2003

GMC

SAVANA

The 2003 GMC Savana Owner Manual

Seats and Restraint Systems 1-1
- Front Seats 1-2
- Rear Seats 1-5
- Safety Belts 1-9
- Child Restraints 1-32
- Air Bag System 1-63
- Restraint System Check 1-75

Features and Controls 2-1
- Keys 2-2
- Doors and Locks 2-7
- Windows 2-16
- Theft-Deterrent Systems 2-19
- Starting and Operating Your Vehicle 2-20
- Mirrors 2-32
- OnStar® System 2-36
- Storage Areas 2-38

Instrument Panel 3-1
- Instrument Panel Overview 3-2
- Climate Controls 3-18
- Warning Lights, Gages and Indicators 3-24
- Audio System(s) 3-41

Driving Your Vehicle 4-1
- Your Driving, the Road, and Your Vehicle 4-2
- Towing 4-29

Service and Appearance Care 5-1
- Service 5-3
- Fuel 5-5
- Checking Things Under the Hood 5-9
- All-Wheel Drive 5-49
- Rear Axle 5-50
- Front Axle 5-51
- Noise Control System 5-52
- Bulb Replacement 5-54
- Windshield Wiper Blade Replacement 5-59
- Tires 5-60
- Appearance Care 5-86
- Vehicle Identification 5-96
- Electrical System 5-97
- Capacities and Specifications 5-103
- Normal Maintenance Replacement Parts 5-106

Maintenance Schedule 6-1
- Maintenance Schedule 6-2

Customer Assistance Information 7-1
- Customer Assistance Information 7-2
- Reporting Safety Defects 7-10

Index 1

GENERAL MOTORS, GM, the GM Emblem, GMC, the GMC Truck Emblem and the name SAVANA are registered trademarks of General Motors Corporation.

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 GMC whenever it appears in this manual.

Please keep this manual in your vehicle, so it will be there if you ever need it when you're on the road. If you sell the vehicle, please leave this manual in it so the new owner can use it.

Canadian Owners

You can obtain a French copy of this manual from your dealer or from:

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

How to Use This Manual

Many people read their owner's manual from beginning to end when they first receive their new vehicle. If you do this, it will help you learn about the features and controls for your vehicle. In this manual, you'll find that pictures and words work together to explain things.

Index

A good place to look for what you need is the Index in back of the manual. It's an alphabetical list of what's in the manual, and the page number where you'll find it.

Litho in U.S.A.
Part No. X 2314 A First Edition

©Copyright General Motors Corporation 07/15/02
All Rights Reserved

Safety Warnings and Symbols

You will find a number of safety cautions in this book. We use a box and the word CAUTION to tell you 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 don't, you or others could be hurt.

You will also find a circle with a slash through it in this book. This safety symbol means "Don't," "Don't do this" or "Don't let this happen."

Vehicle Damage Warnings

Also, in this book you will find these notices:

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

A notice will tell you about something that can damage your vehicle. Many times, this damage would not be covered by your warranty, and it could be costly. But the notice will tell you 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.

You'll also see warning labels on your vehicle. They use the same words, CAUTION or NOTICE.

Vehicle Symbols

Your vehicle has components and labels that use symbols instead of text. Symbols, used on your vehicle, 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

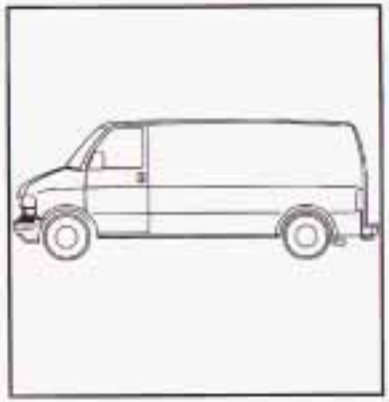
These are some examples of vehicle symbols you may find on your vehicle:

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
			FOG LAMPS	ANTI-LOCK BRAKES	SERVICE MANUAL

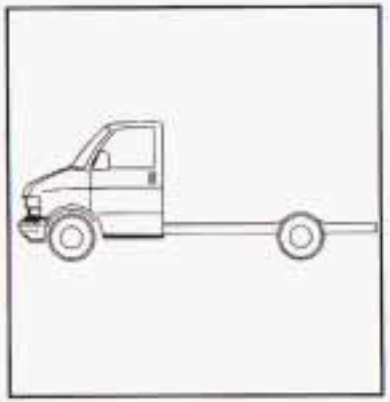
Model Reference

This manual covers these models:

Passenger Van



Cargo Van



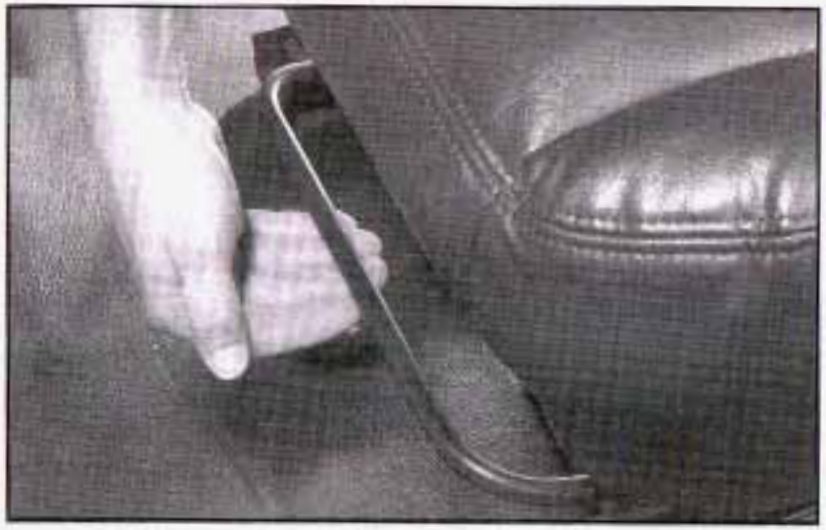
Cab and Chassis

Section 1 Seats and Restraint Systems

Front Seats 1-2
Manual Seats 1-2
Power Seat 1-3
Reclining Seatbacks 1-3
Rear Seats 1-5
Rear Seat Operation 1-5
Safety Belts 1-9
Safety Belts: They Are for Everyone 1-9
Questions and Answers About Safety Belts 1-13
How to Wear Safety Belts Properly 1-14
Driver Position 1-14
Safety Belt Use During Pregnancy 1-22
Right Front Passenger Position 1-23
Center Passenger Position (2nd Row) 1-23
Center Passenger Position (3rd, 4th and 5th Row) 1-24
Rear Seat Passengers 1-25
Rear Safety Belt Comfort Guides for Children and Small Adults 1-28
Safety Belt Pretensioners 1-31
Safety Belt Extender 1-31
Child Restraints 1-32
Older Children 1-32
Infants and Young Children 1-34
Child Restraint Systems 1-41
Where to Put the Restraint 1-44
Top Strap 1-48
Top Strap Anchor Location 1-50
Lower Anchorages and Top Tethers for Children (LATCH System) 1-51
Securing a Child Restraint Designed for the LATCH System 1-53
Securing a Child Restraint in a Rear Outside Seat Position 1-53
Securing a Child Restraint in a Center Seat Position (2nd Row) 1-56
Securing a Child Restraint in a Center Seat Position (3rd, 4th and 5th Row) 1-56
Securing a Child Restraint in the Right Front Seat Position 1-58
Air Bag System 1-63
Where Are the Air Bags? 1-66
When Should an Air Bag Inflate? 1-67
What Makes an Air Bag Inflate? 1-68
How Does an Air Bag Restrain? 1-69
What Will You See After an Air Bag Inflates? 1-69
Air Bag Off Switch 1-70
Servicing Your Air Bag-Equipped Vehicle 1-73
Adding Equipment to Your Air Bag-Equipped Vehicle 1-74
Restraint System Check 1-75
Checking Your Restraint Systems 1-75
Replacing Restraint System Parts After a Crash 1-76

Front Seats

Manual Seats



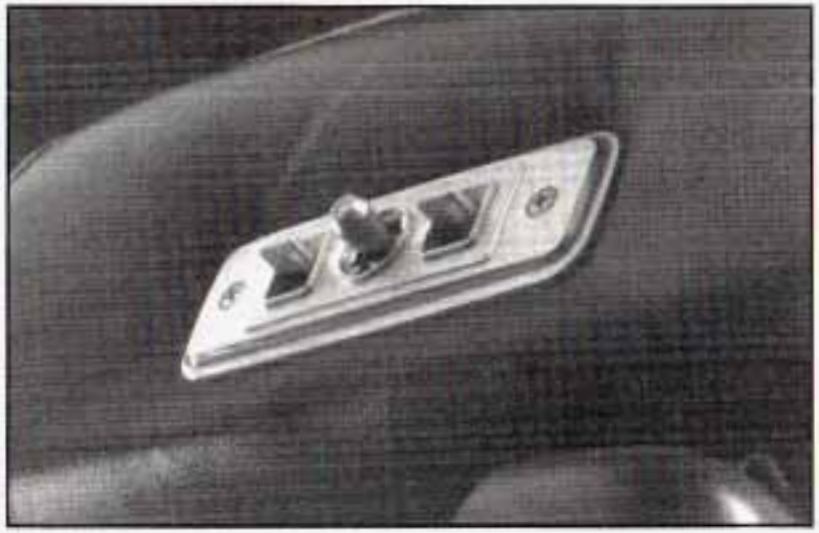
The bucket seats can be adjusted forward or rearward with the lever located at the front of the seat.

To adjust the seat, pull the lever up to release the seat bottom. Slide the seat to where you want it and then release the lever. Try to move the seat with your body, to make sure the seat is locked into place.

⚠ 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 don't want to. Adjust the driver's seat only when the vehicle is not moving.

Power Seat

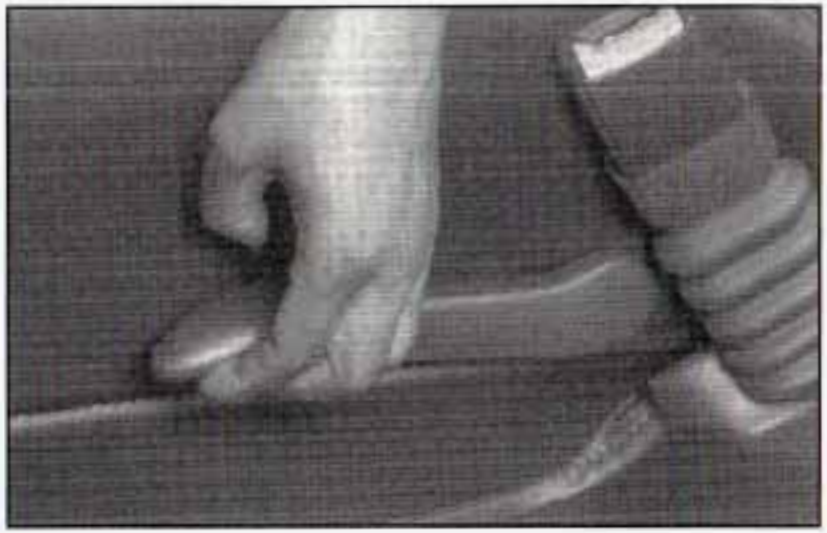


If your vehicle has a power seat on the driver's or passenger's side, you can adjust it with these controls located at the front center of the seat cushion.

To raise or lower the seat, move the center knob up or down. To move the seat forward or rearward, move the center knob toward the right or left.

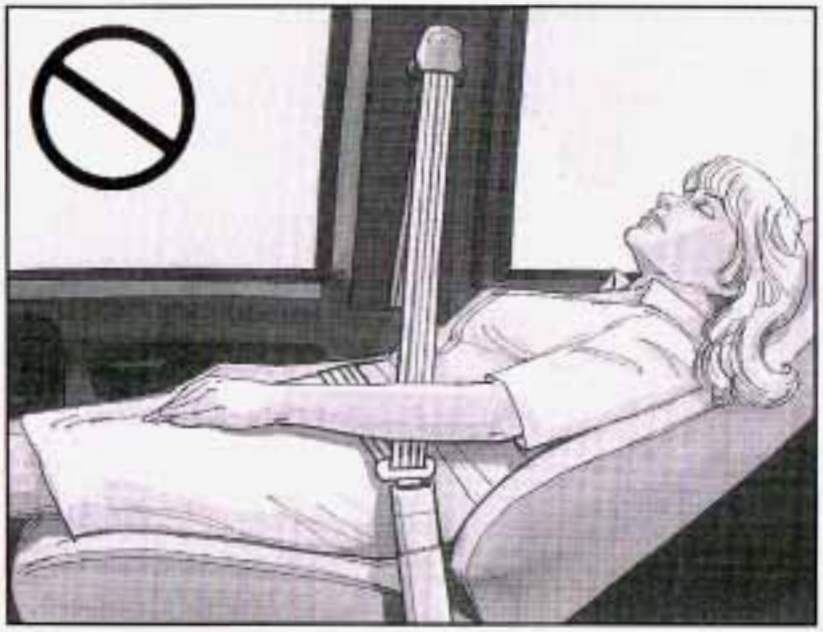
To raise or lower the front of the seat cushion, move the right lever up or down. To raise or lower the rear of the seat cushion, move the left lever up or down.

Reclining Seatbacks



To adjust the seatback, lift the front of the lever, which is located on the inboard side of the seat cushion.

Move the seatback with your body and release the lever to lock the seatback where you want it. Lean forward and pull up on the front of the lever and the seatback will go to an upright position.



But don't 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't do their job when you're reclined like this.

The shoulder belt can't do its job because it won't 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.

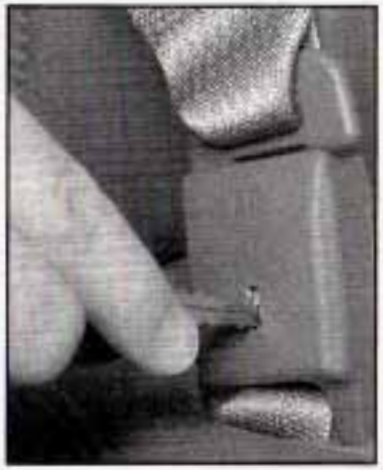
The lap belt can't do its job either. In a crash the belt could go up over your abdomen. The belt forces would be there, not at your pelvic bones. This could cause serious internal injuries.

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.

Rear Seats

Rear Seat Operation

Removing the Rear Seat

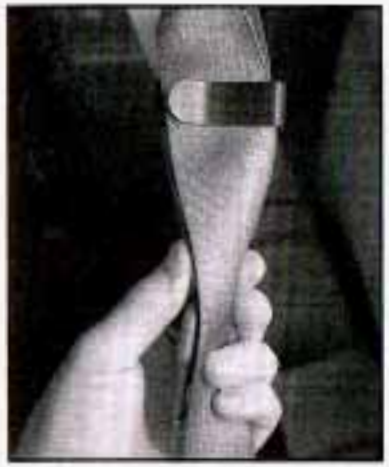


1. Disconnect the quick release latch plates for the lap shoulder belts on the bench seat to be removed. To do this, press the tip of a key into the release hole of the safety belt buckle while pulling up on the safety belt.

There are two pins located on the inboard sides of the rear seats. If the vehicle has floor mats, the pins will be located under a flap that has been cut into the mat.The driver's side pin will have a black cap with an "L" marked on it and will look like this:

The passenger's side pin will have a white cap with an "R" marked on it and will look like this:

2. Pull the pin handle up which will loosen the pin from the retaining clip.
3. Once the black or white pin is disengaged, pull the pin completely out.
4. Repeat this procedure for the pin on the other seat base.
5. Pull the seat rearward about two inches (5 cm) and then lift the seat from the floor rails.
6. Remove the seat from the vehicle.



7. For the first rear seat, stow the safety belt latch by attaching the clip on the safety belt latch to the trim just inside the side door. For the remaining rear seats, stow the safety belt latch plate on the clip at the window trim.

Replacing the Rear Seats

⚠ CAUTION:

A seat that isn't 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.

⚠ CAUTION:

A safety belt that is improperly routed, not properly attached, or twisted won't 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.

1. Position the seat into the open slots in both rails. Push the seat forward in the rail, hooking both seat bases onto the pins inside of the rails.
2. To install the locking pins at the rear of the seat base, locate the hole in the rail for the pin. It is found on the inboard side of the seat. If the vehicle has floor mats, pull the flap that has been cut into the mat.
3. Insert the black or white locking pin into the seat base. Possible slight seat pushing may be needed to line up the pin with the base. Remember, each pin has its own side. The pin with the white handle marked "R" must be installed on the passenger's side and the pin with the black handle marked "L" on the driver's side.

4. Push the pin with the white handle marked "R" down until it is in the retaining clip.

5. Push the pin with the black handle marked "L" down until it is in the retaining clip.
6. If the vehicle has a floor mat, put the flap back to its original position.
7. Repeat this procedure for the other seat base.
8. Connect the quick-release latch plates for the lap-shoulder belts by inserting the latch plates into the buckles attached at the outboard positions of the bench seat. Do not twist the belt.
9. Check that both locking pins are locked into place before operating the vehicle.

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:

Don't let anyone ride where he or she can't wear a safety belt properly. If you are in a crash and you're 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 3-27.*

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

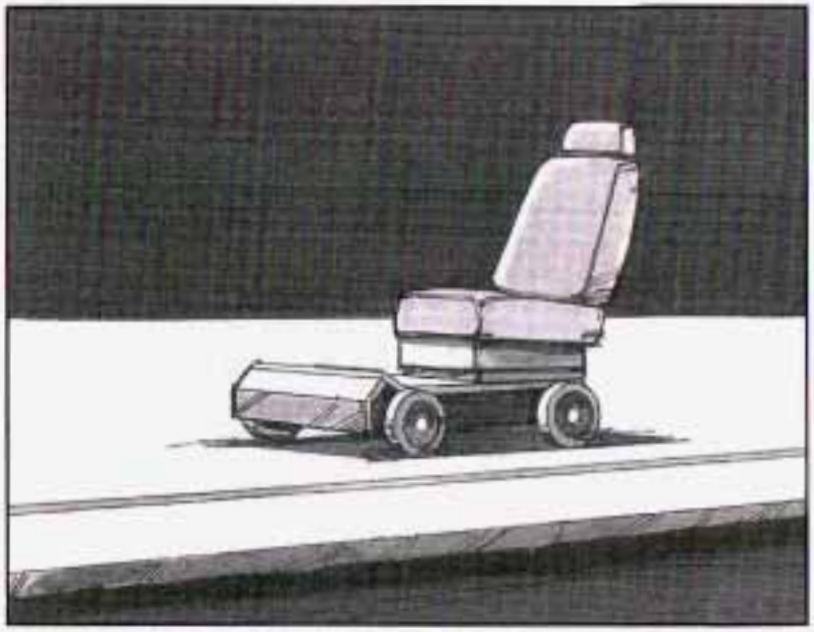
You never know if you'll be in a crash. If you do have a crash, you don't know if it will be a bad one.

A few crashes are mild, and some crashes can be so serious that even buckled up, a person wouldn't 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.

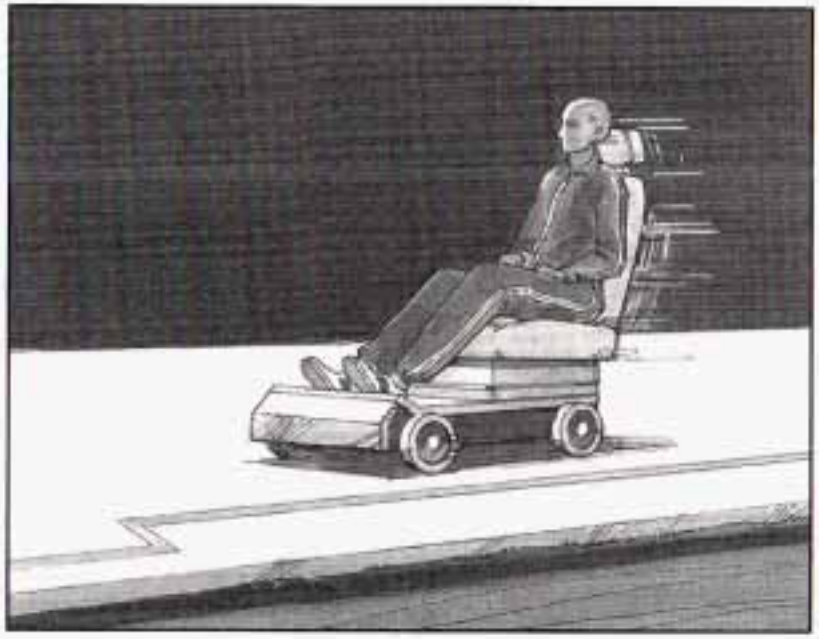
After more than 30 years of safety belts in vehicles, the facts are clear. In most crashes buckling up does matter... a lot!

Why Safety Belts Work

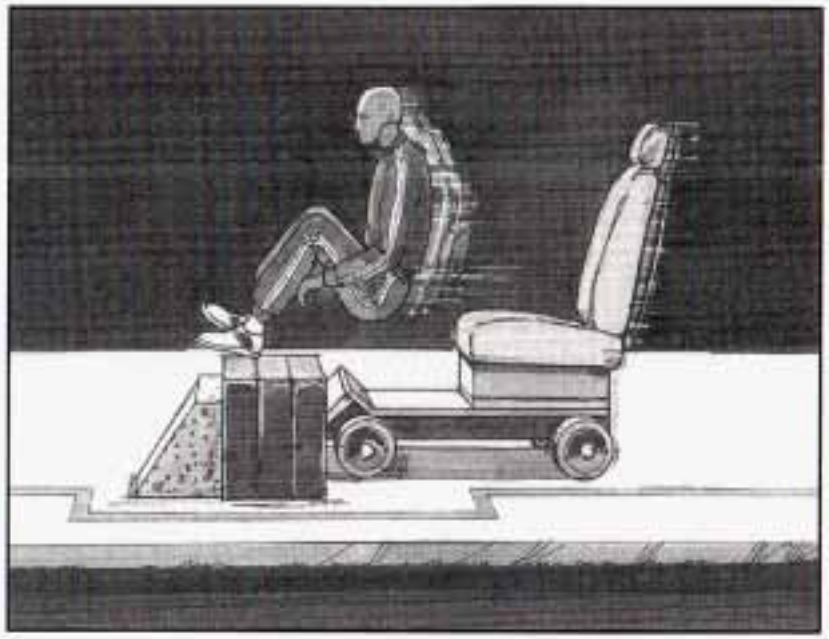
When you ride in or on anything, you go as fast as it goes.



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



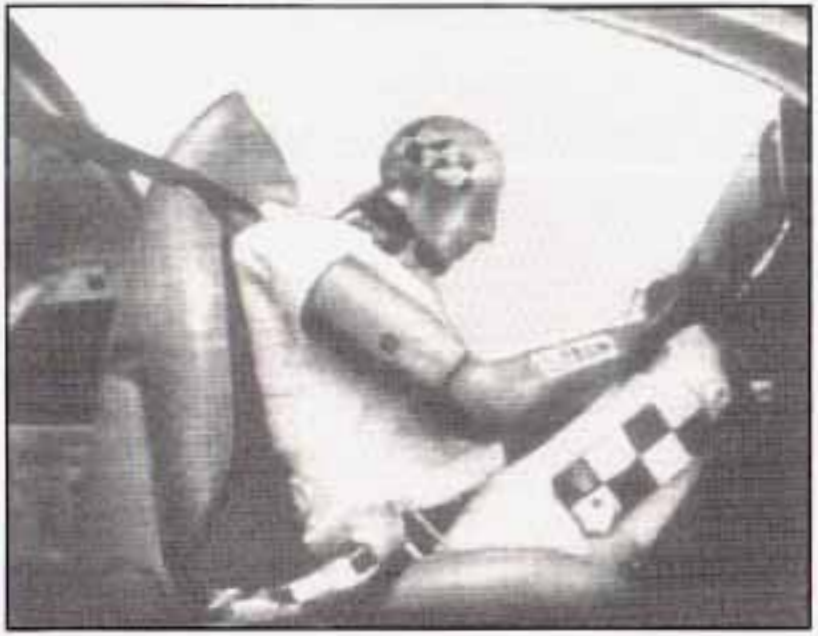
Put someone on it.



Get it up to speed. Then stop the vehicle. The rider doesn't 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's why safety belts make such good sense.

Questions and Answers About Safety Belts

Q: Won't I be trapped in the vehicle after an accident if I'm wearing a safety belt?

A: You *could* be – whether you're wearing a safety belt or not. But you can unbuckle a safety belt, even if you're 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 air bags, why should I have to wear safety belts?

A: Air bags 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 air bag system ever offered for sale has required the use of safety belts. Even if you're in a vehicle that has air bags, you still have to buckle up to get the most protection. That's true not only in frontal collisions, but especially in side and other collisions.

Q: If I'm 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're in an accident – even one that isn't your fault – you and your passengers can be hurt. Being a good driver doesn't 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 1-32* or *Infants and Young Children on page 1-34*. Follow those rules for everyone's protection.

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

We'll start with the driver position.

Driver Position

This part describes the driver's restraint system.

Lap-Shoulder Belt

The driver has a lap-shoulder belt. Here's 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.

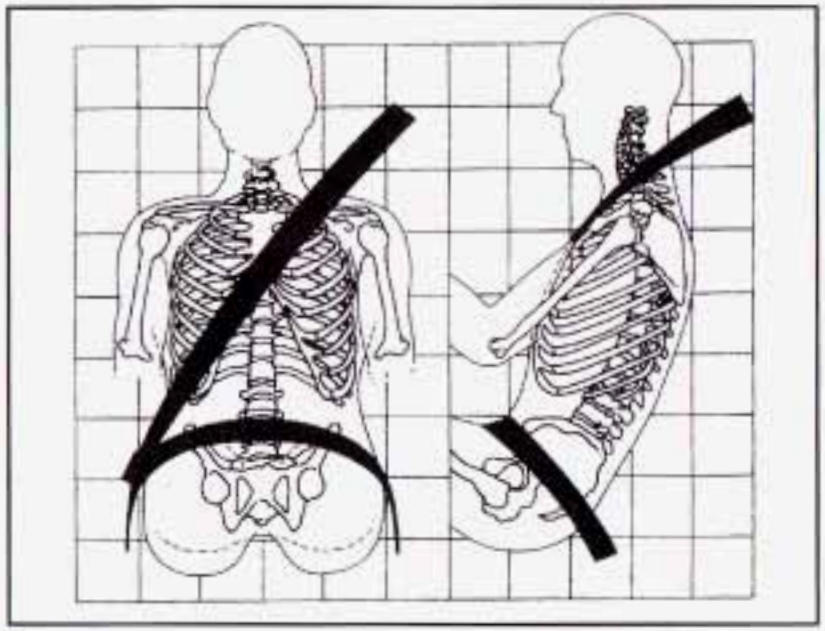
3. Pick up the latch plate and pull the belt across you. Don't let it get twisted.

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 isn't long enough, see *Safety Belt Extender on page 1-31*.

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

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



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'd 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's a sudden stop or crash.

