuel Tank	27.0 gallons	101.8 L
Transmission Fluid (Drain and Refill)	5.0 quarts	4.7 L
Wheel Nut Torque	140 ft lb	190 N•m
All capacities are approximate. When adding, be sure to fill to the appropriate level, as recommended in this manual. Recheck the fluid level after filling. See refrigerant charge label under the hood for charge capacity information and requirements.		

Engine Specifications

Engine	VIN	Transmission	Spark Plug Gap
“Vortec” 4300 V6 MFI*	LU3	Automatic	0.060 inches (1.52 mm)
*Micro Fuel Injection			

Normal Maintenance Replacement Parts

Replacement parts identified below by name, part number, or specification can be obtained from your dealer.

Part	GM Part Number	ACDelco® Part Number
Engine Air Cleaner/Filter	25098463	A1163C
Engine Oil Filter	25010792	PF47
Fuel Filter	15050894	GF481
PCV Valve	6487532	CV 769-C
Spark Plugs	25162556	41–932
Wiper Blades (Trico Type) Front – 18 inches (45.7 cm) Rear – 14 inches (35.5 cm)	 22110431 22121329	 — —

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Maintenance Schedule

Introduction

Important: Keep engine oil at the proper level and change as recommended.

Have you purchased the GM Protection Plan? The Plan supplements your new vehicle warranties. See your Warranty and Owner Assistance booklet or your dealer for details.

Maintenance Requirements

Maintenance intervals, checks, inspections and recommended fluids and lubricants as prescribed in this manual are necessary to keep your vehicle in good working condition. Any damage caused by failure to follow scheduled maintenance may not be covered by warranty.

Your Vehicle and the Environment

Proper vehicle maintenance not only helps to keep your vehicle in good working condition, but also helps the environment. 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.

How This Section is Organized

This maintenance schedule is divided into five parts:

“Part A: Scheduled Maintenance Services” explains what to have done and how often. Some of these services can be complex, so unless you are technically qualified and have the necessary equipment, you should let your GM dealer’s service department do these jobs.

Your GM dealer has GM-trained and supported service people that will perform the work using genuine GM parts.

⚠ 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, have a qualified technician do the work.

If you want to get the service information, see *Service Publications Ordering Information on page 7-12*.

“Part B: Owner Checks and Services” tells you what should be checked and when. It also explains what you can easily do to help keep your vehicle in good condition.

“Part C: Periodic Maintenance Inspections” explains important inspections that your dealer’s service department can perform for you.

“Part D: Recommended Fluids and Lubricants” lists some recommended products necessary to help keep your vehicle properly maintained. These products, or their equivalents, should be used whether you do the work yourself or have it done.

“Part E: Maintenance Record” is a place for you to record and keep track of the maintenance performed on your vehicle. Keep your maintenance receipts. They may be needed to qualify your vehicle for warranty repairs.

Part A: Scheduled Maintenance Services

In this part are scheduled maintenance services which are to be performed at the mileage intervals specified.

Using Your Maintenance Schedule

We at General Motors want to help you to keep your vehicle in good working condition. But we do not know exactly how you will drive it. You may drive 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 dealer.

This part tells you the maintenance services you should have done and when to schedule them.

When you go to your dealer for your service needs, you will know that GM-trained and supported service people will perform the work using GM parts.

The proper fluids and lubricants to use are listed in Part D. Make sure whoever services your vehicle uses them. All parts should be replaced and all necessary repairs done before you or anyone else drives the vehicle.

These schedules are 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 4-28*.
- are driven on reasonable road surfaces within driving limits.
- use the recommended fuel. See *Gasoline Octane on page 5-5*.

Selecting the Right Schedule

First you will need to decide which of the two schedules is right for your vehicle. Here is how to decide which schedule to follow:

Short Trip/City Definition

Follow the Short Trip/City Scheduled Maintenance if any one of these conditions is true for your vehicle:

- Most trips are less than 5 miles (8 km). This is particularly important when outside temperatures are below freezing.
- Most trips include extensive idling, such as frequent driving in stop-and-go traffic.
- You frequently tow a trailer or use a carrier on top of your vehicle.
- If the vehicle is used for delivery service, police, taxi, or other commercial application.

One of the reasons you should follow this schedule if you operate your vehicle under any of these conditions is that these conditions cause engine oil to break down sooner.

Short Trip/City Intervals

Every 3,000 Miles (5 000 km): Engine Oil and Filter Change (or 3 months, whichever occurs first). Chassis Lubrication (or 3 months, whichever occurs first).

Every 6,000 Miles (10 000 km): Tire Rotation.

Every 15,000 Miles (25 000 km): Engine Air Cleaner Filter Inspection. Front Wheel Bearing Repack (two–wheel drive only) (or at each brake relining, whichever occurs first). Automatic Transmission Service (severe conditions only).

Every 30,000 Miles (50 000 km): Fuel Filter Replacement.

Every 45,000 Miles (75 000 km): Engine Air Cleaner Filter Replacement.

Every 50,000 Miles (83 000 km): Automatic Transmission Service (normal conditions). Transfer Case Fluid Change.

Every 100,000 Miles (166 000 km): Spark Plug Wire Inspection. Spark Plug Replacement. Positive Crankcase Ventilation (PCV) Valve Inspection.

Every 150 000 Miles (240 000 km): Cooling System Service (or every 60 months, whichever occurs first). Engine Accessory Drive Belt Inspection.

These intervals only summarize maintenance services. Be sure to follow the complete scheduled maintenance on the following pages.