Shoulder Belt Height Adjuster

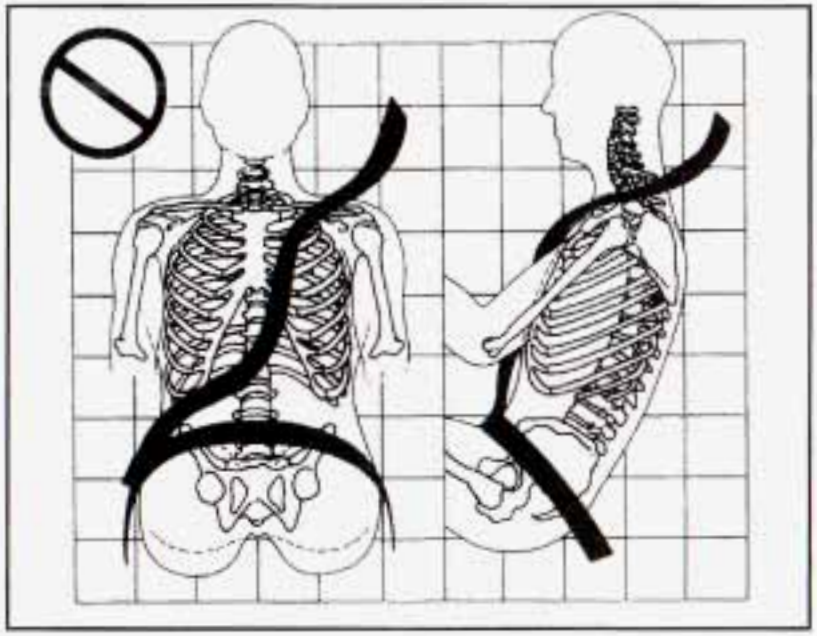
Before you begin to drive, move the shoulder belt adjuster to the height that is right for you.

To move it down, pull on the center adjuster control labeled PULL. 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 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.

Q: What's wrong with this?

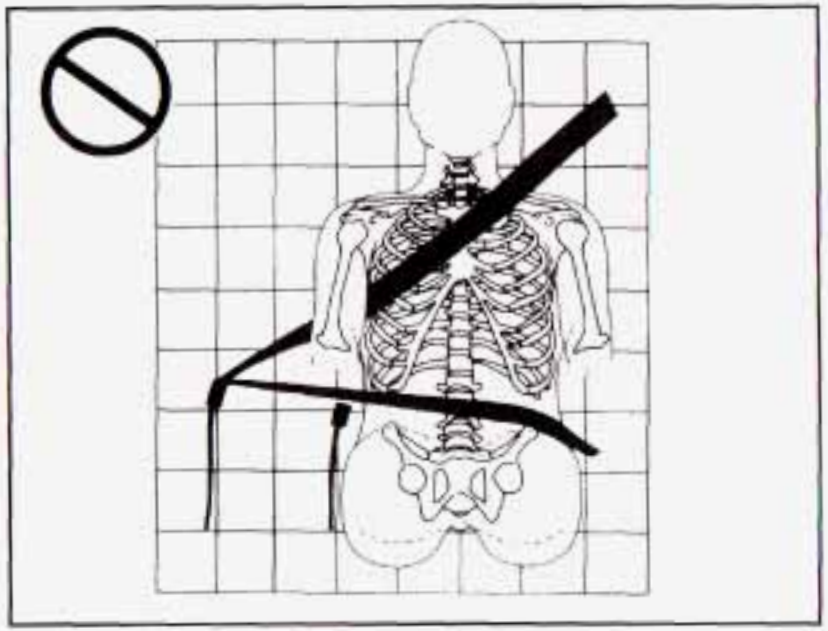


A: The shoulder belt is too loose. It won't give nearly as much protection this way.

⚠ 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's wrong with this?

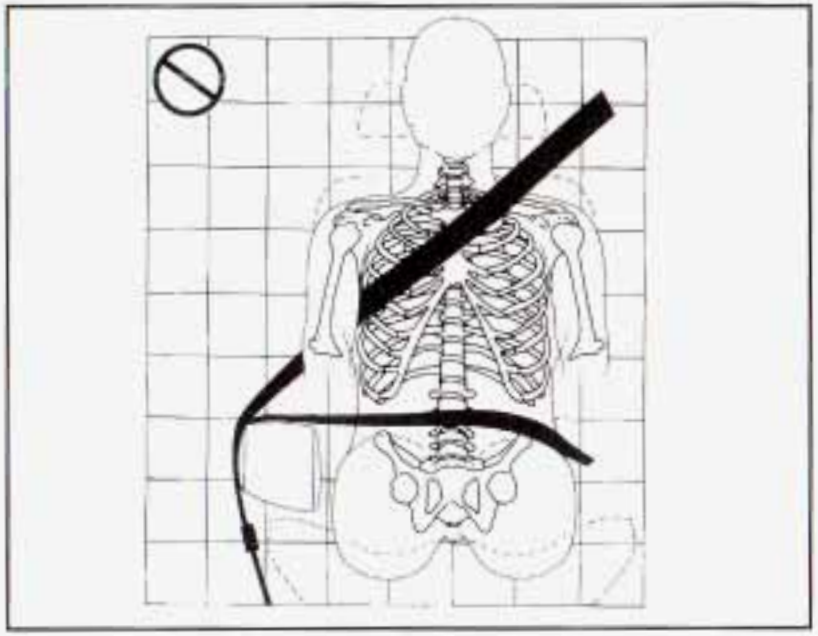


A: The belt is buckled in the wrong place.

⚠ 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's wrong with this?

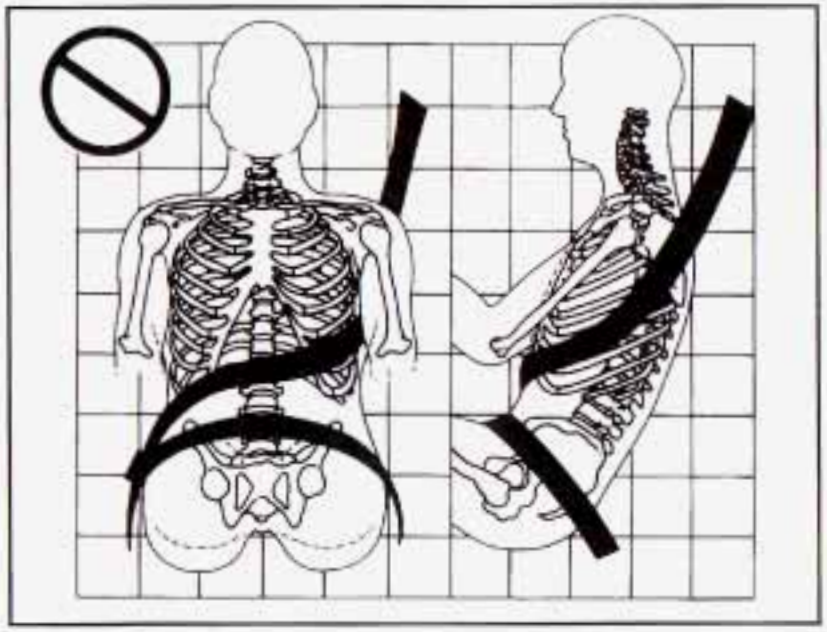


A: The belt is over an armrest.

⚠ 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's wrong with this?

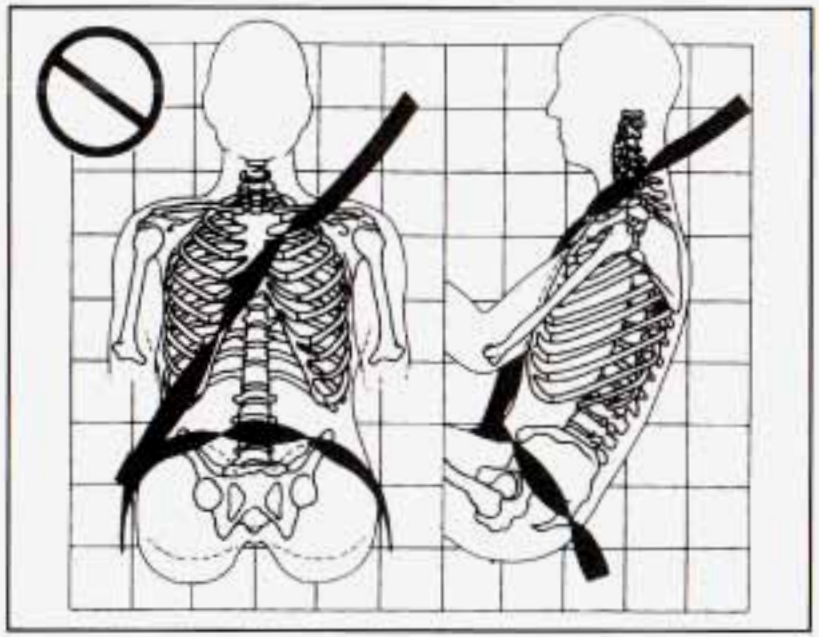


A: The shoulder belt is worn under the arm. It should be worn over the shoulder at all times.

⚠ 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 aren't as strong as shoulder bones. You could also severely injure internal organs like your liver or spleen.

Q: What's wrong with this?



A: The belt is twisted across the body.

⚠ CAUTION:

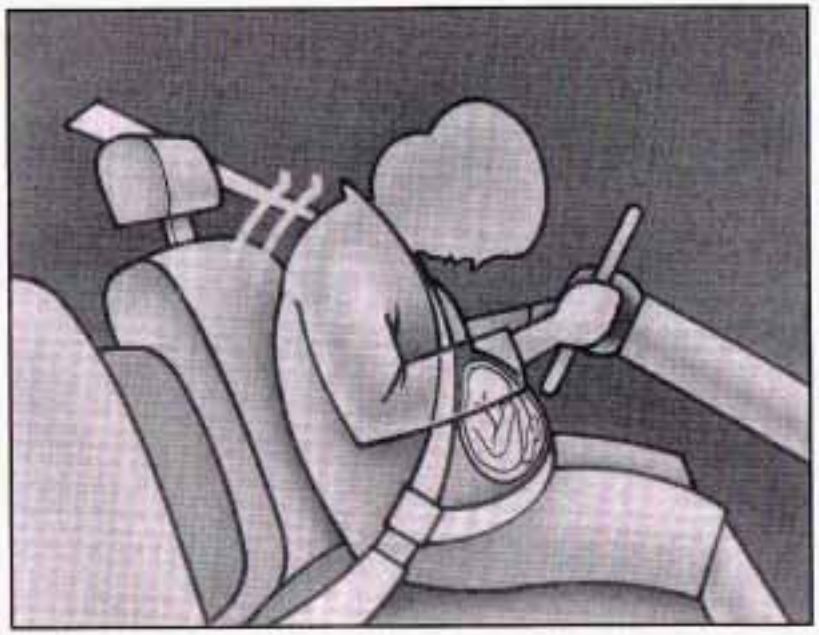
You can be seriously injured by a twisted belt. In a crash, you wouldn't have the full width of the belt to spread impact forces. If a belt is twisted, make it straight so it can work properly, or ask your dealer to fix it.

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.

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 don't 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.

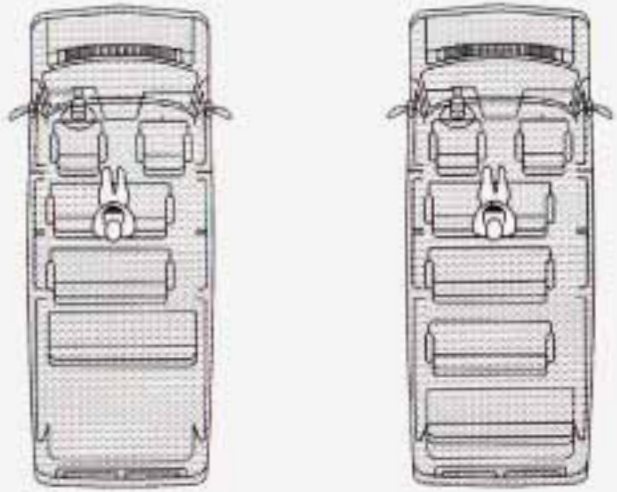
The best way to protect the fetus is to protect the mother. When a safety belt is worn properly, it's more likely that the fetus won't be hurt in a crash. For pregnant women, as for anyone, the key to making safety belts effective is wearing them properly.

Right Front Passenger Position

To learn how to wear the right front passenger's safety belt properly, see *Driver Position on page 1-14.*

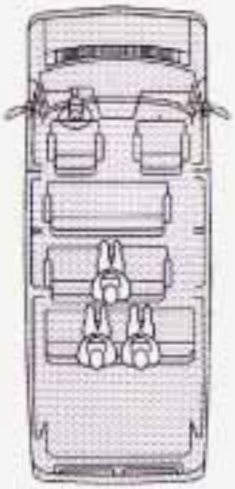
The right front passenger's safety belt works the same way as the driver's safety belt — except for one thing. If you ever pull the shoulder portion of the belt out all the way, you will engage the child restraint locking feature. If this happens, just let the belt go back all the way and start again.

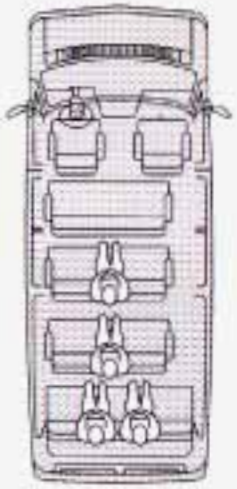
Center Passenger Position (2nd Row)



If your vehicle has a second row bench seat, someone can sit in the center position. When you sit in the center position in the second row bench seat, you have a lap-shoulder belt which works the same way as the rear seat outside passengers' belts. To learn how to wear a lap-shoulder belt see, "Lap-Shoulder Belt" under *Rear Seat Passengers on page 1-25.*

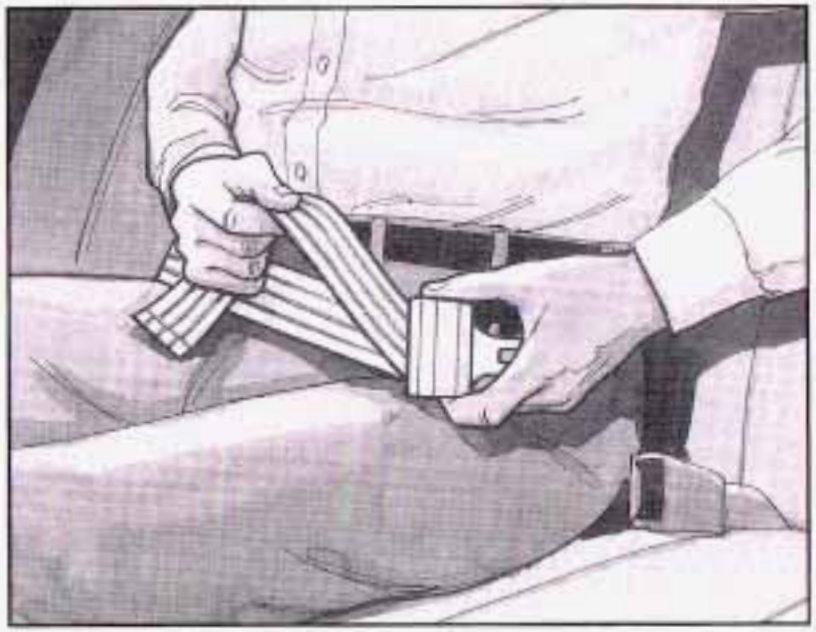
Center Passenger Position (3rd, 4th and 5th Row)



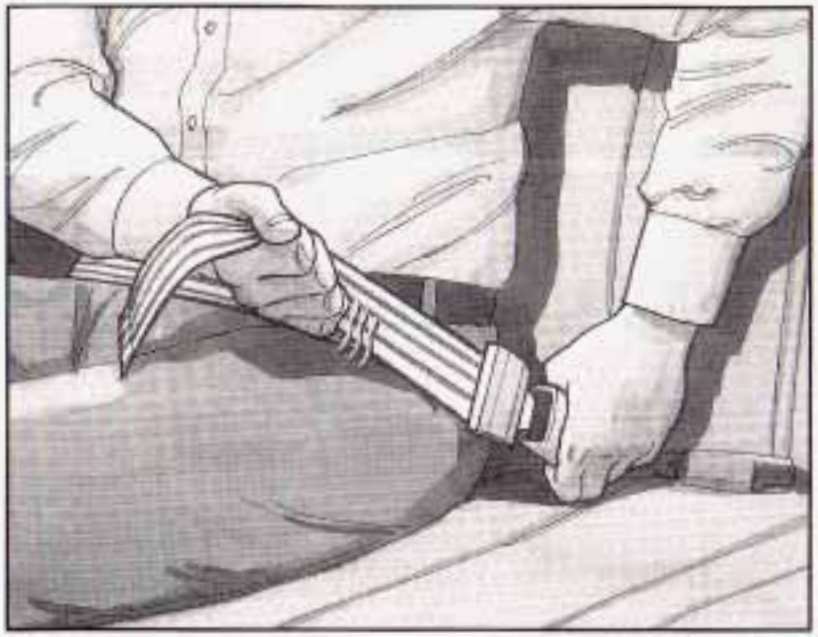


Lap Belt

If your vehicle has third, fourth or fifth row bench seats, someone can sit in the center positions.



When you sit in a center seating position in the third, fourth or fifth row, 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 isn't long enough, see *Safety Belt Extender on page 1-31*.

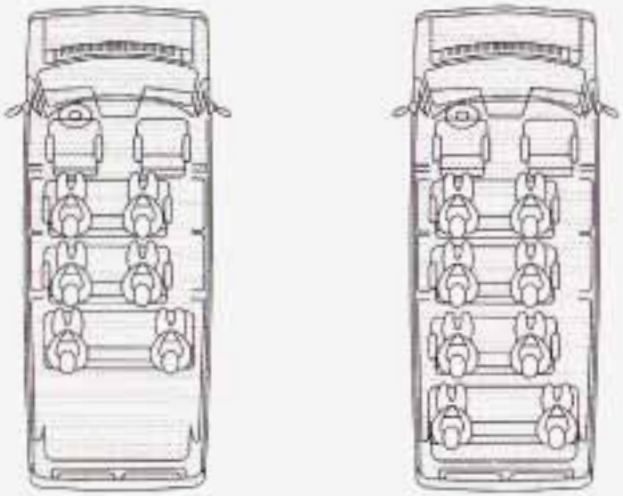
Make sure the release button on the buckle is positioned so you would be able to unbuckle the safety belt quickly if you ever had to.

Rear Seat Passengers

It's 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 aren't 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



The positions next to the windows have lap-shoulder belts.

Lap-Shoulder Belt

Here's how to wear a lap-shoulder belt properly.

1. Pick up the latch plate and pull the belt across you. Don't let it get twisted.
2. Push the latch plate into the buckle until it clicks.

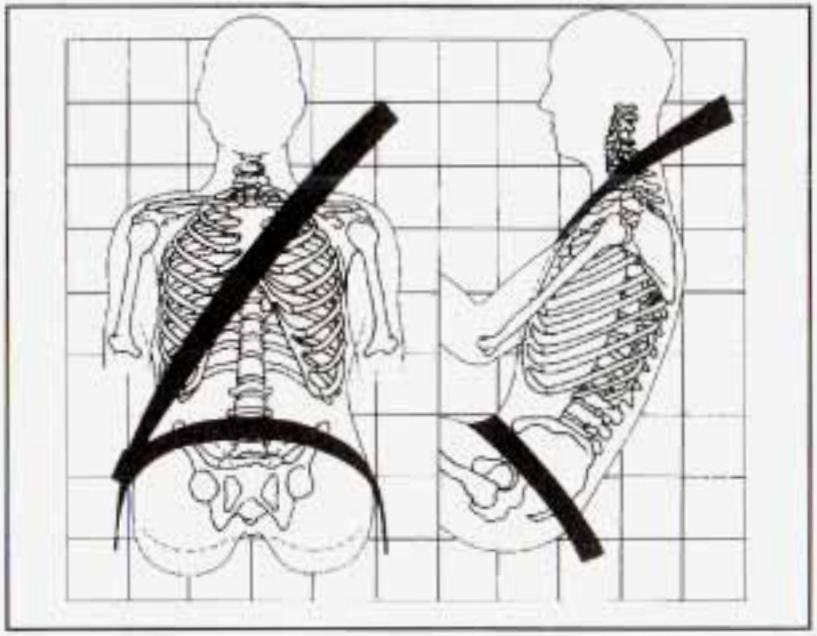
   Pull up on the latch plate to make sure it is secure.

   When the shoulder belt is pulled out all the way you will engage the child restraint locking feature. If this happens, just let the belt go back all the way and start again.

   If the belt is not long enough, see *Safety Belt Extender on page 1-31.*

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

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

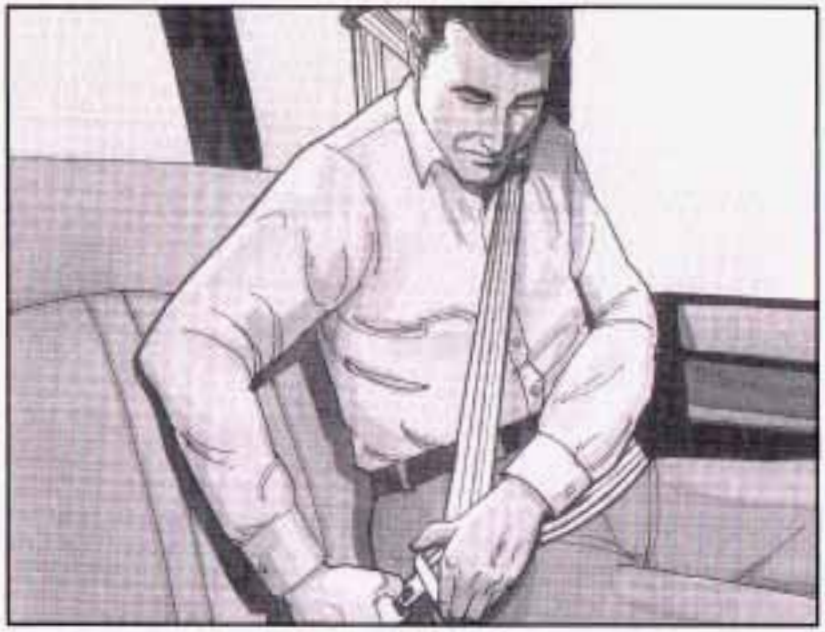


The lap part of the belt should be worn low and snug on the hips, just touching the thighs. In a crash, this applies force to the strong pelvic bones. And you'd be less likely to slide under the lap belt. If you slid under it, the belt would apply force at your abdomen. This could cause serious or even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

⚠ CAUTION:

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



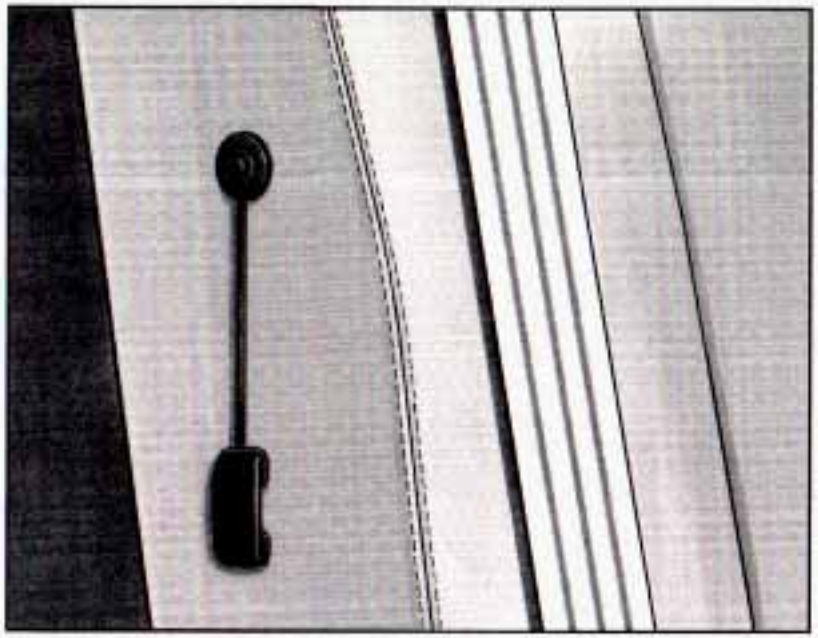
To unlatch the belt, just push the button on the buckle.

Rear Safety Belt Comfort Guides for Children and Small Adults

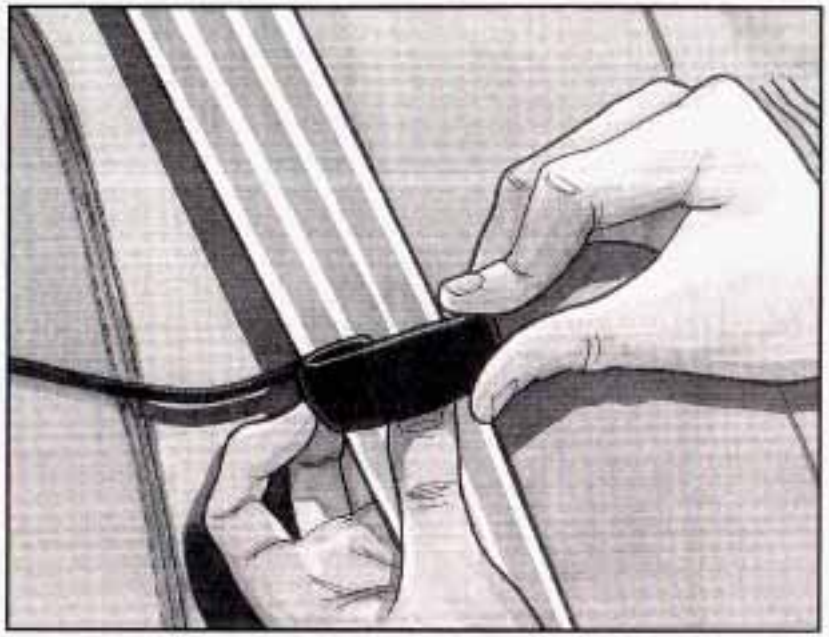
Your vehicle may have this feature already. If it doesn't, you can get it from any GM dealer.

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

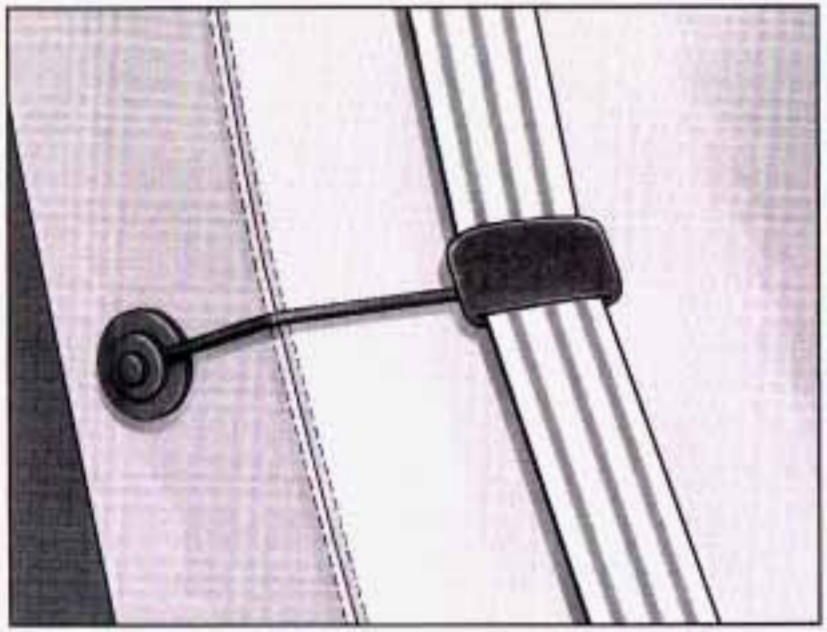
There is one guide available for each outside passenger position in the rear seats. To provide added safety belt comfort for children who have outgrown child restraints and booster seats and for smaller adults, the comfort guides may be installed on the shoulder belts. Here's how to install a comfort guide and use the safety belt:



1. Locate the guide on the side of the seatback.



2. Place the guide over the belt and insert the two edges of the belt into the slots of the guide.



3. Be sure 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 1-25*. 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.

Safety Belt Pretensioners

If the GVWR (Gross Vehicle Weight Rating) of your vehicle is lower than 8600, your vehicle has safety belt pretensioners. You can find the GVWR on the certification label located on the rear edge of the driver's door. See *Loading Your Vehicle on page 4-30* for more information.

The safety belt pretensioners are located on the buckle end of the safety belts for the driver and right front passenger. They help the safety belts reduce a person's forward movement in a moderate to severe crash in which the front of the vehicle hits something.

Pretensioners work only once. If they activate in a crash, you'll need to get new ones, and probably other new parts for your safety belt system. See *Replacing Restraint System Parts After a Crash on page 1-76.*

Safety Belt Extender

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

But if a safety belt isn't long enough to fasten, your dealer will order you an extender. It's free. When you go in to order it, take the heaviest coat you will wear, so the extender will be long enough for you. The extender will be just for you, and just for the seat in your vehicle that you choose. Don't let someone else use it, and use it only for the seat it is made to fit. To wear it, just attach it to the regular safety belt.

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 in a seating position that has a lap-shoulder belt to 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't properly spread the impact forces. In a crash, the two children can be crushed together and seriously injured. A belt must be used by only one person at a time.

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

A: If the child is seated in a rear outside seat position, move the child toward the center of the vehicle. See *Rear Safety Belt Comfort Guides for Children and Small Adults on page 1-28*. If the child is sitting in the second row center seat position, move the child toward the safety belt buckle. In either case, be sure that the shoulder belt still is on the child's shoulder, so that in a crash the child's upper body would have the restraint that belts provide. 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

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 the appropriate restraint. Young children should not use the vehicle's safety belts without an additional restraint, unless there is no other choice.

Cargo Vans with a Passenger Air Bag and an Air Bag Off Switch, Passenger Vans and Cab and Chassis Models

⚠ CAUTION:

People should never hold a baby in their arms while riding in a vehicle. A baby doesn't 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 air bag when it inflates can be seriously injured or killed. Air bags plus lap-shoulder belts offer outstanding protection for adults and older children, but not for young children and infants. Neither the vehicle's safety belt system nor its air bag 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's unprotected by any bony structure. This alone could cause serious or fatal injuries. Young children always should be secured in appropriate child restraints.

Cargo Vans with a Passenger Air Bag and without an Air Bag Off Switch

⚠ CAUTION:

Children who are up against, or very close to, an air bag when it inflates can be seriously injured or killed. Air bags plus lap-shoulder belts offer outstanding protection for adults and older children, but not for young children and infants. Neither the vehicle's safety belt system nor its air bag 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.

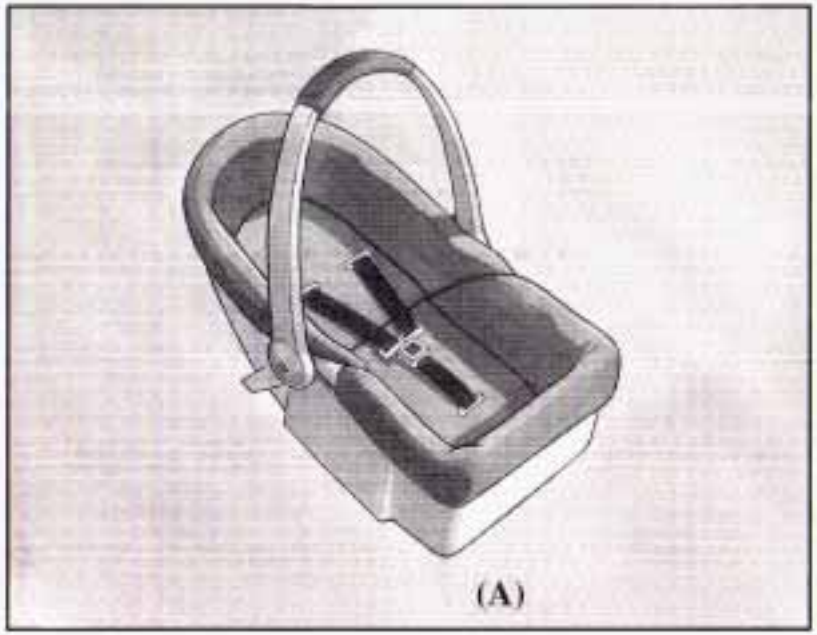
⚠ CAUTION:

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's unprotected by any bony structure. This alone could cause serious or fatal injuries. Young children always should be secured in appropriate child restraints.

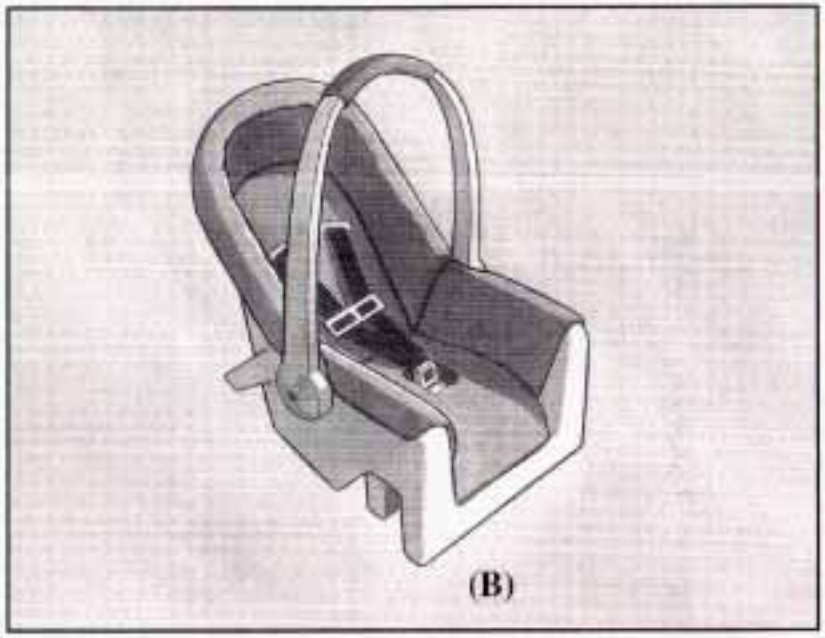
⚠ CAUTION:

People should never hold a baby in their arms while riding in a vehicle. A baby doesn't 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.

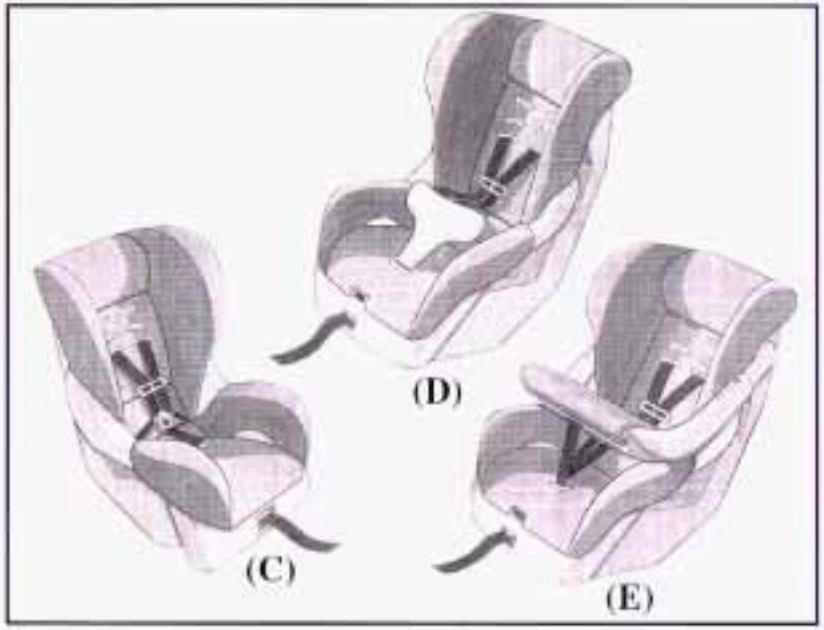
Child Restraint Systems



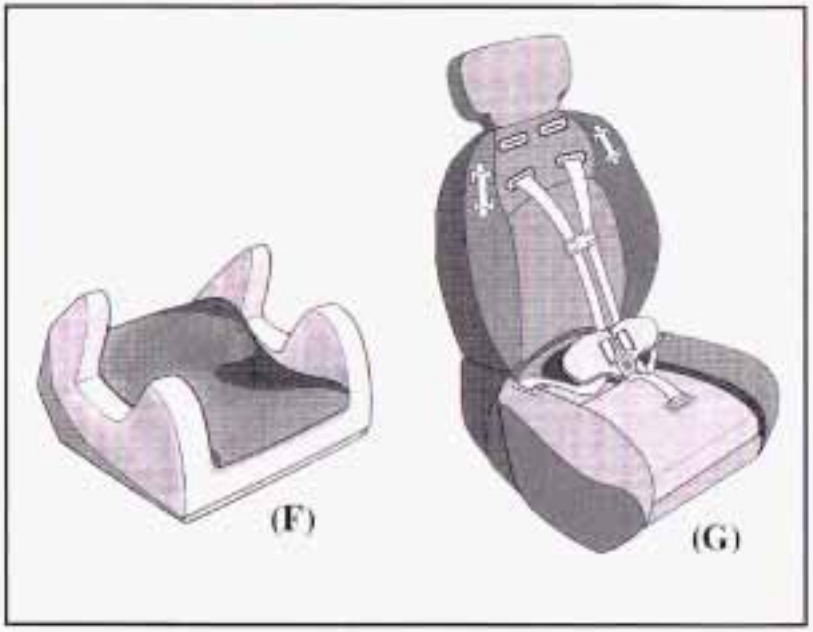
An infant car bed (A), a special bed made for use in a motor vehicle, is an infant restraint system designed to restrain or position a child on a continuous flat surface. Make sure that the infant's head rests toward the center of the vehicle.



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 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

Passenger Vans without an Air Bag Off Switch

Accident statistics show that children are safer if they are restrained in the rear rather than the front seat. We, therefore, recommend that child restraints be secured in a rear seat including an infant riding in a rear-facing infant seat, a child riding in a forward-facing child seat and an older child riding in a booster seat. If your vehicle has a front passenger air bag, *never* put a rear-facing child restraint in the front passenger seat. Here's why:

⚠ CAUTION:

A child in a rear-facing child restraint can be seriously injured or killed if the air bag inflates. This is because the back of the rear-facing child restraint would be very close to the inflating air bag. If your vehicle has a right front passenger's air bag, always secure a rear-facing child restraint in a rear seat.

You may secure a forward-facing child restraint in the right front seat, but before you do, always move the front passenger seat as far back as it will go. It's 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.

Passenger Vans with an Air Bag Off Switch

Accident statistics show that children are safer if they are restrained in the rear rather than the front seat. We, therefore, recommend that child restraints be secured in a rear seat, including an infant riding in a rear-facing infant seat, a child riding in a forward-facing child seat and an older child riding in a booster seat. If you need to secure a rear-facing child restraint in the right front passenger's seat, turn off the passenger's air bag. See *Air Bag Off Switch on page 1-70* and *Securing a Child Restraint in the Right Front Seat Position on page 1-58* for more on this, including important safety information.

⚠ CAUTION:

A child in a rear-facing child restraint can be seriously injured or killed if the air bag inflates. This is because the back of the rear-facing child restraint would be very close to the inflating air bag. Be sure to turn off the air bag before using a rear-facing child restraint in the right front seat position.

CAUTION: (Continued)

CAUTION: (Continued)

Even though the AIR BAG OFF switch is designed to turn off the passenger's frontal air bag, no system is fail-safe, and no one can guarantee that an air bag will not deploy under some unusual circumstance, even though it is turned off. We, therefore recommend that rear-facing child restraints be transported in vehicles with a rear seat that will accommodate a rear-facing child restraint, whenever possible.

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.

Cargo Vans and Cab and Chassis Models without an Air Bag Off Switch

The child restraint must be secured properly in the right front passenger seat. If your vehicle has a passenger air bag, *never* use a rear-facing child restraint in this vehicle Here's why:

⚠ CAUTION:

A child in a rear-facing child restraint can be seriously injured or killed if the air bag inflates. This is because the back of the rear-facing child restraint would be very close to the inflating air bag. Do not use a rear-facing child restraint in this vehicle.

If a forward-facing child restraint is suitable for your child, first 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.

Cargo Vans and Cab and Chassis Models with an Air Bag Off Switch

The child restraint must be secured properly in the right front passenger seat. If you need to secure a rear-facing child restraint in the right front passenger's seat, turn off the passenger's air bag. See *Air Bag Off Switch on page 1-70* and *Securing a Child Restraint in the Right Front Seat Position on page 1-58* for more on this, including important safety information.

⚠ CAUTION:

A child in a rear-facing child restraint can be seriously injured or killed if the air bag inflates. This is because the back of the rear-facing child restraint would be very close to the inflating air bag. Be sure to turn off the air bag before using a rear-facing child restraint in the right front seat position.

CAUTION: (Continued)

CAUTION: (Continued)

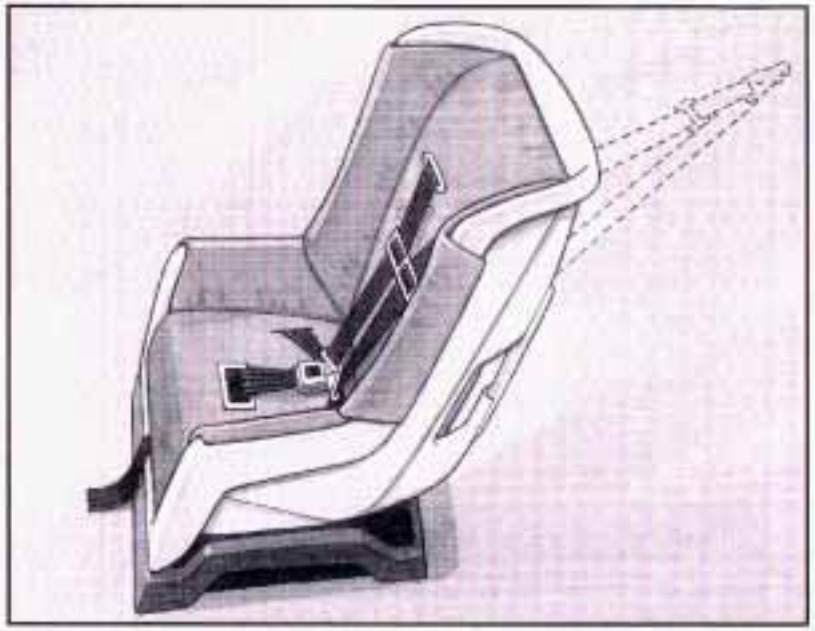
Even though the AIR BAG OFF switch is designed to turn off the passenger's frontal air bag, no system is fail-safe, and no one can guarantee that an air bag will not deploy under some unusual circumstance, even though it is turned off. We, therefore recommend that rear-facing child restraints be transported in vehicles with a rear seat that will accommodate a rear-facing child restraint, whenever possible.

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, don't 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.

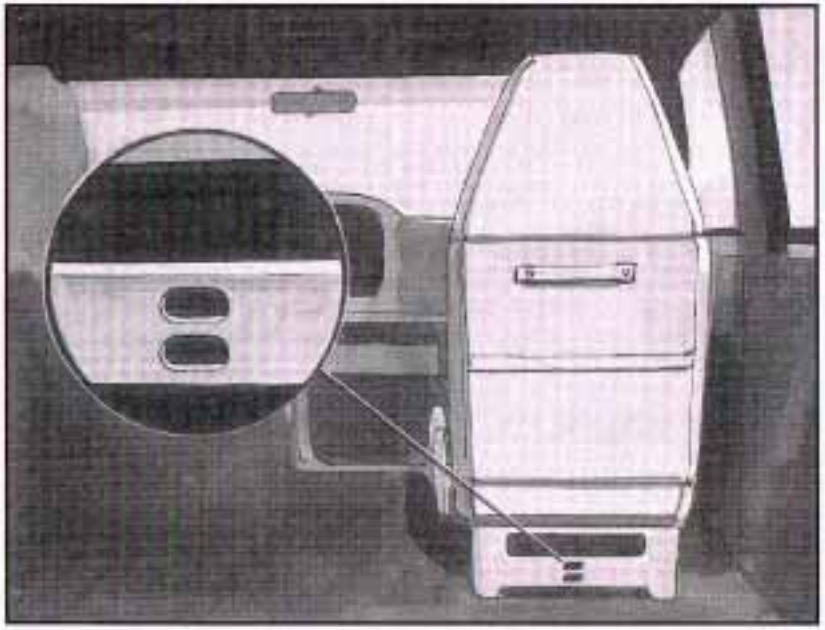
⚠ CAUTION:

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'll 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

On vehicles with a front passenger seat, the anchor for the top strap is located at the rear of the seat cushion on the right front passenger's seat.

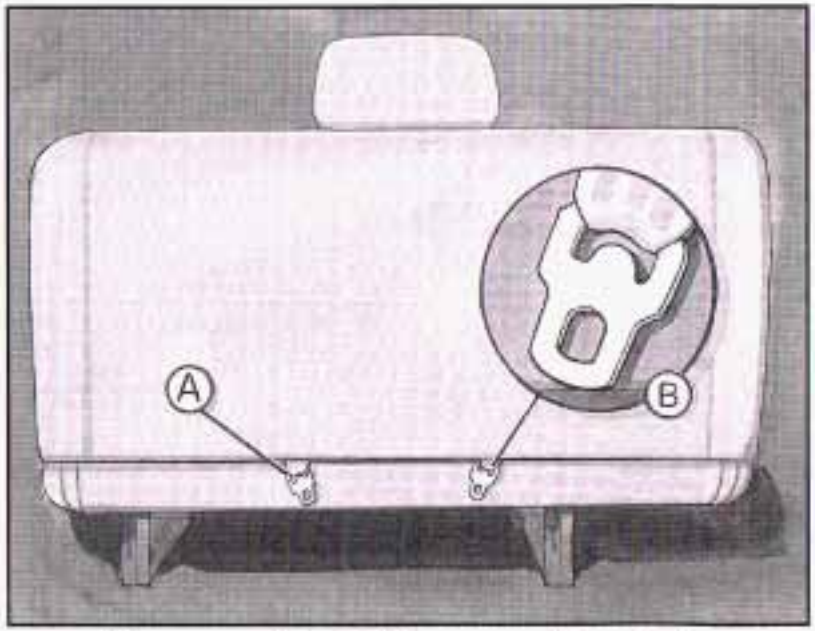


Passenger and Cargo Van Models

If your vehicle is a passenger van with rear seats, an anchor bracket for a top strap is located at the rear of the seat cushion for each three-passenger rear bench seat.

Don't use a child restraint with a top strap in the right front passenger's position, or in any four-passenger rear bench seat.

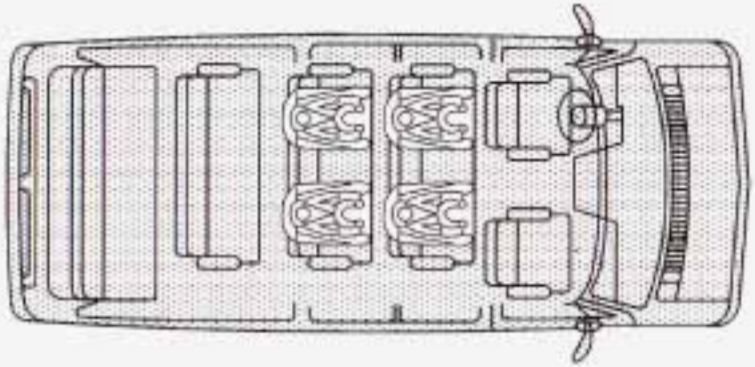
The top strap is designed for the seond row driver side position and the third/fourth row center seating positions in a three-passenger rear bench seat.



Passenger Van 3–Passenger Rear Seats

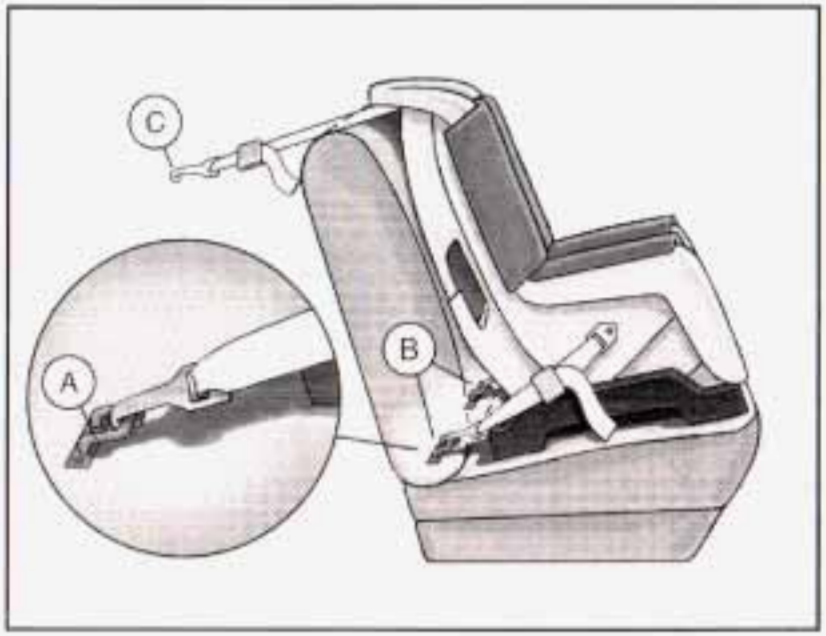
Anchor the top strap to this bracket. For the second row only, in the left outboard seating position, use anchor point (A). For the right outboard seating position, use anchor point (B). For a center seating position, use either anchor point (A) or (B).

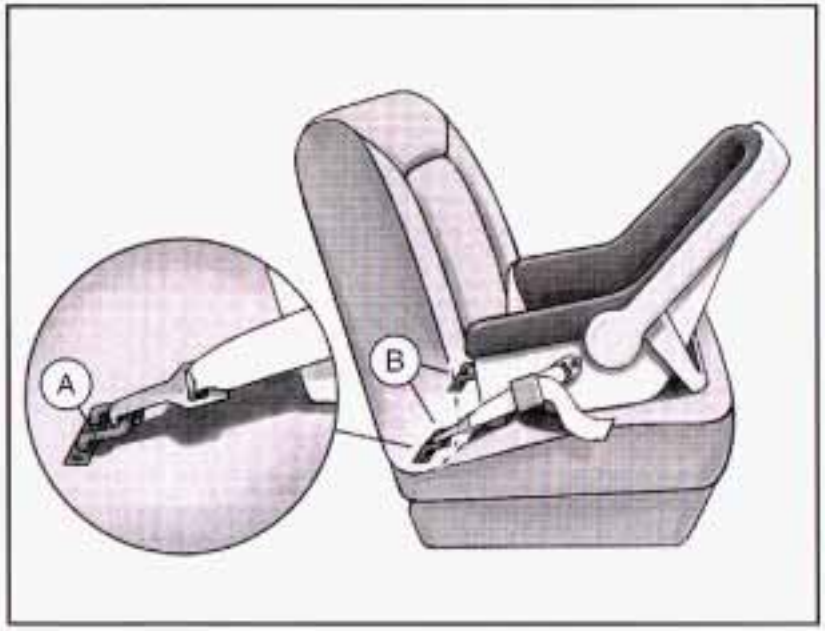
Lower Anchorages and Top Tethers for Children (LATCH System)



If you have a passenger van, it may have the LATCH system. If it does, you'll find two sets of anchors (A) in the second row of seats in the driver and passenger side seating positions, where the seatback meets the seat cushion.

In order to use the system, you need either a forward-facing child restraint that has attaching points (B) at its base and a top tether anchor (C), or a rear-facing child restraint that has attaching points (B), as shown here.





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

⚠ CAUTION:

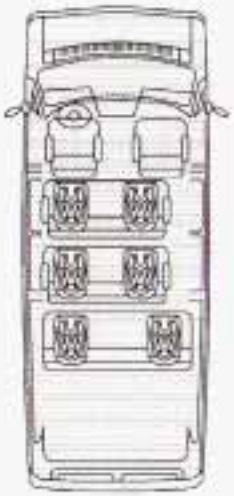
If a LATCH-type child restraint isn't attached to its anchorage points, the restraint won't be able to protect the child correctly. In a crash, the child could be seriously injured or killed. Make sure that a LATCH-type child restraint is properly installed using the anchorage points, or use the vehicle's safety belts to secure the restraint. See "Securing a Child Restraint Designed for the LATCH System" or "Securing a Child Restraint in a Rear Outside Seat Position" in the Index for information on how to secure a child restraint in your vehicle.

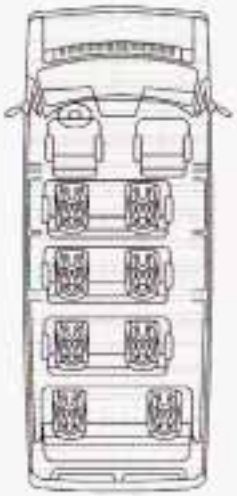
Securing a Child Restraint Designed for the LATCH System

1. Find the anchors for the seating position you want to use, where the bottom of the seatback meets the back of the seat cushion.
2. Put the child restraint on the seat.
3. Attach the anchor points on the child restraint to the anchors in the vehicle. The child restraint instructions will show you how.
4. If the child restraint is forward-facing, attach the top strap to the top strap anchor. See *Top Strap on page 1-48*. Tighten the top strap according to the child restraint instructions.
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 strap from the top tether anchor and then disconnect the anchor points.