Long Trip/Highway Definition

Follow this scheduled maintenance only if none of the conditions from the Short Trip/City Scheduled Maintenance are true. Do not use this schedule if the vehicle is used for trailer towing, driven in a dusty area, or used off paved roads. Use the Short Trip/City schedule for these conditions.

Driving a vehicle with a fully warmed engine under highway conditions will cause engine oil to break down slower.

Long Trip/Highway Intervals

Every 7,500 Miles (12 500 km): Engine Oil and Filter Change (or every 12 months, whichever occurs first). Chassis Lubrication (or 12 months, whichever occurs first). Tire Rotation.

Every 15,000 Miles (25 000 km): Engine Air Cleaner Filter Inspection. Automatic Transmission Service (severe conditions only).

Every 30,000 Miles (50 000 km): Fuel Filter Replacement. Front Wheel Bearing Repack (two–wheel drive only) (or at each brake relining, whichever occurs first).

Every 45,000 Miles (75 000 km): Engine Air Cleaner Filter Replacement.

Every 50,000 Miles (83 000 km): Automatic Transmission Service (normal conditions). Transfer Case Fluid Change.

Every 100,000 Miles (166 000 km): Spark Plug Wire Inspection. Spark Plug Replacement. Positive Crankcase Ventilation (PCV) Valve Inspection.

Every 150,000 Miles (240 000 km): Cooling System Service (or every 60 months, whichever occurs first). Engine Accessory Drive Belt Inspection.

These intervals only summarize maintenance services. Be sure to follow the complete scheduled maintenance on the following pages.

Short Trip/City Scheduled Maintenance

The services shown in this schedule up to 100,000 miles (166 000 km) should be repeated after 100,000 miles (166 000 km) at the same intervals for the life of this vehicle. The services shown at 150,000 miles (240 000 km) should be repeated at the same interval after 150,000 miles (240 000 km) for the life of this vehicle.

See *Part B: Owner Checks and Services on page 6-24* and *Part C: Periodic Maintenance Inspections on page 6-28*.

Footnotes

† The U.S. Environmental Protection Agency or the California Air Resources Board has determined that the failure to perform this maintenance item will not nullify the emission warranty or limit recall liability prior to the completion of the vehicle's useful life. We, however, urge that all recommended maintenance services be performed at the indicated intervals and the maintenance be recorded.

 # Lubricate the front suspension, ball joints and kingpin bushings, steering linkage, parking brake cable guides and brake pedal springs.

+ A good time to check your brakes is during tire rotation. See Brake System Inspection on page 6-29.

3,000 Miles (5 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*

6,000 Miles (10 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +.)*

9,000 Miles (15 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*

12,000 Miles (20 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +.)*

15,000 Miles (25 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Inspect engine air cleaner filter. If necessary, replace the filter. If vehicle is driven in dusty/dirty conditions, inspect filter at every engine oil change. See *Engine Air Cleaner/Filter on page 5-21* for more information. *An Emission Control Service. (See footnote †.)*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ For Two-Wheel-Drive vehicles only: Clean and repack the front wheel bearings (or at each brake relining, whichever occurs first).
- ❑ 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, change the fluid and filter every 50,000 miles (83 000 km).

18,000 Miles (30 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +.)*

21,000 Miles (35 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*

24,000 Miles (40 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +.)*

27,000 Miles (45 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*

30,000 Miles (50 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Inspect engine air cleaner filter. If necessary, replace the filter. If vehicle is driven in dusty/dirty conditions, inspect filter at every engine oil change. See *Engine Air Cleaner/Filter on page 5-21* for more information. *An Emission Control Service. (See footnote †.)*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ For Two-Wheel-Drive vehicles only: Clean and repack the front wheel bearings (or at each brake relining, whichever occurs first).
- ❑ Replace fuel filter. *An Emission Control Service. (See footnote †.)*
- ❑ 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, change the fluid and filter every 50,000 miles (83 000 km).

- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +.)*

33,000 Miles (55 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*

36,000 Miles (60 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +.)*

39,000 Miles (65 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*

42,000 Miles (70 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +.)*

45,000 Miles (75 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Replace engine air cleaner filter. See *Engine Air Cleaner/Filter on page 5-21* for more information. *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ For Two-Wheel-Drive vehicles only: Clean and repack the front wheel bearings (or at each brake relining, whichever occurs first).

- ❑ 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, change the fluid and filter every 50,000 miles (83 000 km).

48,000 Miles (80 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +.)*

50,000 Miles (83 000 km)

- ❑ If you have not used your vehicle under severe service conditions listed previously and, therefore, have not changed your automatic transmission fluid, change both the fluid and filter.
- ❑ Change transfer case fluid.

51,000 Miles (85 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*

54,000 Miles (90 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +.)*

57,000 Miles (95 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*

60,000 Miles (100 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Inspect engine air cleaner filter. If necessary, replace the filter. If vehicle is driven in dusty/dirty conditions, inspect filter at every engine oil change. See *Engine Air Cleaner/Filter on page 5-21* for more information. *An Emission Control Service. (See footnote †.)*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ For Two-Wheel-Drive vehicles only: Clean and repack the front wheel bearings (or at each brake relining, whichever occurs first).
- ❑ 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, change the fluid and filter every 50,000 miles (83 000 km).

- ❑ Replace fuel filter. *An Emission Control Service. (See footnote †.)*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +.)*

63,000 Miles (105 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*

66,000 Miles (110 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +.)*

69,000 Miles (115 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*

72,000 Miles (120 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +.)*

75,000 Miles (125 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Inspect engine air cleaner filter. If necessary, replace the filter. If vehicle is driven in dusty/dirty conditions, inspect filter at every engine oil change. See *Engine Air Cleaner/Filter on page 5-21* for more information. *An Emission Control Service. (See footnote †.)*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ For Two-Wheel-Drive vehicles only: Clean and repack the front wheel bearings (or at each brake relining, whichever occurs first).
- ❑ 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, change the fluid and filter every 50,000 miles (83 000 km).