Securing a Child Restraint in a Rear Outside Seat Position

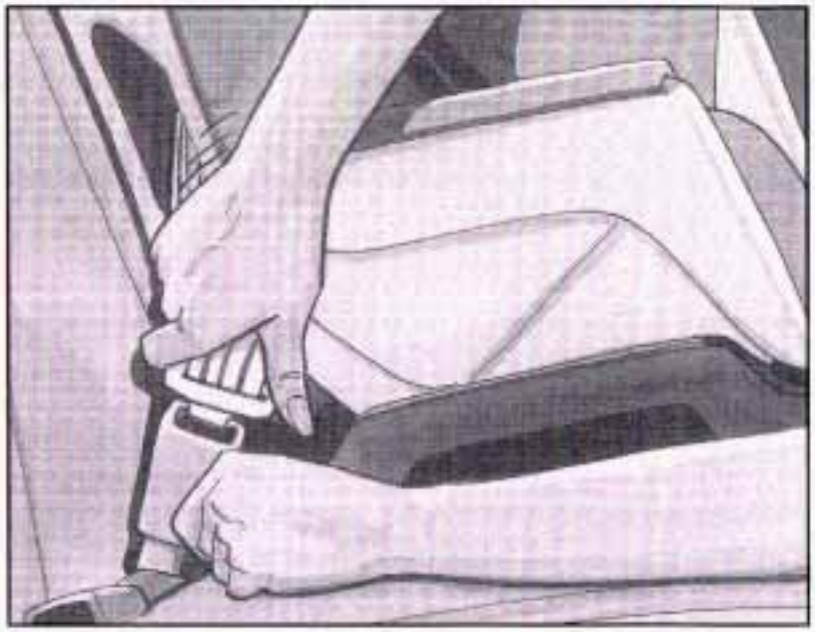




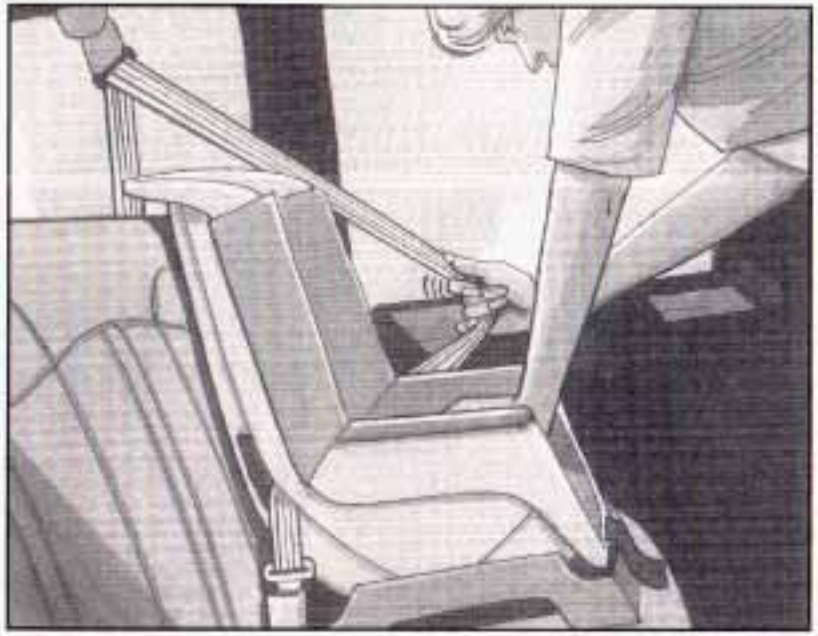
If your child restraint is equipped with the LATCH system, See *Lower Anchorages and Top Tethers for Children (LATCH System) on page 1-51*.

You'll be using the lap-shoulder belt. See *Top Strap on page 1-48* if the child restraint has one. 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.

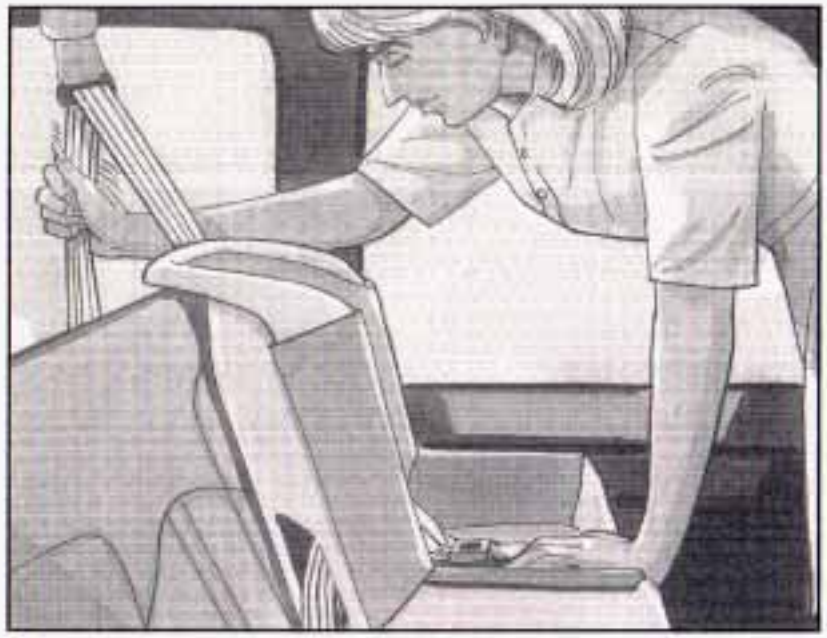
1. Put the restraint on the seat.
2. Pick up the latch plate, and run the lap and shoulder portions of the vehicle's safety belt through or around the restraint. The child restraint instructions will show you how.



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



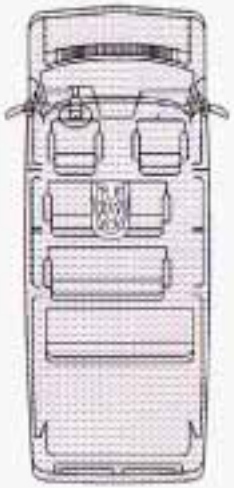
4. Pull the rest of the shoulder belt all the way out of the retractor to set the lock.

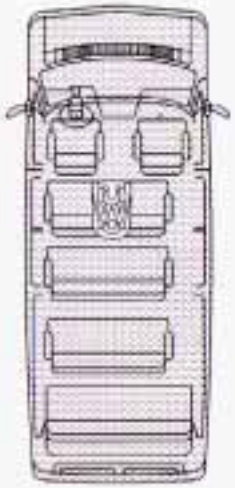


5. To tighten the belt, feed the shoulder belt back into the retractor while you push down on the child restraint. If you're using a forward-facing child restraint, you may find it helpful to use your knee to push down on the child restraint as you tighten the belt.
6. Push and pull the child restraint in different directions to be sure it is secure.

To remove the child restraint, just unbuckle the vehicle's safety belt 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.

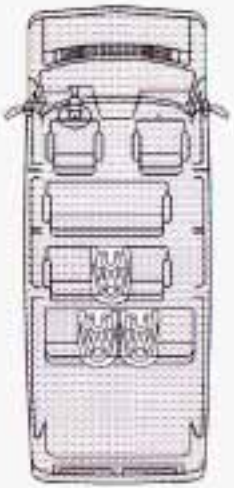
Securing a Child Restraint in a Center Seat Position (2nd Row)

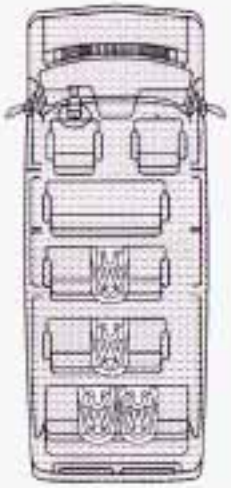




You'll be using a lap-shoulder belt which works the same way as the safety belts in the rear outside seat positions. To learn how to secure a child restraint with a lap-shoulder belt, refer to the instructions in *Securing a Child Restraint in a Rear Outside Seat Position on page 1-53.*

Securing a Child Restraint in a Center Seat Position (3rd, 4th and 5th Row)

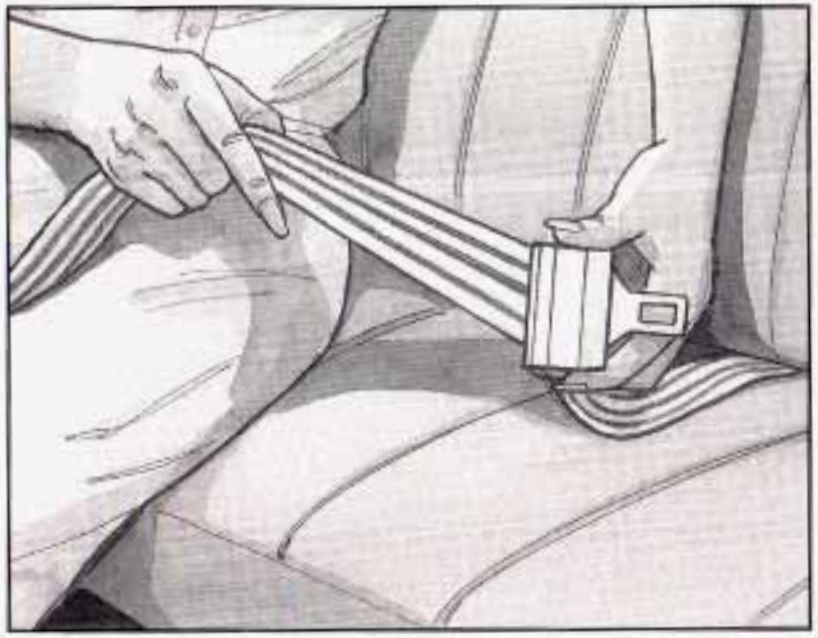




You'll be using the lap belt.

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.

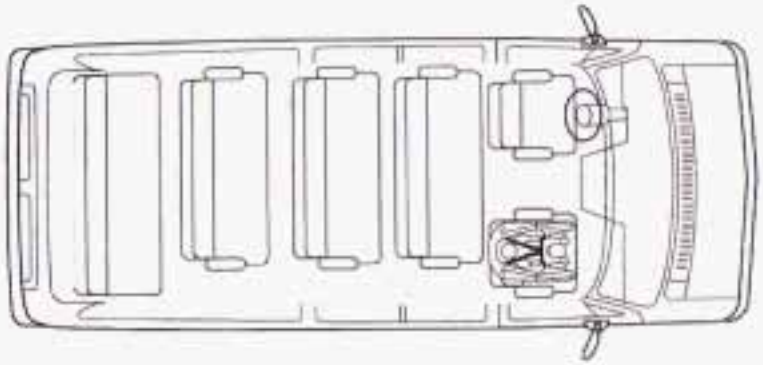
See *Top Strap on page 1-48* if the child restraint has one.



1. Make the belt as long as possible by tilting the latch plate and pulling it along the belt.
2. Put the 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're 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



Unless your vehicle has an air bag off switch and you have used it to turn the passenger's air bag off, never put a rear-facing child restraint in the right front passenger's seat. Here's why:

⚠ CAUTION:

A child in a rear-facing child restraint can be seriously injured or killed if the right front passenger's air bag inflates. This is because the back of the rear-facing child restraint would be very close to the inflating air bag. 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 with a right front passenger air bag and an air bag off switch, be sure to turn off the air bag before using a rear-facing child restraint in the right front seat position. If your vehicle is a cargo van with a right front passenger air bag but does not have an air bag off switch, do not use a rear-facing child restraint in this vehicle. If a forward-facing child restraint is suitable for your child, always move the passenger seat as far back as it will go.

Although a rear seat is a safer place, you can secure a forward-facing child restraint in the right front seat.

⚠ CAUTION:

If the air bag readiness light ever comes on when you have turned off the air bag, it means that something may be wrong with the air bag system. The right front passenger's air bag could inflate even though the switch is off. If this ever happens, don't let anyone whom the national government has identified as a member of a passenger air bag risk group sit in the right front passenger's position (for example, don't secure a rear-facing child restraint in your vehicle) until you have your vehicle serviced. See "Air Bag Off Switch" in the Index.

You'll be using the lap-shoulder belt. See *Top Strap on page 1-48* if the child restraint has one. 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. If your vehicle has a passenger air bag and an air bag off switch, and you are using a rear-facing child restraint in this seat, make sure the air bag is turned off. See *Air Bag Off Switch on page 1-70*. If your child restraint is forward-facing, always move the seat as far back as it will go before securing it in this seat. See "Seats" in the Index.
2. Put the 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 lap belt all the way out of the retractor to set the lock.

6. To tighten the belt, feed the lap belt back into the retractor while you push down on the child restraint. 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.

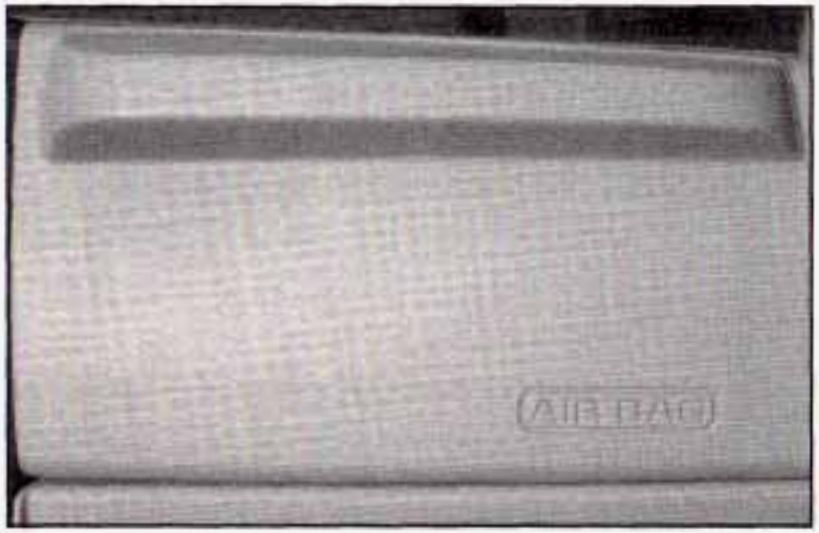
If you were using a rear-facing child restraint in a vehicle with an air bag off switch, turn on the right front passenger's air bag when you remove the rear-facing child restraint from the vehicle unless the person who will be sitting there is a member of a passenger air bag risk group. See *Air Bag Off Switch on page 1-70.*

⚠ CAUTION:

If the right front passenger's air bag is turned off for a person who isn't in a risk group identified by the national government, that person won't have the extra protection of an air bag. In a crash, the air bag wouldn't be able to inflate and help protect the person sitting there. Don't turn off the passenger's air bag unless the person sitting there is in a risk group. See "Air Bag Off Switch" in the Index for more on this, including important safety information.

Air Bag System

This part explains the air bag system.



If it says AIR BAG on the middle part of the steering wheel and AIR BAG on the instrument panel in front of the right front passenger's seat, your vehicle has two air bags — one air bag for the driver and another air bag for the right front passenger.

If it says AIR BAG on the middle part of the steering wheel but it doesn't say AIR BAG on the instrument panel in front of the right front passenger's seat, your vehicle has an air bag for the driver only.

If it says AIR BAG on the middle part of the steering wheel, but there is no right front passenger seat, your vehicle has an air bag for the driver only.

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

Here are the most important things to know about the air bag system:

⚠ CAUTION:

You can be severely injured or killed in a crash if you aren't wearing your safety belt — even if you have air bags. Wearing your safety belt during a crash helps reduce your chance of hitting things inside the vehicle or being ejected from it. Air bags are designed to work with safety belts, but don't replace them. Air bags are designed to deploy only in moderate to severe frontal and near frontal crashes. They aren't designed to inflate at all in rollover, rear or low-speed frontal crashes, or in many side crashes. And, for some unrestrained occupants, air bags may provide less protection in frontal crashes than more forceful air bags have provided in the past. Everyone in your vehicle should wear a safety belt properly — whether or not there's an air bag for that person.

⚠ CAUTION:

Air bags inflate with great force, faster than the blink of an eye. If you're too close to an inflating air bag, 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 air bags. The driver should sit as far back as possible while still maintaining control of the vehicle.

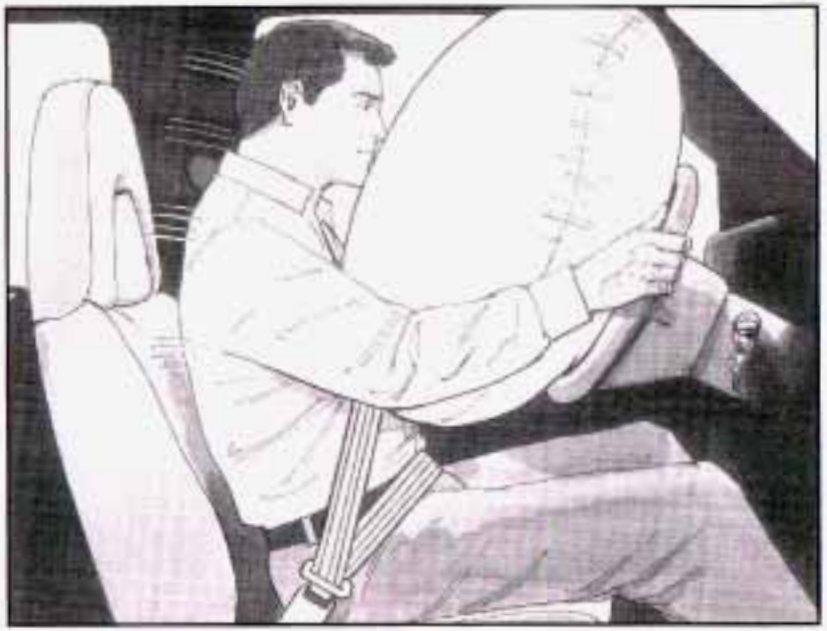
⚠ CAUTION:

Anyone who is up against, or very close to, any air bag when it inflates can be seriously injured or killed. Air bags 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 air bag 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 the parts of this manual called "Older Children" and "Infants and Young Children".

There is a air bag readiness light on the instrument panel, which shows the air bag symbol.

The system checks the air bag electrical system for malfunctions. The light tells you if there is an electrical problem. See *Air Bag Readiness Light on page 3-28* for more information.

Where Are the Air Bags?



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

If your vehicle has one, the right front passenger's air bag is in the instrument panel on the passenger's side.

⚠ CAUTION:

If something is between an occupant and an air bag, 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 air bag must be kept clear. Don't put anything between an occupant and an air bag, and don't attach or put anything on the steering wheel hub or on or near any other air bag covering.

When Should an Air Bag Inflate?

An air bag is designed to inflate in a moderate to severe frontal, or near-frontal crash. The air bag will inflate only if the impact speed is above the system's designed "threshold level."

If the GVWR (Gross Vehicle Weight Rating) of your vehicle is 8600 or above, your vehicle has single stage air bags. If the GVWR is below 8600 then your vehicle has dual stage air bags. You can find the GVWR on the certification label on the rear edge of the driver's door. See *Loading Your Vehicle on page 4-30* for more information.

Single Stage Air Bags

If your vehicle has frontal air bags with single stage deployment and your vehicle goes straight into a wall that doesn't move or deform, the threshold level is about 12 to 16 mph (19 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. If your vehicle strikes something that will move or deform, such as a parked car, the threshold level will be higher. The air bag is not designed to inflate in rollovers, rear impacts, or in many side impacts because inflation would not help the occupant.

In any particular crash, no one can say whether an air bag 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.

Dual Stage Air Bags

If your vehicle has frontal air bags with dual stage deployment, the amount of restraint will adjust according to the crash severity. For moderate frontal impacts, these air bags inflate at a level less than full deployment. For more severe frontal impacts, full deployment occurs. If the front of your vehicle goes straight into a wall that doesn't move or deform, the threshold level for the reduced deployment is about 12 to 16 mph (19 to 26 km/h), and the threshold level for a full deployment is about 16 to 25 mph (26 to 40 km/h). The threshold level can vary, however, with specific vehicle design, so that it can be somewhat above or below this range.

If your vehicle strikes something that will move or deform, such as a parked car, the threshold level will be higher. The driver's and right front passenger's frontal air bags are not designed to inflate in rollovers, rear impacts, or many side impacts because inflation would not help the occupant.

Seat Position Sensors

Vehicles with dual stage air bags are also equipped with special sensors which enable the sensing system to monitor the position of both the driver and passenger front seats. The seat position sensors provide information which is used to determine if the air bags should deploy at a reduced level or at full depoyment.

Air Bag Systems

In any particular crash, no one can say whether an air bag 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 front or near-frontal impacts.

What Makes an Air Bag Inflate?

In an impact of sufficient severity, the air bag sensing system detects that the vehicle is in a crash. The sensing system triggers a release of gas from the inflator, which inflates the air bag. The inflator, air bag, and related hardware are all part of the air bag modules inside the steering wheel and in the instrument panel in front of the right front passenger.

How Does an Air Bag Restrain?

In moderate to severe frontal or near-frontal collisions, even belted occupants can contact the steering wheel or the instrument panel. Air bags supplement the protection provided by safety belts. Air bags distribute the force of the impact more evenly over the occupant's upper body, stopping the occupant more gradually. But air bags 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 air bags. Air bags 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 Air Bag Inflates?

After an air bag inflates, it quickly deflates, so quickly that some people may not even realize the air bag inflated. Some components of the air bag module – the steering wheel hub for the driver's air bag, 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 air bags. Air bag inflation doesn't prevent the driver from seeing or being able to steer the vehicle, nor does it stop people from leaving the vehicle.

⚠ CAUTION:

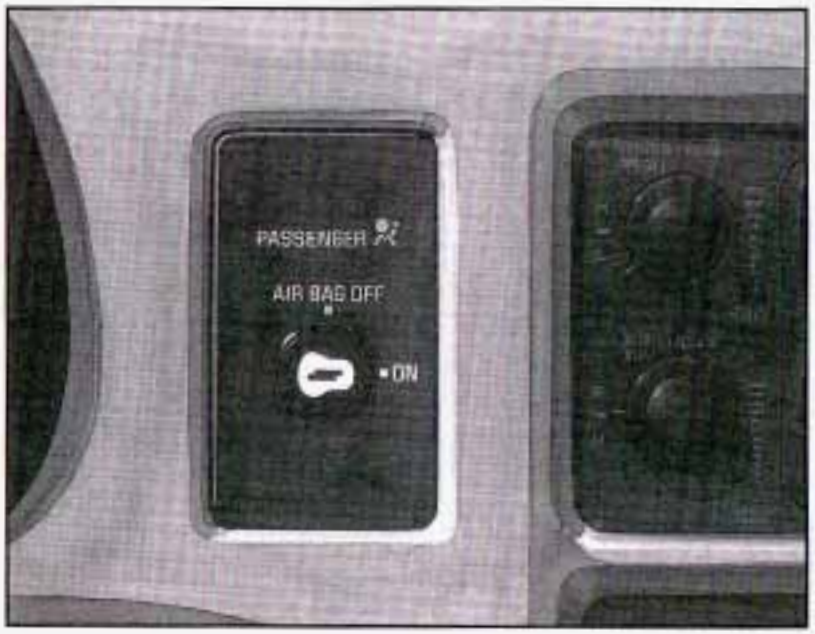
When an air bag inflates, there is dust in the air. This dust could cause breathing problems for people with a history of asthma or other breathing trouble. To avoid this, everyone in the vehicle should get out as soon as it is safe to do so. If you have breathing problems but can't get out of the vehicle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

- Air bags are designed to inflate only once. After they inflate, you'll need some new parts for your air bag system. If you don't get them, the air bag system won't be there to help protect you in another crash. A new system will include air bag 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 about the air bag system. The module records information about the readiness of the system, when the system commands air bag inflation and driver's safety belt usage at deployment. The module also records speed, engine rpm, brake and throttle data.
- Let only qualified technicians work on your air bag system. Improper service can mean that your air bag system won't work properly. See your dealer for service.

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

Air Bag Off Switch



If the GVWR (Gross Vehicle Weight Rating) of your vehicle is 8600 or above, your vehicle has an air bag off switch. You can find the GVWR on the certification/tire label on the rear edge of the driver's door. See *Loading Your Vehicle on page 4-30* for more information.

You can use the air bag off switch on the instrument panel to turn off the right front passenger's air bag.

This switch should only be turned to AIR BAG OFF if the person in the right front passenger's position is a member of a passenger risk group identified by the national government as follows:

Infant. *An infant (less than 1 year old) must ride in the front seat because:*

- *my vehicle has no rear seat;*
- *my vehicle has a rear seat too small to accommodate a rear-facing infant seat; or*
- *the infant has a medical condition which, according to the infant's physician, makes it necessary for the infant to ride in the front seat so that the driver can constantly monitor the child's condition.*

Child age 1 to 12. *A child age 1 to 12 must ride in the front seat because:*

- *my vehicle has no rear seat;*
- *although children ages 1 to 12 ride in the rear seat(s) whenever possible, children ages 1 to 12 sometimes must ride in the front because no space is available in the rear seat(s) of my vehicle; or*
- *the child has a medical condition which, according to the child's physician, makes it necessary for the child to ride in the front seat so that the driver can constantly monitor the child's condition.*

Medical Condition. *A passenger has a medical condition which, according to his or her physician:*

- *causes the passenger air bag to pose a special risk for the passenger; and*
- *makes the potential harm from the passenger air bag in a crash greater than the potential harm from turning off the air bag and allowing the passenger, even if belted, to hit the dashboard or windshield in a crash.*

⚠ CAUTION:

If the right front passenger's air bag is turned off for a person who isn't in a risk group identified by the national government, that person won't have the extra protection of an air bag. In a crash, the air bag wouldn't be able to inflate and help protect the person sitting there. Don't turn off the passenger's air bag unless the person sitting there is in a risk group. See "Air Bag Off Switch" in the Index.

To turn off the right front passenger's air bag, insert your ignition key into the switch, push in, and move the switch to AIR BAG OFF.

The AIR BAG OFF light will come on to let you know that the right front passenger's air bag is off. The right front passenger's air bag will remain off until you turn it back on again, and the AIR BAG OFF light will stay on to remind you that the air bag is off.

⚠ CAUTION:

If the air bag readiness light ever comes on when you have turned off the air bag, it means that something may be wrong with the air bag system. The right front passenger's air bag could inflate even though the switch is off. If this ever happens, don't let anyone whom the national government has identified as a member of a passenger air bag risk group sit in the right front passenger's position (for example, don't secure a rear-facing child restraint in your vehicle) until you have your vehicle serviced.

To turn the right front passenger's air bag on again, insert your ignition key into the switch, push in, and move the switch to the on position.

Servicing Your Air Bag-Equipped Vehicle

Air bags affect how your vehicle should be serviced. There are parts of the air bag 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 air bag system. To purchase a service manual, see *Service Publications Ordering Information on page 7-11*.

⚠ CAUTION:

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

The air bag system does not need regular maintenance.

Adding Equipment to Your Air Bag-Equipped Vehicle

Q: If I add a push bumper or a bicycle rack to the front of my vehicle, will it keep the air bags from working properly?

A: As long as the push bumper or bicycle rack is attached to your vehicle so that the vehicle's basic structure isn't changed, it's not likely to keep the air bags from working properly in a crash.

Q: Is there anything I might add to the front of the vehicle that could keep the air bags 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 air bag system from working properly. Also, the air bag system may not work properly if you relocate any of the air bag 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 air bag covers, and have them repaired or replaced. (The air bag 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've had a crash, do you need new belts or LATCH system parts?

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

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

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

If an air bag inflates, you'll need to replace air bag system parts. See the part on the air bag system earlier in this section.

Section 2 Features and Controls

Keys 2-2
Remote Keyless Entry System 2-3
Remote Keyless Entry System Operation 2-4

Doors and Locks 2-7
Door Locks 2-7
Power Door Locks 2-8
Last Door Closed Locking 2-8
Rear Door Security Locks 2-9
Lockout Protection 2-10
Leaving Your Vehicle 2-10
Sliding Side Door 2-11
60/40 Swing-Out Side Door 2-13
Rear Doors 2-14

Windows 2-16
Manual Windows 2-16
Power Windows 2-17
Swing-Out Windows 2-18
Sun Visors 2-18

Theft-Deterrent Systems 2-19
Passlock® 2-19

Starting and Operating Your Vehicle 2-20
New Vehicle Break-In 2-20
Ignition Positions 2-20
Starting Your Engine 2-21
Engine Coolant Heater 2-23
Automatic Transmission Operation 2-24
All-Wheel Drive 2-26
Parking Brake 2-26
Shifting Into Park (P) 2-27
Shifting Out of Park (P) 2-29
Parking Over Things That Burn 2-30
Engine Exhaust 2-30
Running Your Engine While You Are Parked 2-31

Mirrors 2-32
Manual Rearview Mirror 2-32
Outside Manual Mirror 2-32
Outside Remote Control Mirror 2-32
Outside Camper-Type Mirrors 2-33
Outside Power Mirrors 2-34
Outside Convex Mirror 2-35
Outside Heated Mirrors 2-35

OnStar® System 2-36

Storage Areas 2-38

Keys

⚠ CAUTION:

Leaving children in a vehicle with the ignition key is dangerous for many reasons. A child or others could be badly injured or even killed.

They could operate the power windows or other controls or even make the vehicle move.

Don't 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: **Your vehicle has a number of features that can help prevent theft. You can have a lot of trouble getting into your vehicle if you ever lock your keys inside. You may even have to damage your vehicle to get in. So 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 remote 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, and
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, and
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 or resynchronization is necessary. See "Battery Replacement" and "Resynchronization" 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

Your vehicle may have this feature.

(Lock): Pressing this button once will lock all of the doors. The parking lamps will flash and the interior lamps will turn on briefly. Press LOCK again within five seconds and the parking lamps will flash and the horn will chirp briefly.

(Unlock): Pressing this button once will unlock the driver's door. The parking lamps will flash twice and the interior lamps will turn on. Press UNLOCK again within five seconds to unlock the remaining doors. The parking lamps will flash.

(Panic Alarm): The remote keyless entry transmitter comes equipped with an instant panic alarm. To use the alarm, press the horn symbol when the ignition is turned off. The horn will sound and both the interior and exterior lamps will flash for up to thirty seconds. To stop the instant panic alarm, press the panic button again, wait for thirty seconds, or start the vehicle.

(Cargo Door): Press this button to unlock the cargo doors only.

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.

Resynchronization

Resynchronization may be necessary due to the security method used by this system. The transmitter does not send the same signal twice to the receiver. The receiver will not respond to a signal that has been sent previously. This prevents anyone from recording and playing back the signal from the transmitter.

To resynchronize your transmitter, stand close to your vehicle and press and hold the LOCK and UNLOCK buttons on the transmitter at the same time for seven seconds. The door locks should cycle to confirm synchronization. If the locks do not cycle, see your dealer for service.

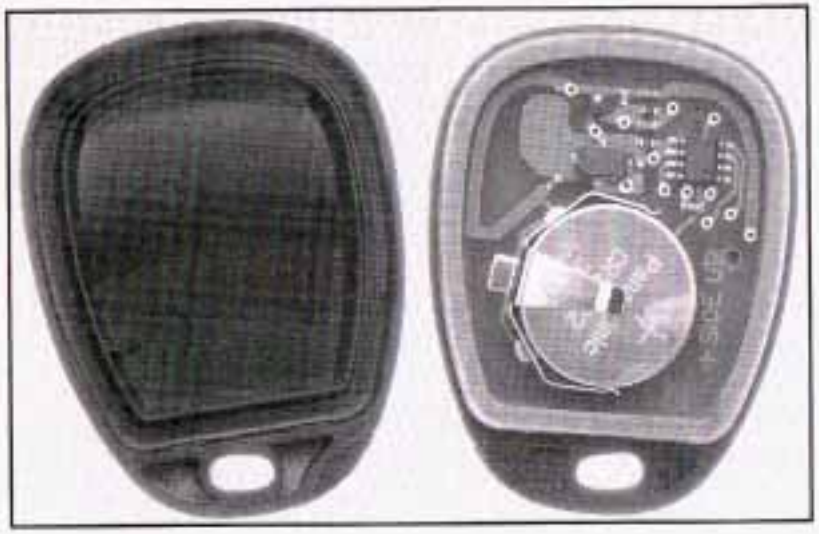
Battery Replacement

Under normal use, the battery in your remote keyless entry transmitter should last about four 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 in the keyless entry transmitter, do the following:



1. Use an object like a coin to pry open the transmitter.
2. Once the transmitter is separated, use an object like a pencil to remove the old battery. Do not use a metal object.
3. Remove and replace the battery, positive (+) side down.
4. Snap the transmitter back together tightly to be sure no moisture can enter.
5. Press and hold LOCK and UNLOCK on the remote keyless entry transmitter for seven seconds to resynchronize the transmitter.
6. Check the operation of the transmitter.

Doors and Locks

Door Locks

⚠ CAUTION:

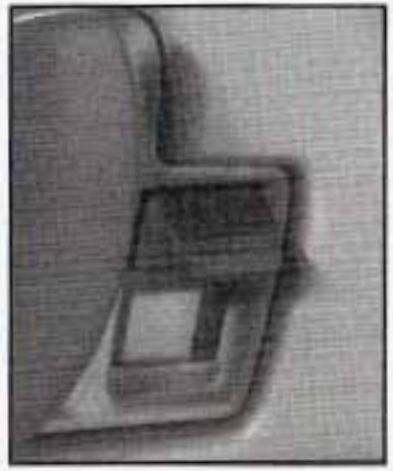
Unlocked doors can be dangerous.

- **Passengers — especially children — can easily open the doors and fall out of a moving vehicle. When a door is locked, the handle won't open it. You increase the chance of being thrown out of the vehicle in a crash if the doors aren't 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.

If your vehicle is equipped with keyless entry, see *Remote Keyless Entry System on page 2-3* for more information.

From the outside, use your key.



To lock the door from the inside, slide the manual lever on your door down. To unlock the door, slide the manual lever up.

Power Door Locks

Press the bottom side of the power door lock switch to lock all the doors at once. Press the top side of the power door lock switch to unlock all the doors at once.

When a door is locked, the inside door handle will not work.

Last Door Closed Locking

This feature protects the owner from having an unsecured side cargo door. If the side cargo door is open when the lock button is pressed on the door or the remote keyless entry transmitter, all doors will lock and then re-lock again after the cargo door is closed. If the cargo door is not closed within several minutes, the re-lock will not occur.

Rear Door Security Locks

Security locks are located on the passenger side rear door, the side sliding door or the front portion of the 60/40 side swing-out door.

Rear Cargo Door

With this feature, you can lock these doors so they can't be opened from the inside by passengers.

Move the lever down to engage the security feature.

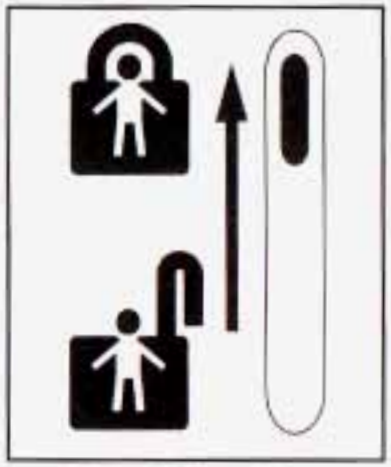
Move the lever up to return the door locks to normal operation

Right–hand 60/40 Swing-Out Side Door

Move the button to the left to engage the security feature. Move the button to the right to return the door locks to normal operation.

Left–hand 60/40 Swing-Out Side Door

Move the button to the right to engage the security feature. Move the button to the left to return the door locks to normal operation.



Side Sliding Door

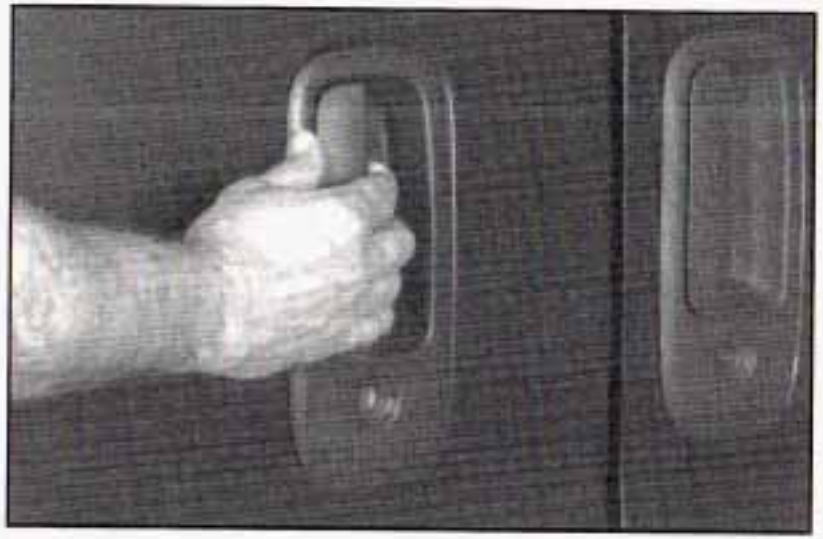
Move the button up to engage the security feature. Move the button down to return the door locks to normal operation.

Lockout Protection

This feature protects you from locking your key in the vehicle when the key is in the ignition and a door is open.

If the power lock switch is pressed when either the driver's, passenger's, or rear door is open, all the doors will lock and then the driver's door will unlock. This feature does not include the side cargo door.

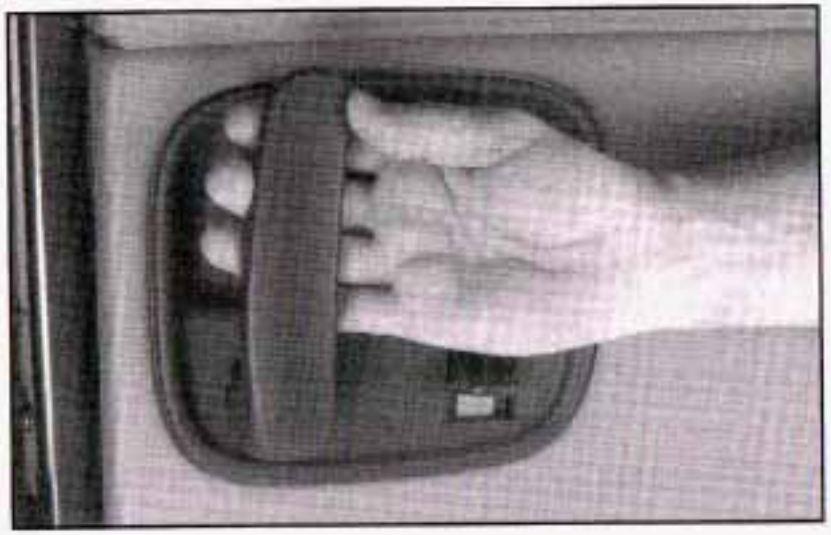
Sliding Side Door



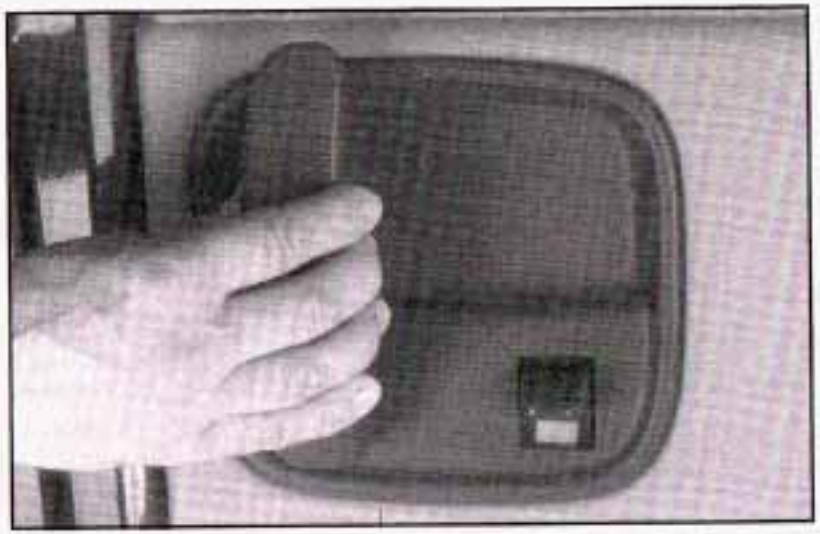
To open the sliding side door from outside, pull the handle toward the rear of the vehicle. Then, slide the door open.

To close the sliding side door from outside, use the outside door handle to slide the door toward the front of the vehicle.

When the door slides closed completely, it will be flush with the side of the body.



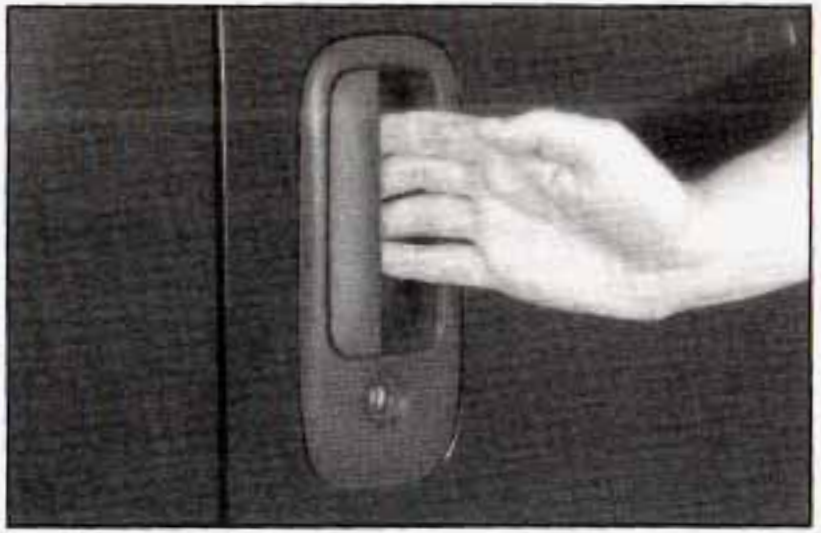
To open the sliding door from inside, turn the handle upward and toward the rear of the vehicle. Then, slide the door toward the rear of the vehicle to open it.



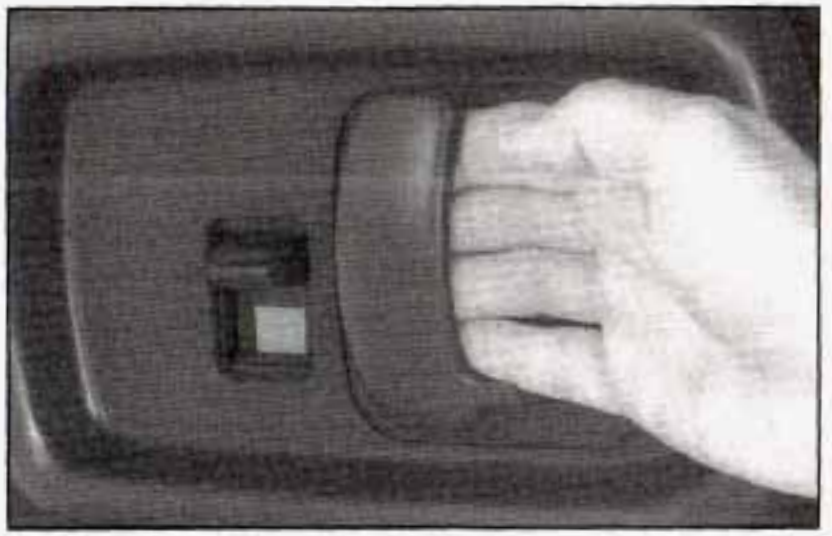
To close the sliding door from inside, grasp the inside handle and slide the door toward the front of the vehicle to a closed position.

Make sure the door is completely closed before driving away.

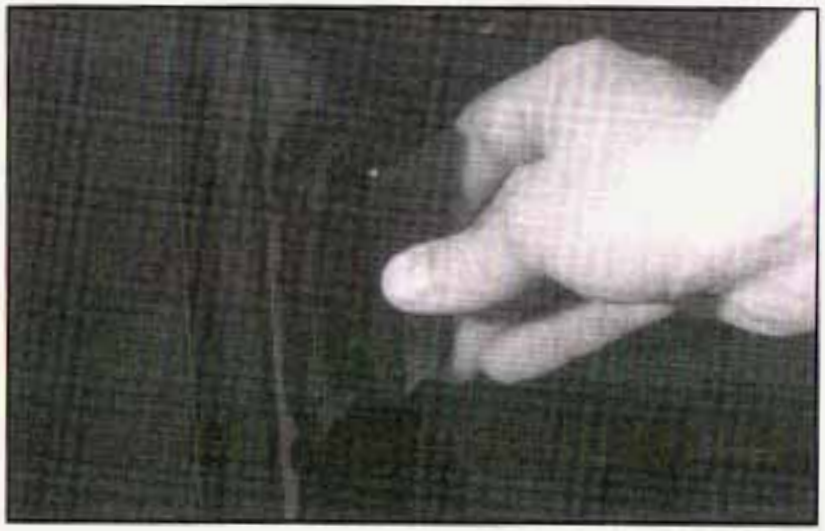
60/40 Swing-Out Side Door



To open the front portion of a 60/40 door from the outside, pull out on the handle and pull it toward you.



To open the front portion of a 60/40 door from the inside, pull the handle toward you and push open the door.



To open the rear portion of a 60/40 door from the outside, pull the handle on the side of the rear door and pull it toward you.

To close the 60/40 side doors, close the rear door first. Then close the front door. Check to make sure that both doors are completely closed.

The front side swing-out door has a check strap assembly in the door frame to keep the door from opening beyond 90 degrees.

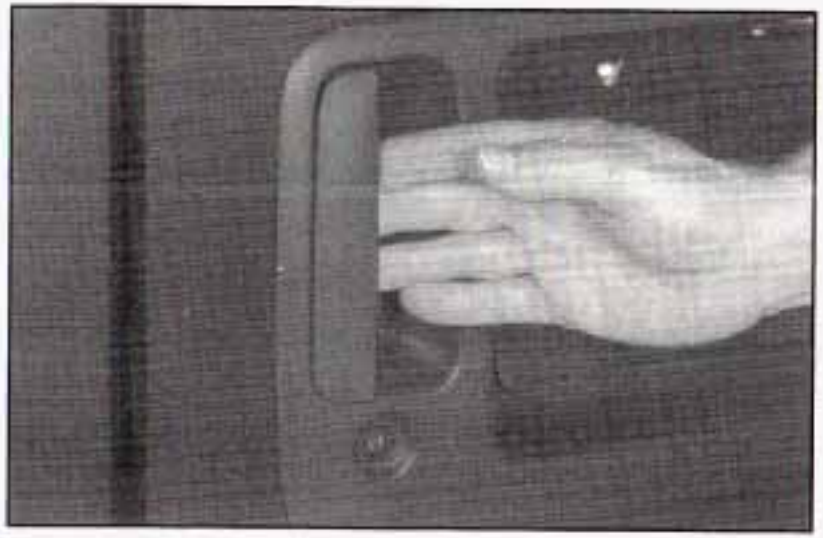
To open the door beyond 90 degrees, close the door partially, pull the check strap toward you and then open the door. When you close the door, the check strap will automatically re-engage.

Rear Doors

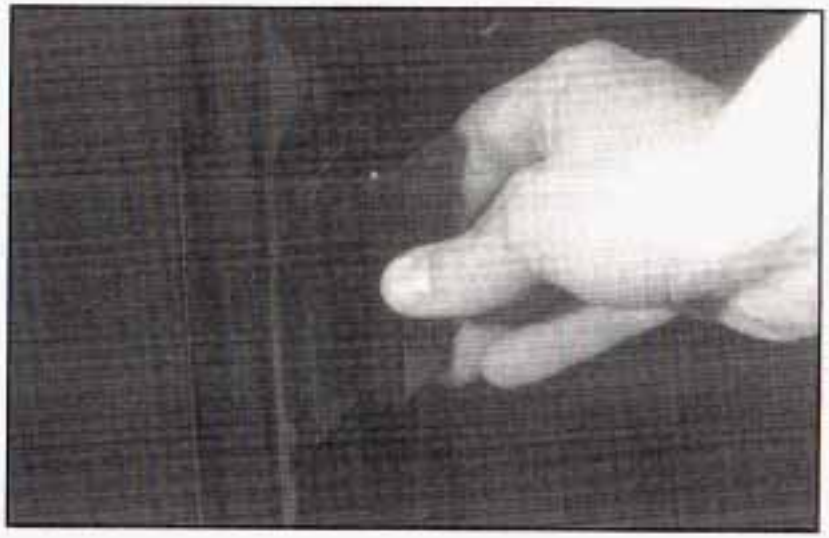
⚠ CAUTION:

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 won't open it. You increase the chance of being thrown out of the vehicle in a crash if the doors aren't 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.**



To open the rear doors from the outside, pull the handle toward you to open the passenger's side rear door first.



To open the driver's side rear door, pull the latch release at the inside edge of the door.

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

Windows

⚠ CAUTION:

Leaving children in a vehicle with the windows closed is dangerous. A child can be overcome by the extreme heat and can suffer permanent injuries or even death from heat stroke. Never leave a child 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 side doors.

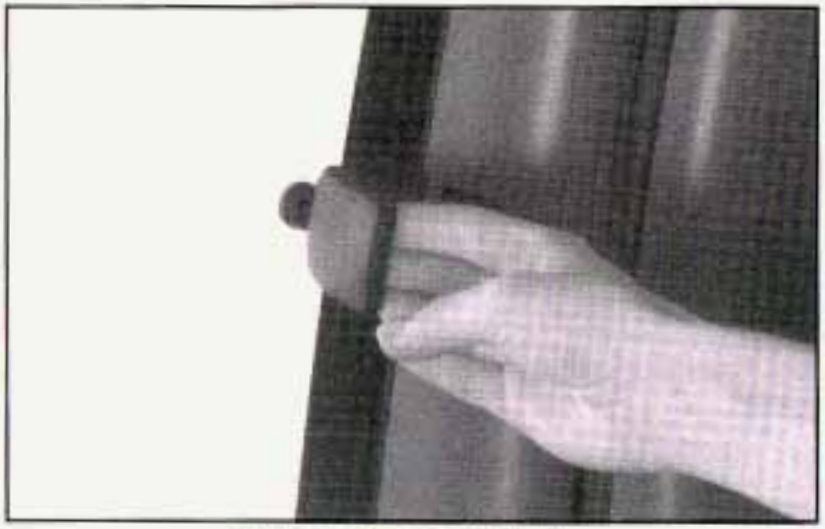
The driver's door has a switch for the passenger window as well. Your power windows will work when the ignition has been turned to RUN or ACCESSORY, or when Retained Accessory Power (RAP) is active. See *Ignition Positions on page 2-20.*

Press the rear of the switch with the power window symbol on it to lower the window.

Press the front of the switch with the power window symbol on it to raise the window.

The driver's window switch also has an express-down feature that allows the window to be lowered without holding the switch. Press and hold the side of the window switch marked AUTO for one second to activate the express-down mode. The express-down mode can be cancelled at any time by pressing the opposite side of the switch. To open the window part way, lightly tap the switch until the window is at the desired position.

Swing-Out Windows

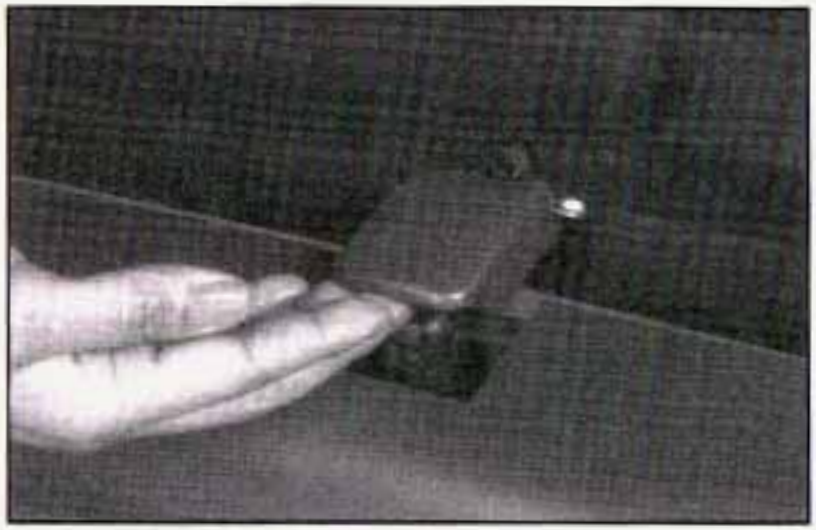


Side Swing-Out Window

To open the side door swing-out windows, pull up on the latch at the edge of the window. Swing the window out and push down on the latch to lock the window into place.

To close the window, pull the latch toward you and push down on the latch to lock it.

Your vehicle also has rear swing out windows.



Rear-Swing Out Windows

The rear swing-out windows work the same way as the side swing out windows, but the latch is located at the bottom edge of the window.

Sun Visors

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

Visor Vanity Mirror

Some visors have mirrors built in, with or without lamps. Just lift the mirror cover on each visor to turn the lamps on, if you have them.

Theft-Deterrent Systems

Vehicle theft is a 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. However, there are ways you can help.

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.

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 5-98*. See your dealer for service.

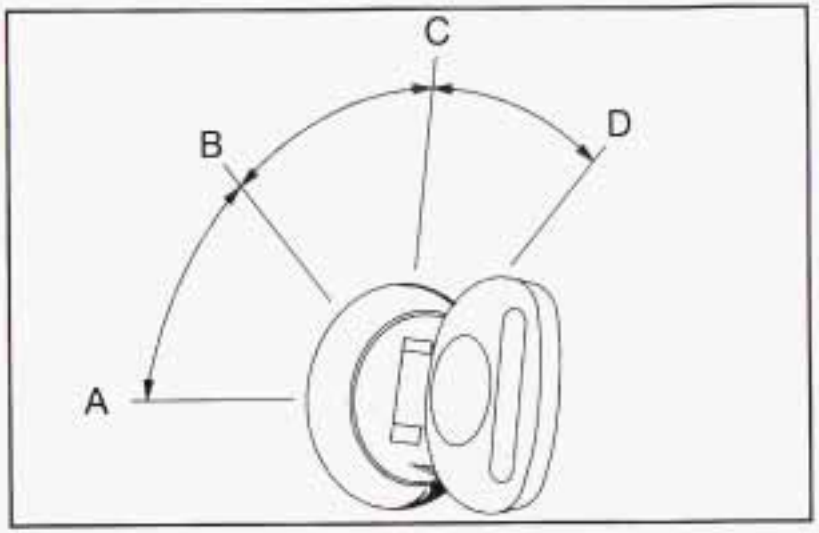
Starting and Operating Your Vehicle

New Vehicle Break-In

Notice: **Your vehicle doesn't 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).**
- **Don't drive at any one speed — fast or slow — for the first 500 miles (805 km). Don't make full-throttle starts.**
- **Avoid making hard stops for the first 200 miles (322 km) or so. During this time your new brake linings aren't 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.**
- **Don't tow a trailer during break-in. See "Towing a Trailer" in the Index for more information.**

Ignition Positions



Use the key to turn the ignition switch to four different positions.