78,000 Miles (130 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +.)*

81,000 Miles (135 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*

84,000 Miles (140 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +.)*

87,000 Miles (145 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*

90,000 Miles (150 000 km)

- ❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*
- ❑ Replace engine air cleaner filter. See *Engine Air Cleaner/Filter on page 5-21* for more information. *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*
- ❑ For Two-Wheel-Drive vehicles only: Clean and repack the front wheel bearings (or at each brake relining, whichever occurs first).
- ❑ 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, change the fluid and filter every 50,000 miles (83 000 km).

❑ Replace fuel filter. *An Emission Control Service. (See footnote †.)*

❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +.)*

93,000 Miles (155 000 km)

❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*

❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*

96,000 Miles (160 000 km)

❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*

❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*

❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +.)*

99,000 Miles (165 000 km)

❑ Change engine oil and filter (or every 3 months, whichever occurs first). *An Emission Control Service.*

❑ Lubricate chassis components (or every 3 months, whichever occurs first). *(See footnote #.)*

100,000 Miles (166 000 km)

❑ Inspect spark plug wires. *An Emission Control Service.*

❑ Replace spark plugs. *An Emission Control Service.*

❑ If you have not used your vehicle under severe service conditions listed previously and, therefore, have not changed your automatic transmission fluid, change both the fluid and filter.

❑ Change transfer case fluid.

❑ Inspect Positive Crankcase Ventilation (PCV) valve. *An Emission Control Service.*

150,000 Miles (240 000 km)

❑ Drain, flush and refill cooling system (or every 60 months since last service, whichever occurs first). See *Engine Coolant on page 5-26* for what to use. Inspect hoses. Clean radiator, condenser, pressure cap and neck. Pressure test cooling system and pressure cap. *An Emission Control Service.*

❑ Inspect engine accessory drive belt. *An Emission Control Service.*

Long Trip/Highway Scheduled Maintenance

The services shown in this schedule up to 100,000 miles (166 000 km) should be repeated after 100,000 miles (166 000 km) at the same intervals for the life of this vehicle. The services shown at 150,000 miles (240 000 km) should be repeated at the same interval after 150,000 miles (240 000 km) for the life of this vehicle.

See *Part B: Owner Checks and Services on page 6-24* and *Part C: Periodic Maintenance Inspections on page 6-28*.

Footnotes

† The U.S. Environmental Protection Agency or the California Air Resources Board has determined that the failure to perform this maintenance item will not nullify the emission warranty or limit recall liability prior to the completion of the vehicle's useful life. We, however, urge that all recommended maintenance services be performed at the indicated intervals and the maintenance be recorded.

 # Lubricate the front suspension, ball joints and kingpin bushings, steering linkage and transfer case shift linkage, parking brake cable guides and brake pedal springs.

+ A good time to check your brakes is during tire rotation. See Brake System Inspection on page 6-29.

7,500 Miles (12 500 km)

- ❑ Change engine oil and filter (or every 12 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 12 months, whichever occurs first). *(See footnote #).*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +).*

15,000 Miles (25 000 km)

- ❑ Change engine oil and filter (or every 12 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 12 months, whichever occurs first). *(See footnote #).*
- ❑ Inspect engine air cleaner filter. If necessary, replace the filter. If vehicle is driven in dusty/dirty conditions, inspect filter at every engine oil change. See *Engine Air Cleaner/Filter on page 5-21* for more information. *An Emission Control Service. (See footnote †.)*
- ❑ 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, change the fluid and filter every 50,000 miles (83 000 km).

- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +).*

22,500 Miles (37 500 km)

- ❑ Change engine oil and filter (or every 12 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 12 months, whichever occurs first). *(See footnote #).*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +).*

30,000 Miles (50 000 km)

- ❑ Change engine oil and filter (or every 12 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 12 months, whichever occurs first). *(See footnote #).*
- ❑ Inspect engine air cleaner filter. If necessary, replace the filter. If vehicle is driven in dusty/dirty conditions, inspect filter at every engine oil change. See *Engine Air Cleaner/Filter on page 5-21* for more information. *An Emission Control Service. (See footnote †.)*
- ❑ For Two-Wheel-Drive vehicles only: Clean and repack the front wheel bearings (or at each brake relining, whichever occurs first).
- ❑ 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, change the fluid and filter every 50,000 miles (83 000 km).

- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +).*
- ❑ Replace fuel filter. *An Emission Control Service. (See footnote †).*

37,500 Miles (62 500 km)

- ❑ Change engine oil and filter (or every 12 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 12 months, whichever occurs first). *(See footnote #).*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +).*

45,000 Miles (75 000 km)

- ❑ Change engine oil and filter (or every 12 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 12 months, whichever occurs first). *(See footnote #).*

- ❑ Replace engine air cleaner filter. See *Engine Air Cleaner/Filter on page 5-21* for more information. *An Emission Control Service.*
- ❑ 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, change the fluid and filter every 50,000 miles (83 000 km).

- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +).*

50,000 Miles (83 000 km)

- ❑ If you have not used your vehicle under severe conditions listed previously and, therefore, have not changed your automatic transmission fluid, change both the fluid and filter.
- ❑ Change transfer case fluid.