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

Notice: **If your key seems stuck in LOCK and you can't turn it, be sure you are using the correct key; if so, is it all the way in? Turn the key only with your hand. Using a tool to force it could break the key or the ignition switch. If none of these works, then your vehicle needs service.**

B (ACCESSORY): This position lets you use things like the radio and the windshield wipers when the engine is off.

Notice: **Don't operate accessories in the ACCESSORY position for long periods of time. Prolonged operation of accessories in the ACCESSORY position could drain your battery and prevent you from starting your vehicle.**

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

D (START): This position starts the engine.

Retained Accessory Power (RAP)

Your vehicle is equipped with a Retained Accessory Power (RAP) feature which will allow certain features of your vehicle to continue to work up to 10 minutes after the ignition key is turned to LOCK.

Your radio and power windows will work when the ignition key is in RUN or ACCESSORY. Once the key is turned from RUN to LOCK, these features will continue to work for up to 10 minutes or until a door is opened.

Starting Your Engine

Move your shift lever to PARK (P) or NEUTRAL (N). Your engine won't start in any other position – that's a safety feature. To restart when you're already moving, use NEUTRAL (N) only.

Notice: **Don't 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 doesn't 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 won't 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 don't, your engine might not perform properly.**

Fuel Regulator

You have a fuel regulator that shuts the fuel off when the engine reaches 5,600 rpm.

Engine Coolant Heater

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

To Use the Engine Coolant Heater

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

   The cord for the engine coolant heater is located on the driver's side of the engine compartment and is attached to the hose for the power steering 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 won't 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 don't, 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'll 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's the best position to use when you start your engine because your vehicle can't 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.**
>
> **Don't 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 won't move, even when you're on fairly level ground, always set your parking brake and move the shift lever to PARK (P). See "Shifting Into Park (P)" in the Index. If you're pulling a trailer, see "Towing a Trailer" in the Index.**

Ensure the shift lever is fully in PARK (P) before starting the engine. Your vehicle has an automatic transmission shift lock control system. With the ignition in RUN, you must fully apply your regular brakes before you can shift from PARK (P).

If you cannot shift out of PARK (P), ease pressure on the shift lever and push the shift lever all the way into PARK (P) as you continue pressing the brake pedal. Then move the shift lever into the gear you want. See *Shifting Out of Park (P) on page 2-29.*

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

Notice: **Shifting to REVERSE (R) while your vehicle is moving forward could damage your transmission. 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 4-28.*

NEUTRAL (N): In this position, your engine doesn't connect with the wheels. To restart when you're 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 "racing" (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. Don't shift into a drive gear while your engine is racing.

Notice: **Damage to your transmission caused by shifting out of PARK (P) or NEUTRAL (N) with the engine racing isn't covered by your warranty.**

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

- 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 all the way down.

You'll shift down to the next gear and have more power.

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. You should use THIRD (3) (or, as you need to, a lower gear) when towing a trailer to minimize heat build-up and extend the life of your transmission.

SECOND (2): This position gives you more power but lower fuel economy than THIRD (3). 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 (2). 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 lever is put in FIRST (1), the transmission won't shift into first gear until the vehicle is going slowly enough.

Notice: **If your wheels won't turn, don't try to drive. This might happen if you were stuck in very deep sand or mud or were up against a solid object. You could damage your transmission. Also, if you stop when going uphill, don't hold your vehicle there with only the accelerator pedal. This could overheat and damage the transmission. Use your brakes or shift into PARK (P) to hold your vehicle in position on a hill.**

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 handle, located just above the parking brake pedal, marked BRAKE RELEASE to release the parking brake.

If the ignition is on when the parking brake is released, the brake system warning light will go off.

Notice: **Driving with the parking brake on can cause your rear brakes to overheat. You may have to replace them, and you could also damage other parts of your vehicle. Always check to be sure your parking brake is fully released before you drive.**

If you are towing a trailer and are parking on any hill, see *Towing a Trailer on page 4-32*. That section shows what to do first to keep the trailer from moving.

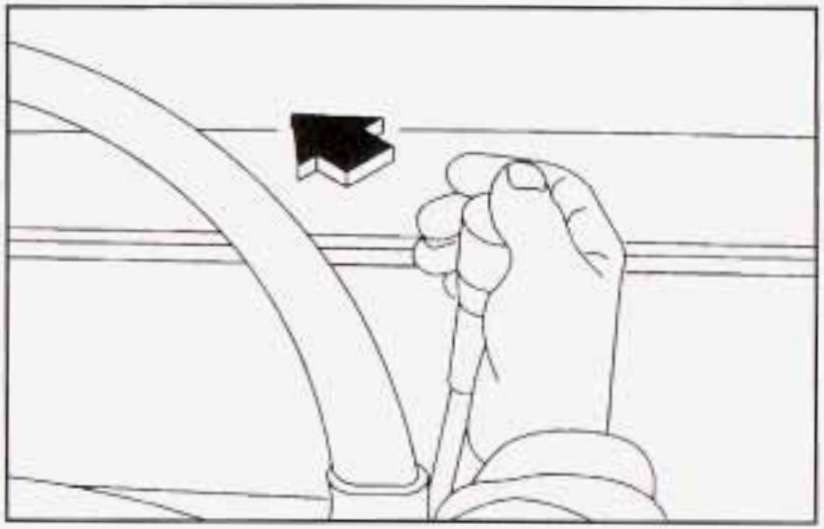
Shifting Into Park (P)

⚠ 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 won't move, even when you're on fairly level ground, use the steps that follow. If you're pulling a trailer, see "Towing a Trailer" in the Index.

1. Hold the brake pedal down with your right foot and set the parking brake.
2. Move the shift lever into PARK (P) like this:

- Pull the lever toward you.



- Move the lever up as far as it will go.

3. Move 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. Don't leave your vehicle with the engine running.

If you have to leave your vehicle with the engine running, be sure your vehicle is in PARK (P) and your parking brake is firmly set before you leave it. After you've moved the shift lever to 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 wasn't fully locked into PARK (P).

Torque Lock

If you are parking on a hill and you don't shift your transmission 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 2-27.*

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)

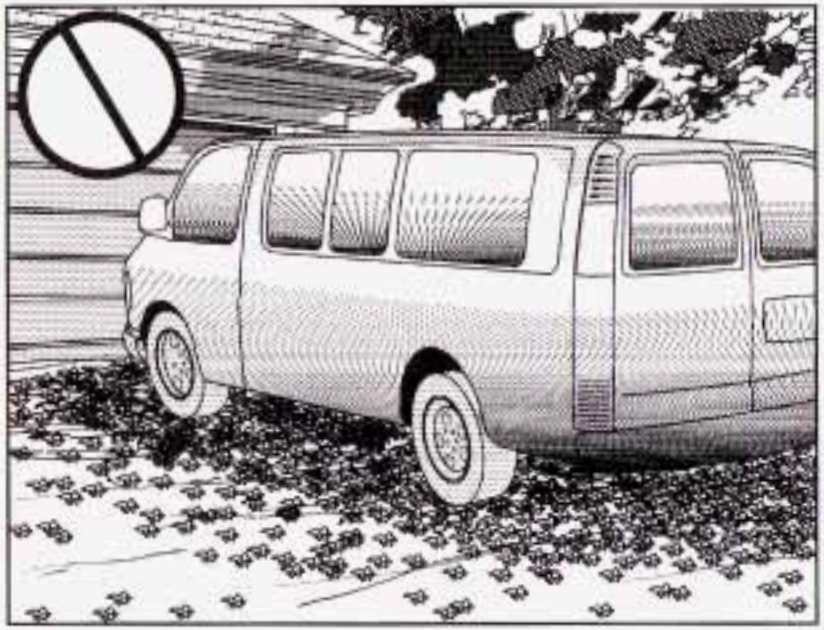
Your vehicle has an automatic transmission shift lock control system. You have to fully apply your regular brakes before you can shift from PARK (P) when the ignition is in RUN. See *Automatic Transmission Operation on page 2-24.*

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 can't 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. Don't 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 can't 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 weren't 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's 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."

Also, idling in a closed-in place can let deadly carbon monoxide (CO) into your vehicle even if the 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" in the Index.

⚠ 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. Don't leave your vehicle when the engine is running unless you have to. If you've left the engine running, the vehicle can move suddenly. You or others could be injured. To be sure your vehicle won't move, even when you're 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 won't move. See *Shifting Into Park (P) on page 2-27.*

If you're pulling a trailer, see *Towing a Trailer on page 4-32.*

Mirrors

Manual Rearview Mirror

Inside Day/Night Rearview Mirror

If you have a cargo van without the rear door glass, your vehicle may not have a rearview mirror.

Pull the tab under the mirror toward you to reduce glare from headlamps behind you after dark. Push the tab away from you to restore the mirror to the original position.

Outside Manual Mirror

Adjust your outside mirrors so you can see a little of the side of your vehicle, and have a clear view of objects behind you. Some mirrors can be folded in to enter narrow passageways.

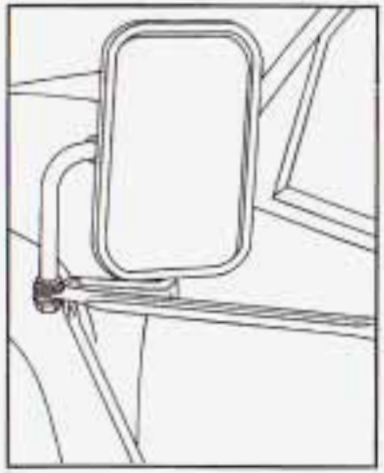
Outside Remote Control Mirror

If your vehicle has power mirrors, they can be adjusted from inside the vehicle.

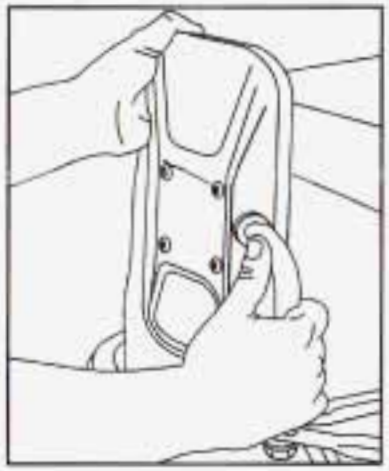
Select the mirror you want to move by turning the knob clockwise to adjust the passenger's side mirror and counterclockwise to adjust the driver's side mirror. The center position is neutral.

Then, adjust the mirror angle by pushing the knob in the direction desired until the mirror is adjusted to where you want it.

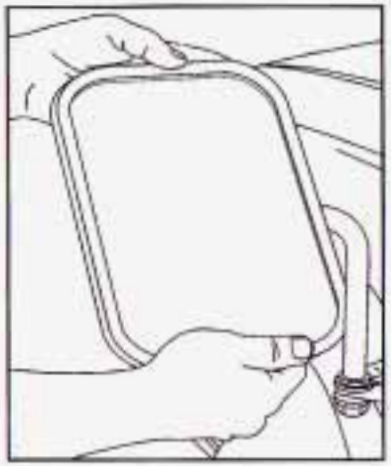
Outside Camper-Type Mirrors



If your vehicle is equipped with the camper-type mirrors, they can be adjusted so you can have a clear view of any objects behind you.



1. To adjust the mirrors when towing a trailer, turn the mirror by pushing the mirror head toward the front of the vehicle.



2. Turn the mirror head so that it swings further outboard and adjust the mirror surface as needed.

Outside Power Mirrors

If you have power mirrors, they can be adjusted from inside the vehicle.

Select the mirror you want to move by turning the knob clockwise to adjust the passenger's side mirror and counterclockwise to adjust the driver's side mirror. The center position is neutral.

Then, adjust the mirror angle by pushing the knob in the direction desired until the mirror is adjusted to where you want it.

Outside Convex Mirror

Your passenger's side mirror may be 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.

Outside Heated Mirrors

Your outside mirrors can be defrosted by pressing the button located near the fan control.

An indicator light in the button will light anytime the heated outside mirrors are activated.

Your rear window defogger comes on whenever the heated mirrors are on. If your vehicle has a rear window defogger, see "Rear Window Defogger" in *Climate Control System on page 3-18.*

OnStar® System

Your vehicle may be equipped with the OnStar® System. OnStar® uses global positioning system (GPS) satellite technology, wireless communications, and call centers to provide you with a wide range of safety, security, information and convenience services. An OnStar® subscription plan is included in the price of your vehicle. You can upgrade or extend your OnStar® services to meet your needs.

A complete OnStar® user's guide and the terms and conditions of the OnStar® Subscription Service Agreement are included in your vehicle's glove box literature. For more information, visit www.onstar.com, contact OnStar® at 1-888-4-ONSTAR (1-888-466-7827), or press the blue OnStar® button to speak to an OnStar® advisor 24 hours a day, 7 days a week.

OnStar® Services

OnStar® provides a number of service plans. Some of the services currently provided by OnStar® are:

- Automatic Notification of Air Bag Deployment
- Emergency Services
- Roadside Assistance Stolen Vehicle Tracking
- AccidentAssist
- Remote Door Unlock
- Remote Diagnostics
- OnStar® MED-NET (Requires separate activation and annual fee on some plans)
- Online and Personal Concierge Services
- Route Support
- RideAssist
- Information and Convenience Services

OnStar® Personal Calling

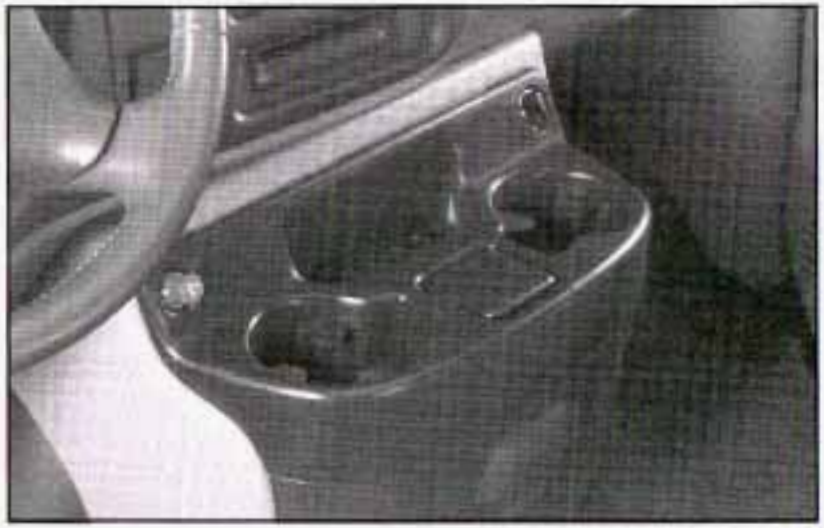
With OnStar® Personal Calling, you have a safer way to stay connected while driving. It's a hands-free wireless phone that's integrated into your vehicle. You can place calls nationwide using voice-activated dialing with no contracts, no roaming charges and no access fees. To find out more about OnStar® Personal Calling, refer to the OnStar® user's guide in your vehicle's glove box, or call OnStar® at 1-888-4-ONSTAR (1-888-466-7827).

OnStar® Virtual Advisor

With OnStar® Virtual Advisor you can listen to the news, entertainment and informative topics, such as traffic and weather reports. You are able to listen and reply to your e-mail through your vehicle's speakers.

A completed Subscription Service Agreement is required prior to delivery of OnStar® services and prepaid calling minutes are also required for OnStar® Personal Calling and OnStar® Virtual Advisor use. Terms and conditions of the Subscription Service Agreement can be found at www.onstar.com.

Storage Areas



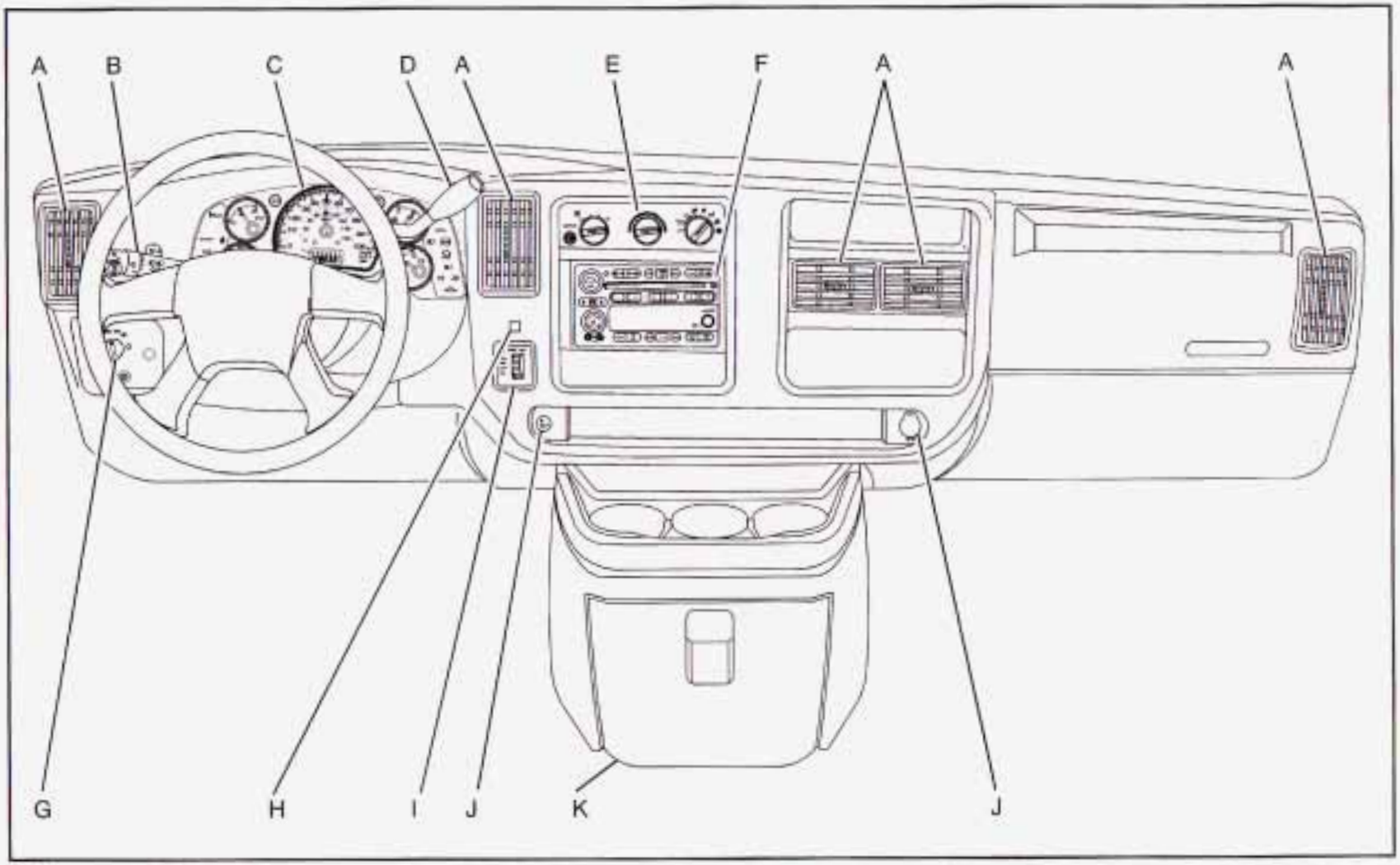
Your front storage compartment is at the center of the instrument panel extension, by the floor. To open the compartment, press down on the inside portion of the handle. The compartment will open automatically.

Storage compartments may also be included on the inside of each front door.

Section 3 Instrument Panel

Instrument Panel Overview 3-2
Hazard Warning Flashers 3-4
Other Warning Devices 3-5
Horn 3-5
Tilt Wheel 3-5
Turn Signal/Multifunction Lever 3-6
Exterior Lamps 3-12
Interior Lamps 3-14
Accessory Power Outlets 3-17
Ashtrays and Cigarette Lighter 3-17
Climate Controls 3-18
Climate Control System 3-18
Rear Heating System 3-19
Rear Air Conditioning and Heating System 3-20
Warning Lights, Gages and Indicators 3-24
Instrument Panel Cluster 3-25
Speedometer 3-26
Safety Belt Reminder Light 3-27
Air Bag Readiness Light 3-28
Air Bag Off Light 3-29
Charging System Light 3-30
Voltmeter Gage 3-31
Brake System Warning Light 3-32
Anti-Lock Brake System Warning Light 3-33
Engine Coolant Temperature Gage 3-33
Low Coolant Warning Light 3-34
Malfunction Indicator Lamp 3-34
Oil Pressure Gage 3-37
Change Engine Oil Light 3-38
Security Light 3-38
Cruise Control Light 3-39
Daytime Running Lamps Indicator Light 3-39
Tow/Haul Mode Light 3-39
Check Gages Warning Light 3-39
Fuel Gage 3-40
Audio System(s) 3-41
Setting the Time for Radios without Radio Data Systems (RDS) 3-41
Setting the Time for Radios with Radio Data Systems (RDS) 3-42
AM-FM Radio 3-42
Radio with CD (Base Level) 3-45
Radio with Cassette and CD 3-49
Radio with Six-Disc CD 3-60
Rear Seat Audio (RSA) 3-71
Theft-Deterrent Feature (Non-RDS Radios) 3-73
Theft-Deterrent Feature (RDS Radios) 3-73
Understanding Radio Reception 3-74
Care of Your Cassette Tape Player 3-74
Care of Your CDs 3-75
Care of Your CD Player 3-76
Fixed Mast Antenna 3-76
Chime Level Adjustment 3-76

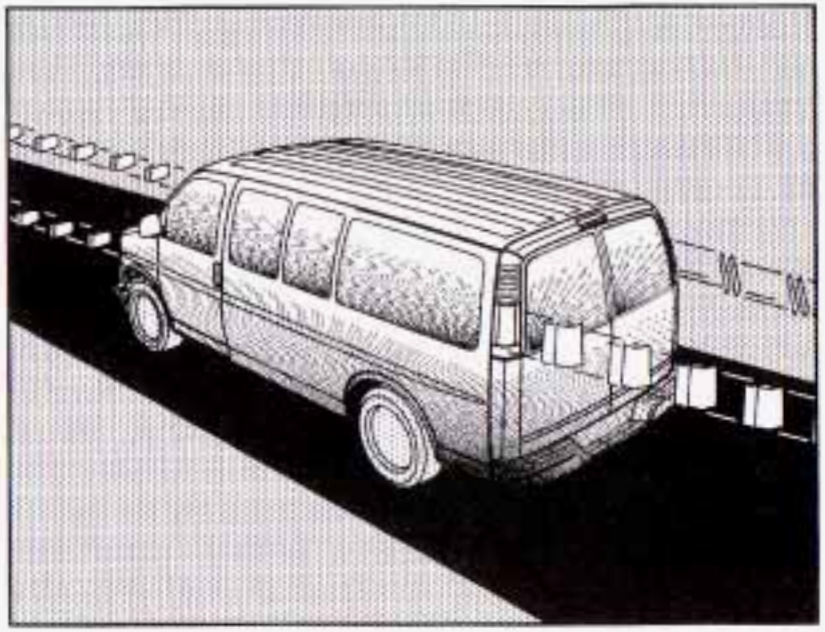
Instrument Panel Overview



The main components of your instrument panel are the following:

A. Air Outlets
B. Turn Signal/Multifunction Lever
C. Instrument Panel Cluster
D. Shift Lever
E. Climate Control System
F. Audio System
G. Headlamp and Parking Lamp Controls
H. Tow/Haul Mode Button
I. Rear Heating System (If Equipped)
J. Accessory Power Outlets/Cigarette Lighter
K. Storage Compartment

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 at the top of the steering column.

Your hazard warning flashers work no matter what position your key is in, and even if the key isn't in.

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 won't work.

Other Warning Devices

If you carry reflective triangles, you can use them to warn others. Set one up at the side of the road about 300 feet (100 m) behind your vehicle.

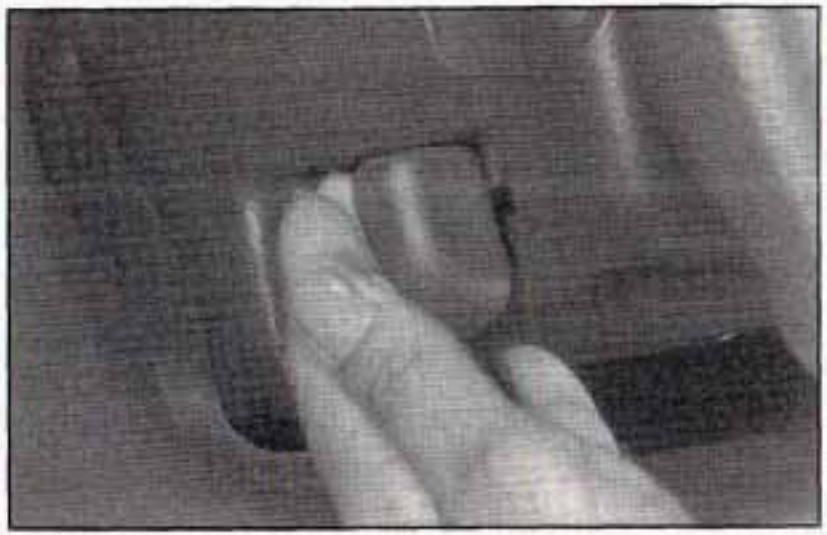
Horn

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

Tilt Wheel

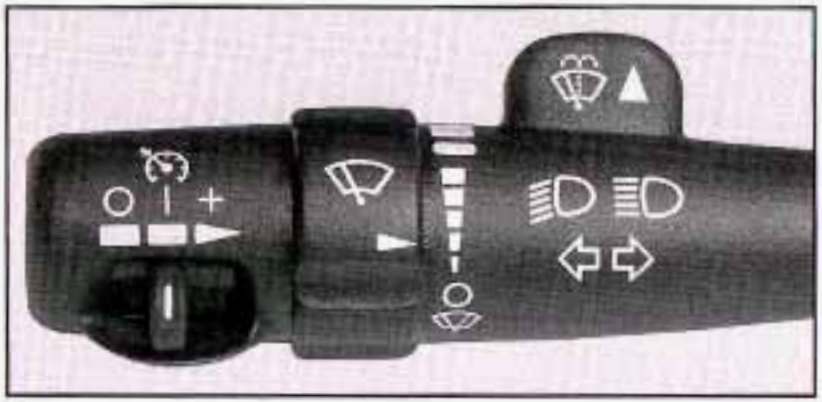
A tilt steering wheel allows you to adjust the steering wheel before you drive. You can also raise it to the highest level to give your legs more room when you enter and exit the vehicle.

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

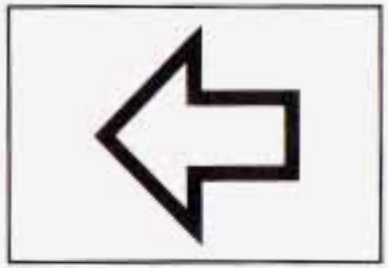
- Turn and Lane Change Signals
- Headlamp High/Low Beam Changer
- Flash-to-Pass Feature
- Windshield Wipers
- Windshield Washer
- Cruise Control

For information on the exterior lamps, see *Exterior Lamps on page 3-12* later in this section.

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.

If you move the lever all the way up or down, and the arrow flashes at twice the normal rate, a signal bulb may be burned out and other drivers may not see your turn signal.

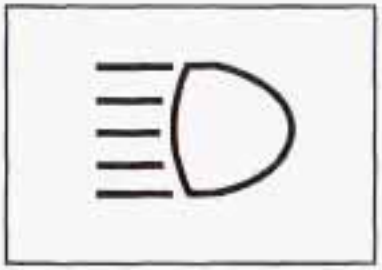
If a bulb is burned out, replace it to help avoid an accident. If the arrows don't go on at all when you signal a turn, check for burned-out bulbs or a blown fuse. See *Fuses and Circuit Breakers on page 5-98*.

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 off position.

Headlamp High/Low Beam Changer

(Headlamp High/Low Beam Changer): To change the headlamps from low to high beam, pull the mutlifunction lever all the way toward you. Then release it.



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

Flash-To-Pass Feature

This feature allows you to 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 off.

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

If your headlamps are off or on low-beam, your high-beam headlamps will turn on and stay on as long as you hold the lever toward you and the high-beam indicator on the instrument panel will come on. Release the lever to turn the high-beam headlamps off.

Windshield Wipers

You control the windshield wipers by turning the band with the wiper symbol on it.

(Mist): For a single wiping cycle, turn the band to mist. Hold it there until the wipers start, then let go. The wipers will stop after one wipe. If you want more wipes, hold the band on mist longer.

(Delay): You can set the wiper speed for a long or short delay between wipes. This can be very useful in light rain or snow. Turn the band to choose the delay time. The closer to the top of the lever, the shorter the delay.

(Low Speed): For steady wiping at low speed, turn the band away from you to the first solid band past the delay settings. position. For high-speed wiping, turn the band further, to the second solid band past the delay settings. To stop the wipers, move the band to off position.

(High Speed): For high-speed wiping, turn the band further, to the second solid band past the delay settings.

(Off): To stop the wipers, move the band to off.

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, don't use your washer until the windshield is warmed. Otherwise the washer fluid can form ice on the windshield, blocking your vision.

Cruise Control

Your vehicle may have cruise control.

○ **(Off)** This position turns the system off.

| **(On):** This position activates the system.

+ **(Resume/Accelerate):** Push the lever to this symbol to make the vehicle accelerate or resume to a previously set speed.

(Set): Press this button to set the speed.

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).

If you apply your brakes, the cruise control will disengage.

⚠ CAUTION:

- **Cruise control can be dangerous where you can't drive safely at a steady speed. So, don't 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. Don't use cruise control on slippery roads.**

Setting Cruise Control

⚠ CAUTION:

If you leave your cruise control on when you're not using cruise, you might hit a button and go into cruise when you don't 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.

The cruise light on the instrument panel will illuminate when the cruise control is engaged.

Resuming a Set Speed

Suppose you set your cruise control at a desired speed and then you apply the brake. This, of course, disengages 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 resume/accelerate briefly.

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

If you hold the switch at resume/accelerate briefly, 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 resume/accelerate.

Increasing Speed While Using Cruise Control

There are two ways to go to a higher speed:

- Use the accelerator pedal to get to the higher speed. Press the set button 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 resume/accelerate. 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 resume/accelerate briefly. Each time you do this, your vehicle will go about 1 mph (1.6 km/h) faster.

Reducing Speed While Using Cruise Control

- Press and hold the set 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 set 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,
- or move the cruise control 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 control on the driver's side of your instrument panel operates the exterior lamps. Turn the control clockwise to operate the lamps.

The exterior lamp control has four positions:

Ø (Defeat): Turn and release the control to this position to turn off the DRLs. To turn them back on, turn and release the control to this position. Shutting the vehicle off and restarting it will also reactivate the DRLs.

This feature is not available on vehicles first sold in Canada.

(Daytime Running Lamps (DRL)): Turning the control to this position selects the DRLs. When the vehicle is shifted out of PARK (P), the instrument panel lamps will illuminate and the DRLs will turn on, unless defeated. When the DRLs are active, the DRL indicator will illuminate.

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

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

If the DRLs are active when the control is turned to this position, the DRLs will turn off.

For vehicles first sold in Canada, the DRLs will remain active along with the lamps mentioned above.

(Headlamps): Turning the control to this position will turn on the headlamps together with the parking lamps and turn off the daytime running lamps.

You can switch your headlamps from high to low-beam by pulling the turn signal/high-beam lever toward you.

A circuit breaker protects your headlamps. If you have an electrical overload, your headlamps will flicker on and off. Have your headlamp wiring checked right away if this happens.

Lamps On Reminder

A reminder chime will sound when your control is turned to the headlamps or parking lamps position, your key is out of the ignition, and your driver's door is open. To disable the chime, turn the control to the Daytime Running Lamp (DRL) position and then back to the parking lamps or headlamps position.

Daytime Running Lamps

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 come on when the following conditions are met:

- the ignition is on,
- the exterior lamps control in DRL mode and not in the defeat position.

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

When you turn the headlamp switch off, the headlamps will go off, and your DRL lamps will illuminate.

Turn the exterior lamp control to the defeat position or shift into PARK (P). The DRLs will stay off until the control is toggled again or the vehicle is shifted out of PARK (P).

This procedure applies only to vehicles first sold in the United States.

Center High-Mounted Stoplamp

Your vehicle's center high-mounted stoplamp is located above the rear doors at the center of the vehicle.

If items are loaded on the roof of the vehicle, as in a luggage carrier, care should be taken not to block or damage the center high-mounted stoplamp unit.

Interior Lamps

Instrument Panel Brightness Control

Press this knob located next to the exterior lamps knob to extend and turn it to make your instrument panel brighter. Turn the knob all the way up to turn on the interior lamps. Press the knob back into its stored position.

Dome Lamp Override

You can use the dome override button, located below the exterior lamps knob, 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. The dome lamps will remain off when a door is open. To return the lamps to automatic operation, press the button again. The dome lamps will come on when you open a door. This will override the illuminated entry feature unless you use your keyless entry transmitter to unlock the vehicle.

Exit Lighting

With exit lighting, the interior lamps will come on for a period of forty seconds when you remove the key from the ignition. The lights will not come on if the dome override button is pressed in.

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. If the dome override button is pressed in, the lamps will not come on. When the door is closed, the interior lamps will remain on for a period of fifteen seconds or until the vehicle is started.

Reading Lamps

To turn on the reading lamps, press the button located next to each lamp. To turn them off, press the button again.

Dome Lamps

The dome lamps will come on when you open a door.

You can use the dome override button, located below the exterior lamps control, to set the dome lamps to come on automatically when the doors are opened, or remain off. To turn the lamps off, press the button into the in position. With the button in this position, the dome lamps will remain off when the doors are 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.

Battery Run-Down Protection

This feature shuts off the exterior and interior lamps if they are left on after the ignition is turned off. All exterior lamps will shut off after ten minutes. Interior cargo lamps will shut down after twenty minutes and all other interior lamps after ten minutes.

Accessory Power Outlets

Your vehicle may have 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 outlets are located on the driver's and 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: **When using an accessory power outlet, maximum electrical load must not exceed 20 amps. Always turn off any electrical equipment when not in use. Leaving electrical equipment on for extended periods will drain your battery.**

Notice: **Power outlets are designed for accessory plugs only. Do not hang any type of accessory or accessory bracket from the plug. Improper use of the power outlet can cause damage not covered by your warranty.**

Ashtrays and Cigarette Lighter

Your vehicle may have this feature. The front ashtray can be placed in the instrument panel extension at the center of the instrument panel. Lift up on the ashtray door to open it.

Notice: **Don't put papers or other flammable items into your ashtrays. Hot cigarettes or other smoking materials could ignite them, causing a damaging fire.**

To use the cigarette lighter, push it in all the way and let go. When it's ready, it will pop back out by itself.

Notice: **Don't hold a cigarette lighter in with your hand while it is heating. If you do, it won't be able to back away from the heating element when it's ready. That can make it overheat, damaging the lighter and the heating element.**

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:

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

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

(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.

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.

If your vehicle has air conditioning, your heating/air conditioning controls will look like this:

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

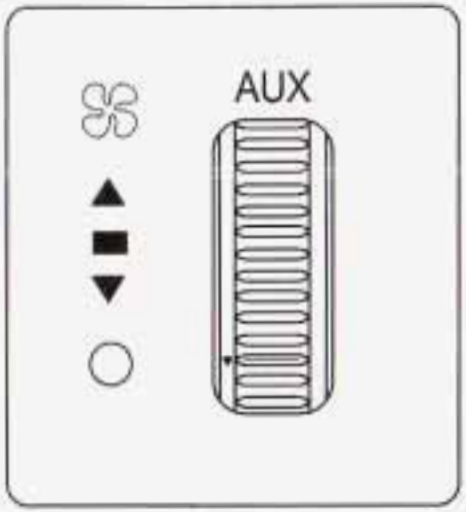
(Temperature Control): Turn the center knob clockwise or counterclockwise to increase or decrease the temperature inside your vehicle.

A/C (Air Conditioning): This setting will begin to cool and dehumidify the air inside of your vehicle.

MAX A/C (Maximum Air Conditioning): Turn the right knob to MAX A/C for maximum cooling. This setting cools the air the fastest, by recirculating the inside air.

Rear Heating System

Your vehicle may have an optional 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.



AUX (Auxiliary Heating System): The thumbwheel for this system is located to the right of the audio system.

(Fan): Turn the thumbwheel up or down to increase or decrease the amount of heated air sent to the rear-seating area.

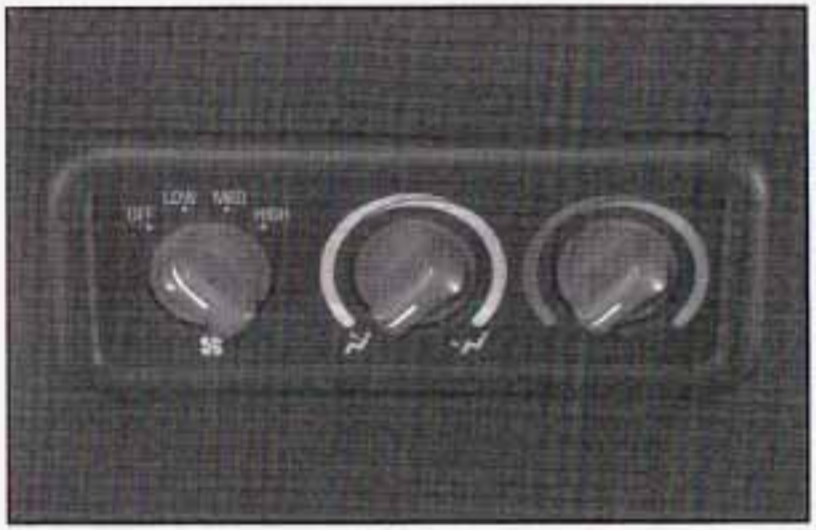
(Off): Turn the thumbwheel to this position to turn off the rear heating system.

Rear Air Conditioning and Heating System

Your vehicle may have a rear heating and air-conditioning system. This system regulates the temperature, the fan speed and the air delivery for the rear-seat passengers only. It also works with the main climate-control system in your vehicle.

Front Climate-Control Panel

Use this control panel when you would like to maintain a separate temperature setting. Adjust the direction of the airflow or adjust the fan speed for the rear-seat passenger(s).



Rear Climate-Control Panel

The rear control panel for this system is located in the second row behind the driver in the rear of your vehicle. A rear-seat passenger can use this control panel to personally adjust the temperature, the direction of the airflow and the fan speed for the rear-seating area.

The fan knob located on the front climate control panel must be turned to REAR CNTL to allow a rear-seat passenger to use the control panel in the rear-seating area. Performing this action disables the front control panel. To return control to this panel, move the fan knob out of REAR CNTL.

Directing the Airflow

Turn the center knob clockwise or counterclockwise to change the direction of the airflow in the rear-seating area.

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

(Vent): Use this mode to direct air to the upper outlets, with a little air directed to the floor outlets.

(Floor): Use this mode to direct most of the air to the floor outlets.

Selecting the Fan Speed

(Fan): Turn the left knob clockwise or counterclockwise to HIGH, MED (Medium) or LOW to increase or decrease the fan speed in the rear-seating area. Turn the knob to OFF to turn off the fan.

Setting the Temperature

To increase or decrease the temperature for the rear of the vehicle, use the right knob located on the 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 3-18* listed previously in this section. For information on ventilation, see "Outlet Adjustment" listed later in this section.

Defogging and Defrosting

Fog on the inside of windows is a result of high humidity (moisture) condensing on the cool window glass. This can be minimized if the climate control system is used properly.

Turn the knob on the right of the climate control panel to select the defog or defrost mode.

(Blend): 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 dehumidify 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 blend 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.

Do not drive the vehicle until all the windows are clean.

Rear Window Defogger

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 uses a warming grid to remove fog or frost from the rear window and will only work when the ignition is RUN.

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: **Don't use a razor blade or something else sharp on the inside of the rear window. If you do, you could cut or damage the defogger and the repairs would not be covered by your warranty. Do not attach a temporary vehicle license, tape, a decal or anything similar to the defogger grid.**

Outlet Adjustment

Use the outlets located near the center and on the sides of the instrument panel 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.

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.

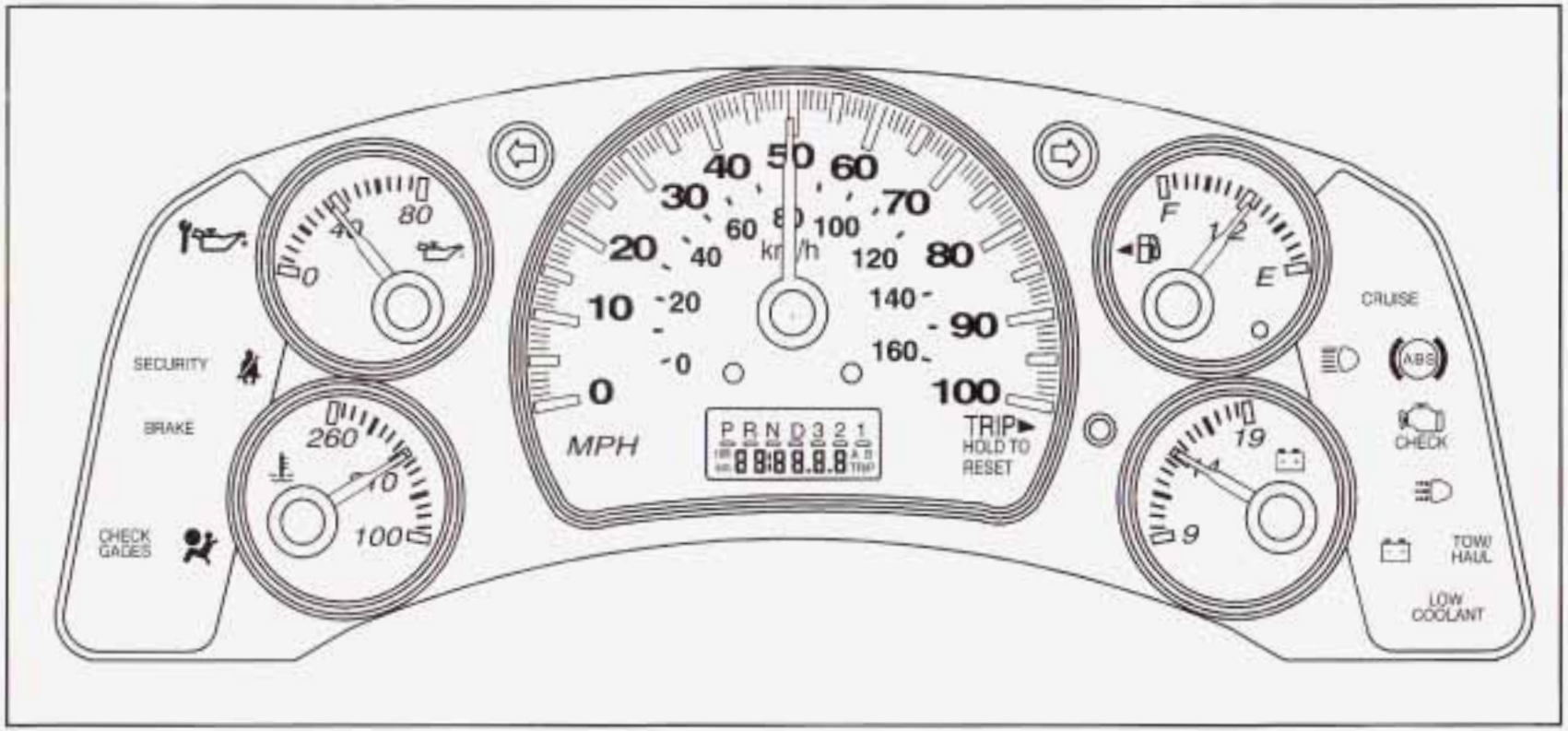
Warning lights and gages can signal that something is wrong before it becomes serious enough to cause an expensive repair or replacement. Paying attention to your warning lights and gages could also save you or others from injury.

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.

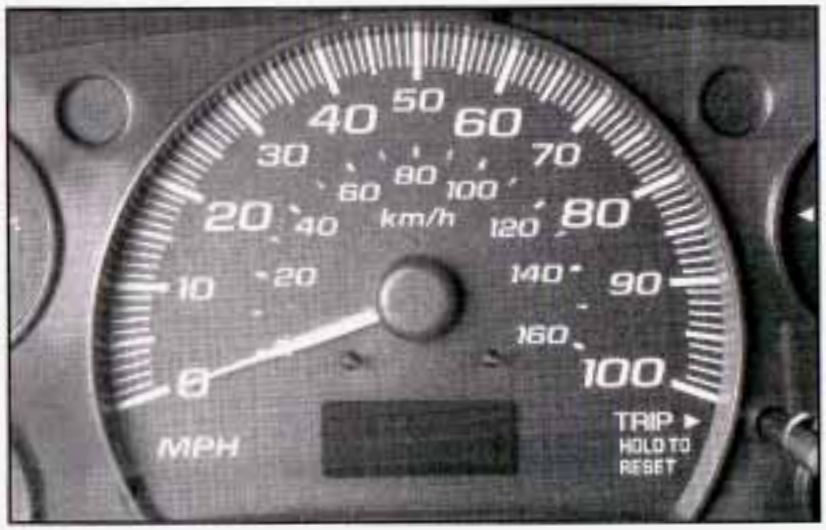
Instrument Panel Cluster



United States version shown, Canada similar

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, how much fuel you're using, and many other things you'll need to know to drive safely, and economically.

Speedometer



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).

You may wonder what happens if your vehicle needs a new odometer installed. Laws vary as to the procedure that must be followed, so check with your state or provincial vehicle registration office. But generally, if the new odometer 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.

To reset the trip odometer, fully press the reset button located near the trip odometer readout.

The trip odometer can show either total miles or trip miles using this button located on the instrument cluster.

Electronic Road-Speed Governor

Your vehicle may have this feature. This system automatically controls top vehicle speed. The system controller receives a signal from the vehicle speed sensor and reduces power when the vehicle speed reaches the maximum 65 mph (105 km/h) governed speed.

Safety Belt Reminder Light

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

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

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

Air Bag Readiness Light

There is an air bag readiness light on the instrument panel, which shows the air bag symbol. The system checks the air bag's electrical system for malfunctions. The light tells you if there is an electrical problem. The system check includes the air bag sensor, the air bag modules, the wiring and the crash sensing and diagnostic module. For more information on the air bag system, see *Air Bag System on page 1-63*.

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

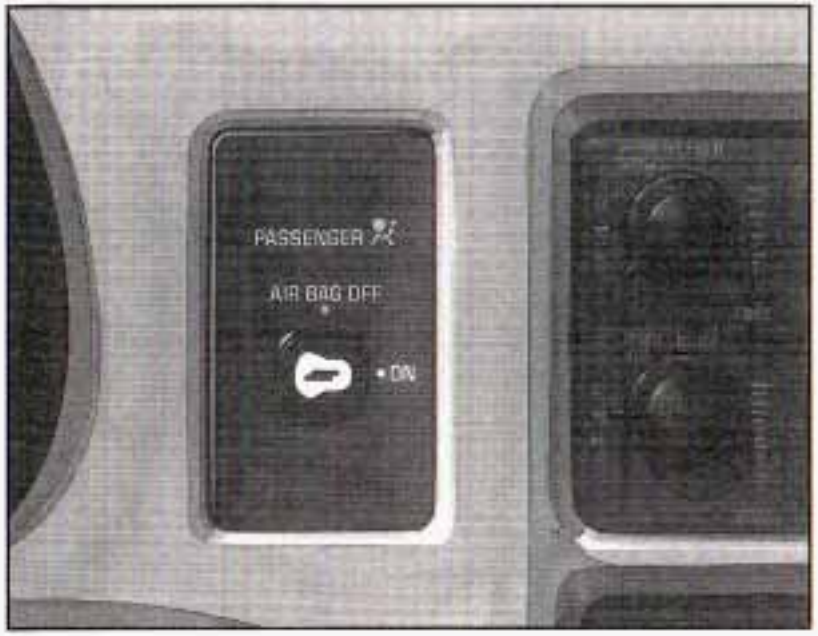
⚠ CAUTION:

If the air bag readiness light stays on after you start your vehicle, it means the air bag system may not be working properly. The air bags 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 air bag readiness light stays on after you start your vehicle.

The air bag 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.

Air Bag Off Light

If your vehicle is equipped with an air bag off switch, when you turn the right front passenger's air bag off, the air bag off light will come on and stay on to remind you that the air bag has been turned off. This light will go off when you turn the air bag back on again. See *Air Bag Off Switch on page 1-70* for more on this, including important safety information.



⚠ CAUTION:

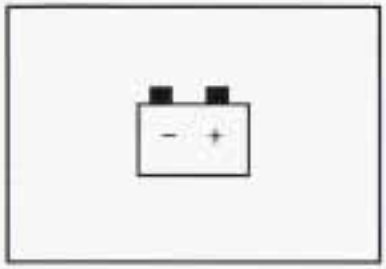
If the right front passenger's air bag is turned off for a person who isn't in a risk group identified by the national government, that person won't have the extra protection of an air bag. In a crash, the air bag wouldn't be able to inflate and help protect the person sitting there.

Don't turn off the passenger's air bag unless the person sitting there is in a risk group identified by the national government. See "Air Bag Off Switch" in the Index for more on this, including important safety information.

⚠ CAUTION:

If the air bag readiness light ever comes on when you have turned off the air bag, it means that something may be wrong with the air bag system. The right front passenger's air bag could inflate even though the switch is off. If this ever happens, don't let anyone whom the national government has identified as a member of a passenger air bag risk group sit in the right front passenger's position (for example, don't secure a rear-facing child restraint in your vehicle) until you have your vehicle serviced.

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), this 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 reading 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

With the ignition 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.

United States

Canada

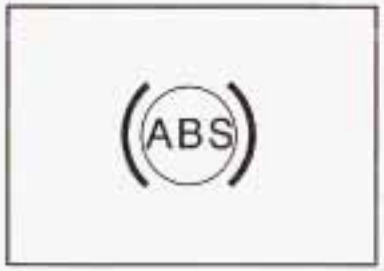
This light should come on briefly when you turn the ignition key to RUN. If it doesn't come on then, have it fixed so it will be ready to warn you if there's a problem.

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 4-29*.

⚠ 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've pulled off the road and stopped carefully, have the vehicle towed for service.

Anti-Lock Brake System Warning Light

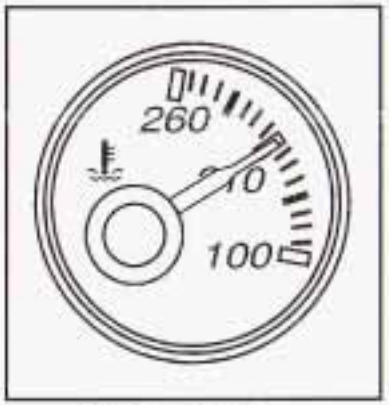


With the anti-lock brake system, this light will come on when you start your engine and may stay on for several seconds. That's normal.

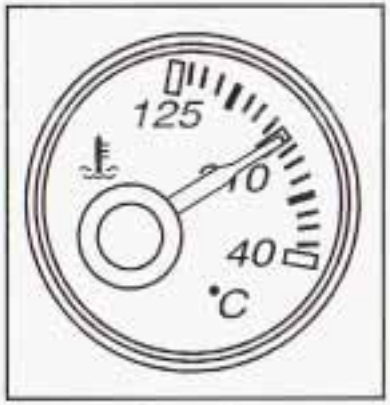
If the light stays on, or comes on when you're driving, your vehicle needs service. If the regular brake system warning light isn't on, you still have brakes, but you don't have anti-lock brakes. If the regular brake system warning light is also on, you don't have anti-lock brakes and there's a problem 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



United States



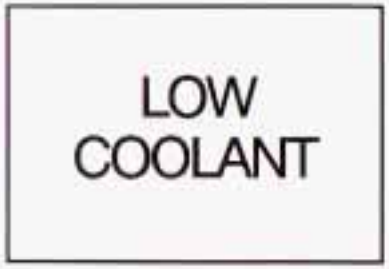
Canada

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

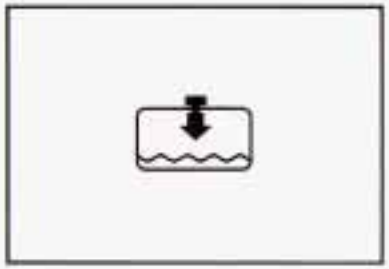
It means that your engine coolant has overheated. If you have been operating your vehicle under normal operating conditions, you should pull off the road, stop your vehicle, and turn off the engine as soon as possible.

See *Engine Overheating on page 5-28*.

Low Coolant Warning Light



United States



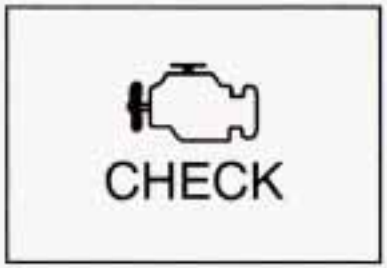
Canada

This message is displayed when the cooling system is low on coolant.

The engine may overheat. See *Engine Coolant on page 5-24* and have your vehicle serviced as soon as you can.

Malfunction Indicator Lamp

Check Engine Light



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 check engine light comes on to indicate that there is a problem and service is required. Malfunctions often will be indicated by the system before any problem is apparent. This may prevent more serious damage to your vehicle. This system is also designed to assist your service technician in correctly diagnosing any malfunction.

Notice: **If you keep driving your vehicle with this light on, after a while, 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 doesn't 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. Dealer or qualified service center diagnosis and service may be required.
- **Light On Steady** — An emission control system malfunction has been detected on your vehicle. Dealer or qualified service center 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 drive the vehicle to your dealer or qualified service center for service.

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 5-7*. 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, have your dealer or qualified service center 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 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, see your dealer or qualified service center to prepare the vehicle for inspection.

Oil Pressure Gage

United States

Canada

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.

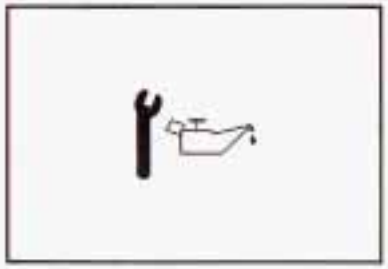
A reading in the low pressure zone may be caused by a dangerously low oil level or other problem causing low oil pressure. Check your oil as soon as possible.