52,500 Miles (87 500 km)

- ❑ Change engine oil and filter (or every 12 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 12 months, whichever occurs first). *(See footnote #).*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +).*

60,000 Miles (100 000 km)

- ❑ Change engine oil and filter (or every 12 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 12 months, whichever occurs first). *(See footnote #).*
- ❑ Inspect engine air cleaner filter. If necessary, replace the filter. If vehicle is driven in dusty/dirty conditions, inspect filter at every engine oil change. See *Engine Air Cleaner/Filter on page 5-21* for more information. *An Emission Control Service. (See footnote †.)*
- ❑ For Two-Wheel-Drive vehicles only: Clean and repack the front wheel bearings (or at each brake relining, whichever occurs first).
- ❑ 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, change the fluid and filter every 50,000 miles (83 000 km).

- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +).*
- ❑ Replace fuel filter. *An Emission Control Service. (See footnote †).*

67,500 Miles (112 500 km)

- ❑ Change engine oil and filter (or every 12 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 12 months, whichever occurs first). *(See footnote #).*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +).*

75,000 Miles (125 000 km)

- ❑ Change engine oil and filter (or every 12 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 12 months, whichever occurs first). *(See footnote #).*
- ❑ Inspect engine air cleaner filter. If necessary, replace the filter. If vehicle is driven in dusty/dirty conditions, inspect filter at every engine oil change. See *Engine Air Cleaner/Filter on page 5-21* for more information. *An Emission Control Service. (See footnote †.)*
- ❑ 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, change the fluid and filter every 50,000 miles (83 000 km).

- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +).*

82,500 Miles (137 500 km)

- ❑ Change engine oil and filter (or every 12 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 12 months, whichever occurs first). *(See footnote #).*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +).*

90,000 Miles (150 000 km)

- ❑ Change engine oil and filter (or every 12 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 12 months, whichever occurs first). *(See footnote #).*
- ❑ Replace engine air cleaner filter. See *Engine Air Cleaner/Filter on page 5-21* for more information. *An Emission Control Service.*
- ❑ For Two-Wheel-Drive vehicles only: Clean and repack the front wheel bearings (or at each brake relining, whichever occurs first).
- ❑ 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, change the fluid and filter every 50,000 miles (83 000 km).

- ❑ Replace fuel filter. *An Emission Control Service. (See footnote †).*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +).*

97,500 Miles (162 500 km)

- ❑ Change engine oil and filter (or every 12 months, whichever occurs first). *An Emission Control Service.*
- ❑ Lubricate chassis components (or every 12 months, whichever occurs first). *(See footnote #).*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-65* for proper rotation pattern and additional information. *(See footnote +).*

100,000 Miles (166 000 km)

- ❑ Inspect spark plug wires. *An Emission Control Service.*
- ❑ Replace spark plugs. *An Emission Control Service.*
- ❑ If you have not used your vehicle under severe service conditions listed previously and, therefore, have not changed your automatic transmission fluid, change both the fluid and filter.
- ❑ Change transfer case fluid.
- ❑ Inspect Positive Crankcase Ventilation (PCV) valve. *An Emission Control Service.*

150,000 Miles (240 000 km)

- ❑ Drain, flush and refill cooling system (or every 60 months since last service, whichever occurs first). See *Engine Coolant on page 5-26* for what to use. Inspect hoses. Clean radiator, condenser, pressure cap and neck. Pressure test the cooling system and pressure cap. *An Emission Control Service.*
- ❑ Inspect engine accessory drive belt. *An Emission Control Service.*

Part B: Owner Checks and Services

Listed in this part are owner checks and services which should be performed at the intervals specified to help ensure the safety, dependability and emission control performance of your vehicle.

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 Part D.

At Each Fuel Fill

It is important for you or a service station attendant to perform these underhood checks at each fuel fill.

Engine Oil Level Check

Check the engine oil level and add the proper oil if necessary. See *Engine Oil on page 5-13* for further details.

Engine Coolant Level Check

Check the engine coolant level and add DEX-COOL® coolant mixture if necessary. See *Engine Coolant on page 5-26* for further details.

Windshield Washer Fluid Level Check

Check the windshield washer fluid level in the windshield washer tank and add the proper fluid if necessary. See *Windshield Washer Fluid on page 5-37* for further details.

At Least Once a Month

Tire Inflation Check

Visually inspect your tires and make sure tires are inflated to the correct pressures. Do not forget to check your spare tire. See *Tires on page 5-58* for further details.

At Least Twice a Year

Restraint System Check

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.)

Wiper Blade Check

Inspect wiper blades for wear or cracking. Replace blade inserts that appear worn or damaged or that streak or miss areas of the windshield. Also see *Windshield and Wiper Blades on page 5-89*.

Spare Tire Check

At least twice a year, after the monthly inflation check of the spare tire determines that the spare is inflated to the correct tire inflation pressure, make sure that the spare tire is stored securely. Push, pull, and then try to rotate or turn the tire. If it moves, use the wheel wrench to tighten the cable. See *Changing a Flat Tire on page 5-72*.

Weatherstrip Lubrication

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 more frequent application may be required. See *Part D: Recommended Fluids and Lubricants on page 6-29*.

Automatic Transmission Check

Check the transmission fluid level; add if needed. See *Automatic Transmission Fluid on page 5-23*. A fluid loss may indicate a problem. Check the system and repair if needed.

At Least Once a Year

Key Lock Cylinders Service

Lubricate the key lock cylinders with the lubricant specified in Part D.

Body Lubrication Service

Lubricate all body door hinges, the body hood, fuel door and rear compartment hinges, latches and locks including interior glove box and console doors, hood latch assembly, secondary latch, pivots, spring anchor, release pawl and any moving seat hardware. Lubricate the hood safety lever pivot and prop rod pivot. Part D tells you what to use. More frequent lubrication may be required when exposed to a corrosive environment.

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 2-23* if necessary.

   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 starter should work only in PARK (P) or NEUTRAL (N). If the starter works in any other position, your vehicle needs service.

Automatic Transmission 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 2-23* if necessary.

   Be ready to apply the regular brake immediately if the vehicle begins to move.
3. With the engine off, turn the ignition to RUN, but do not start the engine. Without applying the regular brake, try to move the shift lever out of PARK (P) with normal effort. If the shift lever moves out of PARK (P), your vehicle needs service.

Ignition Transmission Lock Check

While parked, and with the parking brake set, try to turn the ignition to LOCK in each shift lever position.

- The ignition should turn to LOCK only when the shift lever is in PARK (P).
- The key should come out only in LOCK.

Parking Brake and Automatic Transmission 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 transmission 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.

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.

Part C: Periodic Maintenance Inspections

Listed in this part are inspections and services which should be performed at least twice a year (for instance, each spring and fall). *You should let your dealer's service department do these jobs. Make sure any necessary repairs are completed at once.*

Proper procedures to perform these services may be found in a service manual. See *Service Publications Ordering Information on page 7-12*.

Steering, Suspension and Front Drive Axle Boot and Seal Inspection

Inspect the front and rear suspension and steering system for damaged, loose or missing parts, signs of wear or lack of lubrication. Inspect the power steering lines and hoses for proper hook-up, binding, leaks, cracks, chafing, etc. Clean and then inspect the drive axle boot seals for damage, tears or leakage. Replace seals if necessary.

Exhaust System Inspection

Inspect the complete exhaust system. Inspect the body near the exhaust system. Look for broken, damaged, missing or out-of-position parts as well as open seams, holes, loose connections or other conditions which could cause a heat build-up in the floor pan or could let exhaust fumes into the vehicle. See *Engine Exhaust on page 2-26*.

Fuel System Inspection

Inspect the complete fuel system for damage or leaks.

Engine Cooling System Inspection

Inspect the hoses and have them replaced if they are cracked, swollen or deteriorated. Inspect all pipes, fittings and clamps; replace as needed. Clean the outside of the radiator and air conditioning condenser. To help ensure proper operation, a pressure test of the cooling system and pressure cap is recommended at least once a year.

Throttle System Inspection

Inspect the throttle 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 and cruise control cables.

Transfer Case and Front Axle (All-Wheel Drive) Inspection

Every 12 months, or at engine oil change intervals, check front axle and transfer case and add lubricant when necessary. A fluid loss could indicate a problem. Check and have it repaired, if needed. Check vent hose at transfer case for kinks and proper installation.

Brake System Inspection

Inspect the complete system. 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. Check parking brake adjustment. You may need to have your brakes inspected more often if your driving habits or conditions result in frequent braking.

Part D: Recommended Fluids and Lubricants

Fluids and lubricants identified below by name, part number or specification may be obtained from your dealer.

Usage	Fluid/Lubricant
Engine Oil	Engine oil which meets GM Standard GM6094M and displays the American Petroleum Institute Certified for Gasoline Engines starburst symbol. GM Goodwrench oil meets all the requirements for your vehicle. To determine the proper viscosity for your vehicle's engine, see *Engine Oil on page 5-13*.
Engine Coolant	50/50 mixture of clean, drinkable water and use only DEX-COOL® Coolant. See *Engine Coolant on page 5-26*.
Hydraulic Brake System	Delco Supreme 11 Brake Fluid or equivalent DOT-3 brake fluid.
Windshield Washer Solvent	GM Optikleen® Washer Solvent.

Usage	Fluid/Lubricant
Parking Brake Cable Guides	Chassis Lubricant (GM Part No. U.S. 12377985, in Canada 88901242) or lubricant meeting requirements of NLGI #2, Category LB or GC-LB.
Power Steering System	GM Power Steering Fluid (GM Part No. U.S. 89021184, in Canada 89021186).
Automatic Transmission	DEXRON®-III Automatic Transmission Fluid. Look for “Approved for the H-Specification” on the label.
Key Lock Cylinders	Multi-Purpose Lubricant, Superlube (GM Part No. U.S. 12346241, in Canada 10953474).
Chassis Lubrication	Chassis Lubricant (GM Part No. U.S. 12377985, in Canada 88901242) or lubricant meeting requirements of NLGI #2, Category LB or GC-LB.
Front Wheel Bearings	Wheel bearing lubricant meeting requirements of NLGI #2, Category GC or GC-LB (GM Part No. U.S. 1051344, in Canada 993037).

Usage	Fluid/Lubricant
Front Axle	SAE 80W-90 Axle Lubricant (GM Part No. U.S. 1052271, in Canada 10950849).
Rear Axle	SAE 75W-90 Synthetic Axle Lubricant (GM Part No. U.S. 12378261, in Canada 10953455) meeting GM Specification 9986115.
Transfer Case	AUTO-TRAK II Fluid (GM Part No. U.S. 12378508, in Canada 10953626).
Hood Latch Assembly, Secondary Latch, Pivots, Spring Anchor and Release Pawl	Lubriplate Lubricant Aerosol (GM Part No. U.S. 12346293, in Canada 992723) or lubricant meeting requirements of NLGI #2, Category LB or GC-LB.
Hood and Door Hinges	Multi-Purpose Lubricant, Superlube (GM Part No. U.S. 12346241, in Canada 10953474).
Weatherstrip Conditioning	Dielectric Silicone Grease (GM Part No. U.S. 12345579, in Canada 992887).

Part E: Maintenance Record

After the scheduled services are performed, record the date, odometer reading and who performed the service and any additional information from “Owner Checks and Services” or “Periodic Maintenance” on the following record pages. Also, you should retain all maintenance receipts.

Maintenance Record

Date	Odometer Reading	Serviced By	Maintenance Record

Maintenance Record (cont'd)

Date	Odometer Reading	Serviced By	Maintenance Record

Maintenance Record (cont'd)

Date	Odometer Reading	Serviced By	Maintenance Record

Maintenance Record (cont'd)

Date	Odometer Reading	Serviced By	Maintenance Record

Section 7 Customer Assistance and Information

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Customer Assistance and Information

Customer Satisfaction Procedure

Your satisfaction and goodwill are important to your dealer and to Chevrolet. Normally, any concerns with the sales transaction or the operation of your vehicle will be resolved by your dealer's sales or service departments. Sometimes, however, despite the best intentions of all concerned, misunderstandings can occur. If your concern has not been resolved to your satisfaction, the following steps should be taken:

STEP ONE: Discuss your concern with a member of dealership management. Normally, concerns can be quickly resolved at that level. If the matter has already been reviewed with the sales, service or parts manager, contact the owner of the dealership or the general manager.

STEP TWO: If after contacting a member of dealership management, it appears your concern cannot be resolved by the dealership without further help, contact the Chevrolet Customer Assistance Center by calling 1-800-222-1020. In Canada, contact GM of Canada Customer Communication Centre by calling 1-800-263-3777 (English) or 1-800-263-7854 (French).

We encourage you to call the toll-free number in order to give your inquiry prompt attention. Please have the following information available to give the Customer Assistance Representative:

- Vehicle Identification Number (VIN). This is available from the vehicle registration or title, or the plate at the top left of the instrument panel and visible through the windshield.
- Dealership name and location.
- Vehicle delivery date and present mileage (kilometers).

When contacting Chevrolet, please remember that your concern will likely be resolved at a dealer's facility. That is why we suggest you follow Step One first if you have a concern.

STEP THREE: Both General Motors and your dealer are committed to making sure you are completely satisfied with your new vehicle. However, if you continue to remain unsatisfied after following the procedure outlined in Steps One and Two, you should file with the BBB Auto Line Program to enforce any additional rights you may have. Canadian owners refer to your Warranty and Owner Assistance Information booklet for information on the Canadian Motor Vehicle Arbitration Plan (CAMVAP).

The BBB Auto Line Program is an out of court program administered by the Council of Better Business Bureaus to settle automotive disputes regarding vehicle repairs or the interpretation of the New Vehicle Limited Warranty. Although you may be required to resort to this informal dispute resolution program prior to filing a court action, use of the program is free of charge and your case will generally be heard within 40 days. If you do not agree with the decision given in your case, you may reject it and proceed with any other venue for relief available to you.

You may contact the BBB Auto Line Program using the toll-free telephone number or write them at the following address:

BBB Auto Line Program
Council of Better Business Bureaus, Inc.
4200 Wilson Boulevard
Suite 800
Arlington, VA 22203-1838

Telephone: 1-800-955-5100

This program is available in all 50 states and the District of Columbia. Eligibility is limited by vehicle age, mileage, and other factors. General Motors reserves the right to change eligibility limitations and/or discontinue its participation in this program.

Online Owner Center

The Owner Center is a resource for your GM ownership needs. Specific vehicle information can be found in one place.

The Online Owner Center allows you to:

- Get e-mail service reminders.
- Access information about your specific vehicle, including tips and videos and an electronic version of this owner's manual (United States only).
- Keep track of your vehicle's service history and maintenance schedule.
- Find GM dealers for service nationwide.
- Receive special promotions and privileges only available to members (United States only).

Refer to the web for updated information.

To register your vehicle, visit www.MyGMLink.com (United States) or My GM Canada within www.gmcanada.com (Canada).

Customer Assistance for Text Telephone (TTY) Users

To assist customers who are deaf, hard of hearing, or speech-impaired and who use Text Telephones (TTYs), Chevrolet has TTY equipment available at its Customer Assistance Center. Any TTY user can communicate with Chevrolet by dialing: 1-800-833-CHEV (2438). (TTY users in Canada can dial 1-800-263-3830.)

Customer Assistance Offices

Chevrolet encourages customers to call the toll-free number for assistance. If a U.S. customer wishes to write to Chevrolet, the letter should be addressed to Chevrolet's Customer Assistance Center.

United States — Customer Assistance

Chevrolet Motor Division
Chevrolet Customer Assistance Center
P.O. Box 33170
Detroit, MI 48232-5170

1-800-222-1020
1-800-833-2438 (For Text Telephone devices (TTYs))
Roadside Assistance: 1-800-CHEV-USA® (243-8872)
Fax Number: 313-381-0022

From Puerto Rico:
1-800-496-9992 (English)
1-800-496-9993 (Spanish)
Fax Number: 313-381-0022

From U.S. Virgin Islands:
1-800-496-9994
Fax Number: 313-381-0022

Canada — Customer Assistance

General Motors of Canada Limited
Customer Communication Centre, 163-005
1908 Colonel Sam Drive
Oshawa, Ontario L1H 8P7

1-800-263-3777 (English)
1-800-263-7854 (French)
1-800-263-3830 (For Text Telephone devices (TTYs))
Roadside Assistance: 1-800-268-6800

Overseas — Customer Assistance

Please contact the local General Motors Business Unit.

Mexico, Central America and Caribbean Islands/Countries (Except Puerto Rico and U.S. Virgin Islands) — Customer Assistance

General Motors de Mexico, S. de R.L. de C.V.
Customer Assistance Center
Paseo de la Reforma # 2740
Col. Lomas de Bezares
C.P. 11910, Mexico, D.F.
01-800-508-0000
Long Distance: 011-52-53 29 0 800

GM Mobility Reimbursement Program

This program, available to qualified applicants, can reimburse you up to $1,000 toward eligible aftermarket driver's or passenger's adaptive equipment you may require for your vehicle, such as hand controls and wheelchair/scooter lifts.

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 gmmobility.com or call the GM Mobility Assistance Center at 1-800-323-9935. Text telephone (TTY) users, call 1-800-833-9935.

GM of Canada also has a Mobility Program. Call 1-800-GM-DRIVE (463-7483) for details. TTY users call 1-800-263-3830.

Roadside Assistance Program

As the owner of a new Chevrolet vehicle, you are automatically enrolled in the Chevrolet Roadside Assistance program. This value-added service is intended to provide you with peace of mind as you drive in the city or travel the open road. Call Chevrolet's Roadside Assistance at 1-800-CHEV-USA, (1-800-243-8872) 24 hours a day, 365 days a year to speak with a Chevrolet Roadside Assistance representative.

We will provide the following services during the Bumper-to-Bumper warranty period, at no expense to you:

- **Fuel Delivery:** Delivery of enough fuel ($5 maximum) for the customer to get to the nearest service station.
- **Lock-out Service (identification required):** Replacement keys or locksmith service will be covered at no charge if you are unable to gain entry into your vehicle. Delivery of the replacement key will be covered within 10 miles (16 km).
- **Emergency Tow:** Tow to the nearest dealership for warranty service or in the event of a vehicle-disabling accident. Assistance provided when the vehicle is mired in sand, mud, or snow.

- **Flat Tire Change:** Installation of a spare tire will be 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:** No-start occurrences which require a battery jump start will be covered at no charge.
- **Dealer Locator Service**

In many instances, mechanical failures are covered under Chevrolet's Bumper-to-Bumper warranty. However, when other services are utilized, our Roadside Assistance Representatives will explain any payment obligations you might incur.

For prompt and efficient assistance when calling, please provide the following to the Roadside Assistance Representative:

- Your name, home address, and home telephone number.
- Telephone number of your location.
- Location of the vehicle.
- Model, year, color, and license plate number.
- Mileage, Vehicle Identification Number (VIN), and delivery date of the vehicle.
- Description of the problem.

While we hope you never have the occasion to use our service, it is added security while traveling for you and your family. Remember, we are only a phone call away. Chevrolet Roadside Assistance: 1-800-CHEV-USA (1-800-234-8872), text telephone (TTY) users, call 1-888-889-2438.

Chevrolet reserves the right to limit services or reimbursement to an owner or driver when, in Chevrolet's judgement, the claims become excessive in frequency or type of occurrence.

Roadside Assistance is not part of or included in the coverage provided by the New Vehicle Limited Warranty. Chevrolet reserves the right to make any changes or discontinue the Roadside Assistance program at any time without notification.

Canadian Roadside Assistance

Vehicles purchased in Canada have an extensive roadside assistance program accessible from anywhere in Canada or the United States. Please refer to the Warranty and Owner Assistance Information book.

Courtesy Transportation

Chevrolet has always exemplified quality and value in its offering of motor vehicles. To enhance your ownership experience, we and our participating dealers are proud to offer Courtesy Transportation, a customer support program for new vehicles.

The Courtesy Transportation program is offered to retail purchase/lease customers in conjunction with the Bumper-to-Bumper coverage provided by the New Vehicle Limited Warranty. Several transportation options are available when warranty repairs are required. This will reduce your inconvenience during warranty repairs.

Scheduling Service Appointments

When your vehicle requires warranty service, you should contact your dealer and request an appointment. By scheduling a service appointment and advising your service consultant of your transportation needs, your dealer can help minimize your inconvenience.

If your vehicle cannot be scheduled into the service department immediately, keep driving it until it can be scheduled for service, unless, of course, the problem is safety-related. If it is, please call your dealership, let them know this, and ask for instructions.

If the dealer requests that you simply drop the vehicle off for service, you are urged to do so as early in the work day as possible to allow for same day repair.

Transportation Options

Warranty service can generally be completed while you wait. However, if you are unable to wait, Chevrolet helps minimize your inconvenience by providing several transportation options. Depending on the circumstances, your dealer can offer you one of the following:

Shuttle Service

Participating dealers can provide you with shuttle service to get you to your destination with minimal interruption of your daily schedule. This includes a one way or round trip shuttle service to a destination up to 10 miles (16 km) from the dealership.

Public Transportation or Fuel Reimbursement

If your vehicle requires overnight warranty repairs, reimbursement of up to a five day maximum may be available for the use of public transportation such as a taxi or bus. In addition, should you arrange transportation through a friend or relative, reimbursement for reasonable fuel expenses of up to a five day maximum may be available. Claim amounts should reflect actual costs and be supported by original receipts.

Courtesy Rental Vehicle

Your dealer may arrange to provide you with a courtesy rental vehicle or reimburse you for a rental vehicle that you obtain if your vehicle is kept for a warranty repair. Reimbursement will be limited to a maximum of $30.00 a day and must be supported by receipts. This requires that you sign and complete a rental agreement and meet state, local and rental vehicle provider requirements. Requirements vary and may include minimum age requirements, insurance coverage, credit card, etc. You are responsible for fuel usage charges and may also be responsible for taxes, levies, usage fees, excessive mileage or rental usage beyond the completion of the repair.

Generally it is not possible to provide a like-vehicle as a courtesy rental.

Additional Program Information

Courtesy Transportation is available during the Bumper-to-Bumper warranty coverage period, but it is not part of the New Vehicle Limited Warranty. A separate booklet entitled “Warranty and Owner Assistance Information” furnished with each new vehicle provides detailed warranty coverage information.

Courtesy Transportation is available only at participating GM dealers and all program options, such as shuttle service, may not be available at every dealer. Please contact your GM dealer for specific information about availability. All Courtesy Transportation arrangements will be administered by appropriate dealer personnel.

Canadian Vehicles: For warranty repairs during the Complete Vehicle Coverage period of the General Motors of Canada New Vehicle Limited Warranty, alternative transportation may be available under the Courtesy Transportation Program. Please consult your dealer for details.

General Motors reserves the right to unilaterally modify, change or discontinue Courtesy Transportation at any time and to resolve all questions of claim eligibility pursuant to the terms and conditions described herein at its sole discretion.

Vehicle Data Collection and Event Data Recorders

Your vehicle, like other modern motor vehicles, has a number of sophisticated computer systems that monitor and control several aspects of the vehicle's performance. Your vehicle uses on-board vehicle computers to monitor emission control components to optimize fuel economy, to monitor conditions for airbag deployment and, if so equipped, to provide anti-lock braking and to help the driver control the vehicle in difficult driving situations. Some information may be stored during regular operations to facilitate repair of detected malfunctions; other information is stored only in a crash event by computer systems, such as those commonly called event data recorders (EDR).

In a crash event, computer systems, such as the Airbag Sensing and Diagnostic Module (SDM) in your vehicle may record information about the condition of the vehicle and how it was operated, such as data related to engine speed, brake application, throttle position, vehicle speed, safety belt usage, airbag readiness, airbag performance, and the severity of a collision. This information has been used to improve vehicle crash performance and may be used to improve crash performance of future vehicles and driving safety. Unlike the data recorders on many airplanes, these on-board systems do not record sounds, such as conversation of vehicle occupants.

To read this information, special equipment is needed and access to the vehicle or the device that stores the data is required. GM will not access information about a crash event or share it with others other than:

- with the consent of the vehicle owner or, if the vehicle is leased, with the consent of the lessee,
- in response to an official request of police or similar government office,
- as part of GM's defense of litigation through the discovery process, or
- as required by law.

In addition, once GM collects or receives data, GM may:

- use the data for GM research needs,
- make it available for research where appropriate confidentiality is to be maintained and need is shown, or
- share summary data which is not tied to a specific vehicle with non-GM organizations for research purposes.

Others, such as law enforcement, may have access to the special equipment that can read the information if they have access to the vehicle or the device that stores the data.

If your vehicle is equipped with OnStar®, please check the OnStar® subscription service agreement or manual for information on its operations and data collection.

Reporting Safety Defects

Reporting Safety Defects to the United States Government

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA), in addition to notifying General Motors.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or General Motors.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-800-424-9393 (or 366-0123 in the Washington, D.C. area) or write to:

NHTSA, U.S. Department of Transportation
Washington, D.C. 20590

You can also obtain other information about motor vehicle safety from the hotline.

Reporting Safety Defects to the Canadian Government

If you live in Canada, and you believe that your vehicle has a safety defect, you should immediately notify Transport Canada, in addition to notifying General Motors of Canada Limited. You may write to:

Transport Canada
330 Sparks Street
Tower C
Ottawa, Ontario K1A 0N5

Reporting Safety Defects to General Motors

In addition to notifying NHTSA (or Transport Canada) in a situation like this, we certainly hope you will notify General Motors. Please call the Chevrolet Customer Assistance Center at 1-800-222-1020, or write:

Chevrolet Motor Division
Chevrolet Customer Assistance Center
P.O. Box 33170
Detroit, MI 48232-5170

In Canada, please call us at 1-800-263-3777 (English) or 1-800-263-7854 (French). Or, write:

General Motors of Canada Limited
Customer Communication Centre, 163-005
1908 Colonel Sam Drive
Oshawa, Ontario L1H 8P7

Service Publications Ordering Information

Service Manuals

Service Manuals have the diagnosis and repair information on engines, transmission, axle suspension, brakes, electrical, steering, body, etc.

Transmission, Transaxle, Transfer Case Unit Repair Manual

This manual provides information on unit repair service procedures, adjustments, and specifications for GM transmissions, transaxles, and transfer cases.

Service Bulletins

Service Bulletins give technical service information needed to knowledgeably service General Motors cars and trucks. Each bulletin contains instructions to assist in the diagnosis and service of your vehicle.

In Canada, information pertaining to Product Service Bulletins can be obtained by contacting your General Motors dealer or by calling 1-800-GM-DRIVE (1-800-463-7483).

Owner's Information

Owner publications are written specifically for owners and intended to provide basic operational information about the vehicle. The owner's manual will include the Maintenance Schedule for all models.

In-Portfolio: Includes a Portfolio, Owner's Manual, and Warranty Booklet.

RETAIL SELL PRICE: $35.00

Without Portfolio: Owner's Manual only.

RETAIL SELL PRICE: $25.00

Current and Past Model Order Forms

Service Publications are available for current and past model GM vehicles. To request an order form, please specify year and model name of the vehicle.

ORDER TOLL FREE: 1-800-551-4123
Monday-Friday 8:00 AM - 6:00 PM
Eastern Time

For Credit Card Orders Only (VISA-MasterCard-Discover), visit Helm, Inc. on the World Wide Web at: www.helminc.com

Or you can write to:

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

Prices are subject to change without notice and without incurring obligation. Allow ample time for delivery.

Note to Canadian Customers: All listed prices are quoted in U.S. funds. Canadian residents are to make checks payable in U.S. funds.

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