⚠ CAUTION:

Don't 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: **Damage to your engine from neglected oil problems can be costly and is not covered by your warranty.**

Change Engine Oil Light



This light is displayed when the engine oil needs to be changed.

If this light is flashing, it indicates that the oil level is low. When this light is on steady, it indicates the oil needs to be changed soon.

Once the engine oil has been changed, the change engine oil light must be reset. Until it is reset, the light will be displayed when the engine is on. For more information on resetting the system, see *Engine Oil on page 5-14.*

Security Light

United States

Canada

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 2-19.*

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.

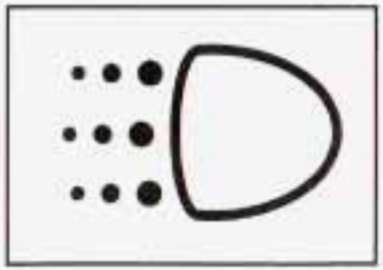
Cruise Control Light

United States

Canada

The cruise light comes on whenever you set your cruise control. See "Cruise Control" under *Turn Signal/Multifunction Lever on page 3-6.*

Daytime Running Lamps Indicator Light



You have this light on the instrument panel. It will light whenever the DRL are on. It is also a reminder to turn on your headlamps when driving at night.

Tow/Haul Mode Light

This message is displayed when the tow/haul mode has been activated.

For more information, see "Tow/Haul Mode" in *Towing a Trailer on page 4-32.*

Check Gages Warning Light

United States

Canada

This 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, when the ignition is on, tells you about how much fuel you have left in your tank.

The gage will first indicate empty before you are out of fuel, and you should get more fuel as soon as possible.

Listed are four situations you may experience with your fuel gage:

- At the gas station, the fuel pump shuts off before the gage reads full.
- It takes a little more or less fuel to fill up than the fuel gage indicated. For example, the gage may have indicated the tank was half full, but it actually took a little more or less than half the tank's capacity to fill the tank.
- The 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.

None of these indicate a problem with the fuel gage.

Audio System(s)

Notice: **Before you add any sound equipment to your vehicle – like a tape player, CB radio, mobile telephone or two-way radio – be sure you can add what you want. If you can, it's very important to do it properly. Added sound equipment may interfere with the operation of your vehicle's engine, Delphi Electronics 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.**

So, before adding sound equipment, check with your dealer and be sure to check federal rules covering mobile radio and telephone units.

Your audio system has been designed to operate easily and to give years of listening pleasure. You will get the most enjoyment out of it if you acquaint yourself with it first. Find out what your audio system can do and how to operate all of its controls to be sure you're getting the most out of the advanced engineering that went into it.

Your vehicle may have a feature called Retained Accessory Power (RAP). With RAP, you can play your audio system even after the ignition is turned off. See "Retained Accessory Power (RAP)" under *Ignition Positions on page 2-20.*

Setting the Time for Radios without Radio Data Systems (RDS)

Press and hold the HR or MIN arrow for two seconds. Then press the HR (down) arrow until the correct hour appears on the display. Press and hold the MIN (up) arrow until the correct minute appears on the display. The time may be set with the ignition on or off.

Setting the Time for Radios with Radio Data Systems (RDS)

Your radio may have a button marked with an H or HR to represent hours and an M or MN to represent minutes.

Press and hold the hour button until the correct hour appears on the display. Press and hold the minute button until the correct minute appears on the display. The time may be set with the ignition on or off.

To synchronize the time with an FM station broadcasting Radio Data System (RDS) information, press and hold the hour and minute buttons at the same time until RDS TIME appears on the display. To accept this time, press and hold the hour and minute buttons, at the same time, for another 2 seconds. If the time is not available from the station, NO UPDAT will appear on the display instead.

RDS time is broadcast once a minute. Once you have tuned to an RDS broadcast station, it may take a few minutes for your time to update.

AM-FM Radio

Playing the Radio

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

VOL (Volume): Turn the knob to increase or to decrease volume.

RCL (Recall): Press this knob to switch the display between time and radio station frequency. Time display is available with the ignition turned off.

Finding a Station

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

TUNE: Turn this knob to choose radio stations.

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

To scan stations, press and hold one of the SEEK arrows for two seconds until you hear a beep. The radio will go to a station, play for a few seconds and flash the station frequency, then go on to the next station. Press one of the SEEK arrows again to stop scanning.

To scan preset stations, press and hold one of the SEEK arrows for more than four seconds until you hear two beeps. The radio will go to the first preset station stored on your pushbuttons, play for a few seconds and flash the station frequency, then go on to the next preset station. Press one of the SEEK arrows again to stop scanning presets.

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

Setting Preset Stations

The six numbered pushbuttons let you return to your favorite stations. You can set up to 18 stations (six AM, six FM1 and six FM2) by performing the following steps:

1. Turn the radio on.
2. Press AM FM to select AM, FM1 or FM2.
3. Tune in the desired station.
4. Press and hold one of the six numbered pushbuttons until you hear a beep. Whenever you press that numbered pushbutton, the station you set will return.
5. Repeat the steps for each pushbutton.

Setting the Tone (Bass/Treble)

AUDIO: To adjust the bass and the treble, press and release the AUDIO button repeatedly until BAS or TRE appears on the display. Then press and hold the up or the down arrow to increase or to decrease. If a station is weak or noisy, you may want to decrease the treble.

To adjust bass or treble to the middle position, select BAS or TRE. Then press and hold the AUDIO button for more than two seconds until you hear a beep. B and a zero or T and a zero will appear on the display.

To adjust both tone controls and both speaker controls to the middle position, first end out of audio mode either by pressing another button, causing the radio to perform that function, or by waiting five seconds for the display to return to time of day. Then press and hold the AUDIO button for more than two seconds until you hear a beep. CEN will appear on the display.

Adjusting the Speakers (Balance/Fade)

AUDIO: To adjust the balance between the right and the left speakers, press and release the AUDIO button until BAL appears on the display. Then press and hold the up or the down arrow to move the sound toward the right or the left speakers.

To adjust the fade between the front and the rear speakers, press and release the AUDIO button until FAD appears on the display. Then press and hold the up or the down arrow to move the sound toward the front or the rear speakers.

To adjust balance or fade to the middle position, select BAL or FAD. Then press and hold AUDIO for more than two seconds until you hear a beep. L and a zero or F and a zero will appear on the display.

To adjust both tone controls and both speaker controls to the middle position, first end out of audio mode either by pressing another button, causing the radio to perform that function, or by waiting five seconds for the display to return to time of day. Then press and hold AUDIO for more than two seconds until you hear a beep. CEN will appear on the display.

Radio Messages

CAL (Calibration): Your audio system has been calibrated for your vehicle from the factory. If CAL appears on the display it means that your radio has not been configured properly for your vehicle and must be returned to the dealership for service.

LOC (Locked): This message is displayed when the THEFTLOCK® system has locked up. You must return to the dealership for service.

Radio with CD (Base Level)

Playing the Radio

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

VOL (Volume): Turn the knob to increase or to decrease volume.

RCL (Recall): Press this knob to switch the display between time and radio station frequency. Time display is available with the ignition turned off.

Finding a Station

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

TUNE: Turn this knob to choose radio stations.

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

To scan stations, press and hold one of the SEEK arrows for two seconds until you hear a beep. The radio will go to a station, play for a few seconds and flash the station frequency, then go on to the next station. Press one of the SEEK arrows again to stop scanning.

To scan preset stations, press and hold one of the SEEK arrows for more than four seconds until you hear two beeps. The radio will go to the first preset station stored on your pushbuttons, play for a few seconds and flash the station frequency, then go on to the next preset station. Press one of the SEEK arrows again to stop scanning presets.

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

Setting Preset Stations

The six numbered pushbuttons let you return to your favorite stations. You can set up to 18 stations (six AM, six FM1 and six FM2) by performing the following steps:

1. Turn the radio on.
2. Press AM FM to select AM, FM1 or FM2.
3. Tune in the desired station.
4. Press and hold one of the six numbered pushbuttons until you hear a beep. Whenever you press that numbered pushbutton, the station you set will return.
5. Repeat the steps for each pushbutton.

Setting the Tone (Bass/Treble)

AUDIO: To adjust the bass or the treble, press and release the AUDIO button repeatedly until BAS or TRE appears on the display. Then press and hold the up or the down arrow to increase or to decrease. If a station is weak or noisy, you may want to decrease the treble.

To adjust bass or treble to the middle position, select BAS or TRE. Then press and hold the AUDIO button for more than two seconds until you hear a beep. B and a zero or T and a zero will appear on the display.

To adjust both tone controls and both speaker controls to the middle position, first end out of audio mode by pressing another button, causing the radio to perform that function, or by waiting five seconds for the display to return to time of day. Then press and hold the AUDIO button for more than two seconds until you hear a beep. CEN will appear on the display.

Adjusting the Speakers (Balance/Fade)

AUDIO: To adjust the balance between the right and the left speakers, press and release the AUDIO button until BAL appears on the display. Then press and hold the up or the down arrow to move the sound toward the right or the left speakers.

To adjust the fade between the front and rear speakers, press and release the AUDIO button until FAD appears on the display. Then press and hold the up or the down arrow to move the sound toward the front or the rear speakers.

To adjust balance or fade to the middle position, select BAL or FAD. Then press and hold AUDIO for more than two seconds until you hear a beep. L and a zero or F and a zero will appear on the display.

To adjust both tone controls and both speaker controls to the middle position, first end out of audio mode by pressing another button, causing the radio to perform that function, or by waiting five seconds for the display to return to time of day. Then press and hold AUDIO for more than two seconds until you hear a beep. CEN will appear on the display.

Radio Messages

CAL (Calibration): Your audio system has been calibrated for your vehicle from the factory. If CAL appears on the display it means that your radio has not been configured properly for your vehicle and must be returned to the dealership for service.

LOC (Locked): This message is displayed when the THEFTLOCK® system has locked up. You must return to the dealership for service.

Playing a Compact Disc

Insert a disc partway into the slot, label side up. The player will pull it in. The disc should begin playing. The display will show CD. If you want to insert a compact disc with the ignition off, first press RCL or the eject button.

If an error appears on the display, see "Compact Disc Messages" later in this section.

1 PREV (Previous): Press this pushbutton to go to the previous track if the current track has been playing for less than eight seconds. If pressed when the current track has been playing for more than eight seconds, it will go to the beginning of the current track. The track number will appear on the display. If you hold the pushbutton or press it more than once, the player will continue moving back through the disc.

2 NEXT: Press this pushbutton to go to the next track. The track number will appear on the display. If you hold the pushbutton or press it more than once, the player will continue moving forward through the disc.

3 REV (Reverse): Press and hold this pushbutton to reverse quickly within a track. Release it to play the passage. The display will show elapsed time while reversing.

4 FWD (Forward): Press and hold this pushbutton to advance quickly within a track. Release it to play the passage. The display will show elapsed time while forwarding.

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

6 RPT (Repeat): Press this pushbutton once to hear a track over again. RPT will appear on the display. The current track will continue to repeat. Press RPT again to turn off repeated play. OFF will appear on the display.

◁ **SEEK** ▷ **:** Press the right or the left arrow to go to the next or to the previous track. The track number will appear on the display.

RCL (Recall): Press this knob to see the current track number or how long the current track has been playing.

AM FM: Press this button to play the radio when a disc is in the player. The disc will stop but remain in the player.

CD: With a compact disc in the player and the radio playing, press this button to play the compact disc. CD will appear on the display.

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

Compact Disc Messages

If the disc comes out, it could be for one of the following reasons:

- You're driving on a very rough road. When the road becomes smoother, the disc should play.
- It's very hot. When the temperature returns to normal, the disc should play.
- The disc is dirty, scratched, wet or upside down.
- The air is very humid. If so, wait about an hour and try again.

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 can't be corrected, contact your dealer.

Radio with Cassette and 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 volume.

AUTO VOL (Automatic Volume): With automatic volume, your audio system adjusts automatically to make up for road and wind noise as you drive.

Set the volume at the desired level. Press this button to select LOW, MEDIUM or HIGH. AVOL will appear on the display. Each higher setting will allow for more volume compensation at faster vehicle speeds. Then as you drive, automatic volume increases the volume as necessary to overcome noise at any speed. The volume level should always sound the same to you as you drive. NONE will appear on the display if the radio cannot determine the vehicle speed. If you don't want to use automatic volume, select OFF.

DISP (Display): Push this knob to switch the display between radio station frequency and time. Time display is available with the ignition turned off.

For RDS, push this knob to change what appears on the display while using RDS. The display options are station name, RDS station frequency, PTY and the name of the program (if available).

To change the default on the display, push this knob until you see the display you want, then hold the knob for two seconds. The radio will produce one beep and selected display will now be the default.

Finding a Station

BAND: Press this button to switch between AM, FM1, FM2. The display will show your selection.

TUNE: Turn this knob to choose radio stations.

◀ SEEK ▶ : Press the right or the left arrow to seek to the next or to the previous station and stay there.

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

◀ SCAN ▶ : Press and hold one of the arrows for more than two seconds. The radio will produce one beep. The radio will scan to a station, play for a few seconds, then go on to the next station. SCAN will be displayed. Press one of the arrows again to stop scanning.

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

To scan preset stations, press and hold one of the arrows for more than four seconds. The radio will produce two beeps. The radio will scan to the first preset station, play for a few seconds, then go on to the next preset station. PSCN will be displayed. Press one of the arrows again or one of the pushbuttons to stop scanning.

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

Setting Preset Stations

The six numbered pushbuttons let you return to your favorite stations. You can set up to 18 stations (six AM, six FM1 and six FM2) by performing the following steps:

1. Turn the radio on.
2. Press BAND to select AM, FM1 or FM2.
3. Tune in the desired station.
4. Press AUTO EQ to choose the bass and treble equalization that best suits the type of station you are listening to.
5. Press and hold one of the six numbered pushbuttons. The radio will produce one beep. Whenever you press that numbered pushbutton, the station you set will return and the bass and treble equalization that you selected will also be automatically selected for that pushbutton.
6. Repeat the steps for each pushbutton.

Setting the Tone (Bass/Treble)

AUDIO: Press and release the AUDIO knob until BASS, MID, or TREB appears on the display. Turn the knob to increase or to decrease. The display will show the bass, midrange, or treble level. If a station is weak or noisy, you may want to decrease the treble.

To adjust the bass, midrange, and treble to the middle position, push the AUDIO knob. The radio will produce one beep and adjust the display level to the middle position.

To adjust all tone and speaker controls to the middle position, push and hold the AUDIO knob when no tone or speaker control is displayed. The radio will produce one beep and display CENTERED.

AUTO EQ (Automatic Equalization): Press this button to choose bass and treble equalization settings designed for country/western, jazz, talk, pop, rock and classical stations.

To return the bass and treble to the custom mode, press and release the AUDIO knob, until CUSTOM appears.

Adjusting the Speakers (Balance/Fade)

AUDIO: To adjust the balance to the right and the left speakers, push and release the AUDIO knob until BAL appears on the display. Turn the knob to move the sound toward the right or the left speakers.

To adjust the fade to the front and the rear speakers, push and release the AUDIO knob until FADE appears on the display. Turn the knob to move the sound toward the front or the rear speakers.

To adjust the balance and fade to the middle position, push and hold the AUDIO knob. The radio will produce one beep and adjust the display level to the middle position.

To adjust all tone and speaker controls to the middle position, push and hold the AUDIO knob when no tone or speaker control is displayed. The radio will produce one beep and display CENTERED.

Using RDS

Your audio system is equipped with a Radio Data System (RDS). RDS features are available for use only on FM stations that broadcast RDS information.

- Seek to stations broadcasting the selected type of programming,
- receive announcements concerning local and national emergencies,
- display messages from radio stations, and
- seek to stations with traffic announcements.

This system relies upon receiving specific information from these stations and will only work when the information is available. In rare cases, a radio station may broadcast incorrect information that will cause the radio features to work improperly. If this happens, contact the radio station.

While you are tuned to an RDS station, the station name or the call letters will appear on the display instead of the frequency. RDS stations may also provide the time of day, a program type (PTY) for current programming and the name of the program being broadcast.

Finding a PTY Station

To select and find a desired PTY perform the following:

1. Turn the P-TYPE LIST knob. TYPE and a PTY will appear on the display.
2. Select a category by turning the P-TYPE LIST knob.
3. Once the desired category is displayed, press the SEEK TYPE button or one of the SEEK arrows to take you to the category's first station.
4. If you want to go to another station within that category and the category is displayed, press the SEEK TYPE button once. If the category is not displayed, press the SEEK TYPE button twice to display the category and then to go to another station.

If the radio cannot find the desired program type, NONE will appear on the display and the radio will return to the last station you were listening to.

SCAN: You can also scan through the channels within a category by performing the following:

1. Turn the P-TYPE LIST knob. TYPE and a PTY will appear on the display.
2. Select a category by turning the P-TYPE LIST knob.
3. Once the desired category is displayed, press either SCAN arrow, and the radio will begin scanning within your chosen category.
4. Press wither SCAN arrow again to stop scanning.

BAND (Alternate Frequency): Alternate frequency allows the radio to switch to a stronger station with the same program type. Press and hold BAND for two seconds to turn alternate frequency on. AF ON will appear on the display. The radio may switch to stronger stations. Press and hold BAND again for two seconds to turn alternate frequency off. AF OFF will appear on the display. The radio will not switch to other stations.

Setting Preset PTYs

The six numbered pushbuttons let you return to your favorite PTYs. These buttons have factory PTY presets. You can set up to 12 PTYs (six FM1 and six FM2) by performing the following steps:

1. Press BAND to select FM1 or FM2.
2. Turn the P-TYPE LIST knob. TYPE and a PTY will appear on the display.
3. Turn the P-TYPE LIST knob to select a PTY.
4. Press and hold one of the six numbered pushbuttons until you hear a beep. Whenever you press that numbered pushbutton, the PTY you set will return.
5. Repeat the steps for each pushbutton.

RDS Messages

ALERT!: Alert warns of local or national emergencies. When an alert announcement comes on the current radio station, ALERT! will appear on the display. You will hear the announcement, even if the volume is muted or a cassette tape or compact disc is playing. If the cassette tape or compact disc player is playing, play will stop during the announcement. You will not be able to turn off alert announcements.

ALERT! will not be affected by tests of the emergency broadcast system. This feature is not supported by all RDS stations.

INFO (Information): If the current station has a message, the information symbol will appear on the display. Press this button to see the message. The message may display the artist and song title, call in phone numbers, etc.

If the whole message is not displayed, parts of it will appear every three seconds. To scroll through the message at your own speed, press the INFO button repeatedly. A new group of words will appear on the display with each press. Once the complete message has been displayed, the information symbol will disappear from the display until another new message is received. The old message can be displayed by pressing the INFO button until a new message is received or a different station is tuned to.

When a message is not available from a station, NO INFO will be displayed.

TRAF (Traffic): Press this button to receive traffic announcements. If the current tuned station does not broadcast traffic announcements, the radio will seek to a station that does. When the radio finds a station that broadcasts traffic announcements, it will stop. TRAF will appear on the display and when a traffic announcement comes on you will hear it. If no station is found, NO TRAF will appear on the display.

When a traffic announcement comes on the current station or on a related network station, you will hear it, even if the volume is muted or a compact disc is playing. The traffic symbol and TRAF will appear on the display while the announcement plays. If the compact disc player was being used, play will stop during the announcement.

Traffic Interrupt Feature: Your radio can interrupt the play of a cassette, or CD. Press the TRAF button. The radio will seek to a station that broadcasts traffic announcements. When the radio finds a station that broadcasts traffic announcements, it will stop. TRAF will appear on the display. When a traffic announcement comes on the station that was found, you will hear it. When the traffic announcement is over, the radio will resume play of the cassette, or CD. If no station is found, NO TRAF will appear on the display.

Radio Messages

CAL ERR (Calibration Error): This message is displayed when the radio has not been calibrated properly for the vehicle. You must return to the dealership for service.

LOCKED: This message is displayed when the THEFTLOCK® system has locked up. You must return to the dealership for service.

Playing a Cassette Tape

Your tape player is built to work best with tapes that are up to 30 to 45 minutes long on each side. Tapes longer than that are so thin they may not work well in this player. The longer side with the tape visible should face to the right. If the ignition is on, but the radio is off, the tape can be inserted and will begin playing. A tape symbol is shown on the display whenever a tape is inserted. If you hear nothing but a garbled sound, the tape may not be in squarely. Press the eject symbol to remove the tape and start over.

While the tape is playing, use the VOL, AUDIO and SEEK controls just as you do for the radio. The display will show TAPE and an arrow showing which side of the tape is playing.

If you want to insert a tape while the ignition is off, first press the eject symbol or DISP.

If an error appears on the display, see "Cassette Tape Messages" later in this section.

1 PREV (Previous): Your tape must have at least three seconds of silence between each selection for previous to work. Press this pushbutton to go to the previous selection on the tape if the current selection has been playing for less than three seconds. If pressed when the current selection has been playing from 3 to 13 seconds, it will go to the beginning of the previous selection or the beginning of the current selection, depending upon the position on the tape. If pressed when the current selection has been playing for more than 13 seconds, it will go to the beginning of the current selection.

SEEK and a negative number will appear on the display while the cassette player is in the previous mode. Pressing this pushbutton multiple times will increase the number of selections to be searched back, up to -9.

2 NEXT: Your tape must have at least three seconds of silence between each selection for next to work. Press this pushbutton to go to the next selection on the tape. If you press the pushbutton more than once, the player will continue moving forward through the tape. SEEK and a positive number will appear on the display.

3 REV (Reverse): Press this pushbutton to reverse the tape rapidly. Press it again to return to playing speed. The radio will play while the tape reverses. The station frequency and REV will appear on the display. You may select stations during reverse operation by using the TUNE and SEEK.

4 FWD (Forward): Press this pushbutton to advance quickly to another part of the tape. Press this pushbutton again to return to playing speed. The radio will play while the tape advances. The station frequency and FWD will appear on the display. You may select stations during forward operation by using TUNE and SEEK.

5 SIDE: Press this pushbutton to play the other side of the tape.

◀ SEEK ▶ : The right arrow is the same as the NEXT pushbutton, and the left arrow is the same as the PREV pushbutton. If the arrow is held or pressed more than once, the player will continue moving forward or backward through the tape. SEEK and a positive or negative number will appear on the display.

◀ SCAN ▶ : To scan the tape, press and hold either SCAN arrow for more than two seconds until SCAN appears on the display and you hear a beep. Use this feature to listen to 10 seconds of each selection on the current side of the tape. Press either SCAN arrow again, to stop scanning. Your tape must have at least three seconds of silence between each selection for scan to work.

BAND: Press this button to listen to the radio when a tape is playing. The tape will stop but remain in the player.

TAPE DISC: Press this button to play a tape when listening to the radio. Press this button to switch between the tape and compact disc if both are loaded. The inactive tape or CD will remain safely inside the radio for future listening.

⏏ (Eject): Press this button to stop a tape when it is playing or to eject a tape when it is not playing. Eject may be activated with the radio off. Cassette tapes may be loaded with the radio off if this button is pressed first.

Cassette Tape Messages

CHK TAPE (Check Tape): If CHK TAPE appears on the radio display, the tape won't play because of one of the following errors.

- The tape is tight and the player can't turn the tape hubs. Remove the tape. Hold the tape with the open end down and try to turn the right hub counterclockwise with a pencil. Turn the tape over and repeat. If the hubs do not turn easily, your tape may be damaged and should not be used in the player. Try a new tape to make sure your player is working properly.
- The tape is broken. Try a new tape.
- The tape is wrapped around the tape head. Attempt to get the cassette out. Try a new tape.

CLEAN: If this message appears on the display, the cassette tape player needs to be cleaned. It will still play tapes, but you should clean it as soon as possible to prevent damage to the tapes and player. See *Care of Your Cassette Tape Player on page 3-74*.

If any error occurs repeatedly or if an error can't be corrected, contact your dealer.

CD Adapter Kits

It is possible to use a portable CD player adapter kit with your cassette tape player after activating the bypass feature on your tape player.

To activate the bypass feature, perform the following steps:

1. Turn the ignition on.
2. Turn the radio off.
3. Press and hold the TAPE DISC button for five seconds. The radio will display READY and the tape symbol on the display will flash, indicating the feature is active.
4. Insert the adapter into the cassette tape slot. It will power up the radio and begin playing.

The override feature will remain active until the eject symbol is pressed.

Playing a Compact Disc

Insert a disc partway into the slot, label side up. The player will pull it in and the disc should begin playing. The display will show the CD symbol. If you want to insert a compact disc with the ignition off, first press DISP or the eject symbol.

If an error appears on the display, see "Compact Disc Messages" later in this section.

1 PREV (Previous): Press this pushbutton to go to the previous track if the current track has been playing for less than eight seconds. If pressed when the current track has been playing for more than eight seconds, it will go to the beginning of the current track. TRACK and the track number will appear on the display. If you hold this pushbutton or press it more than once, the player will continue moving back through the disc.

2 NEXT: Press this pushbutton to go to the next track. TRACK and the track number will appear on the display. If you hold this pushbutton or press it more than once, the player will continue moving forward through the disc.

3 REV (Reverse): Press and hold this pushbutton to reverse quickly within a track. Press and hold this pushbutton for less than two seconds to reverse at six times the normal playing speed. Press and hold it for more than two seconds to reverse at 17 times the normal playing speed. Release it to play the passage. The display will show ET and the elapsed time.

4 FWD (Forward): Press and hold this pushbutton to advance quickly within a track. Press and hold this pushbutton for less than two seconds to advance at six times the normal playing speed. Press and hold it for more than two seconds to advance at 17 times the normal playing speed. Release it to play the passage. The display will show ET and the elapsed time.

6 RDM (Random): Press this pushbutton to hear the tracks in random, rather than sequential, order. RDM ON will appear on the display. RDM T and the track number will appear on the display when each track starts to play. Press this pushbutton again to turn off random play. RDM OFF will appear on the display.

◀ SEEK ▶ : Press the left arrow to go to the start of the current or to the previous track. Press the right arrow to go to the start of the next track. If either arrow is held or pressed more then once, the player will continue moving backward or forward through the CD.

◀ SCAN ▶ : To scan the disc, press and hold either SCAN arrow for more than two seconds until SCAN appears on the display and you hear a beep. Use this feature to listen to 10 seconds of each track of the disc. Press either SCAN arrow again, to stop scanning.

DISP (Display): Press this knob to see how long the current track has been playing. ET and the elapsed time will appear on the display. To change the default on the display (track or elapsed time), push the knob until you see the display you want, then hold the knob for two seconds. The radio will produce one beep and selected display will now be the default.

BAND: Press this button to listen to the radio when a CD is playing. The CD will stop but remain in the player.

TAPE DISC: Press this button to play a tape when listening to the radio. Press this button to switch between the tape and compact disc if both are loaded. The inactive tape or CD will remain safely inside the radio for future listening.

⏏ **(Eject):** Press this button to stop a CD when it is playing or to eject a CD when it is not playing. Eject may be activated with either the ignition or radio off. CDs may be loaded with the radio and ignition off if this button is pressed first.

Compact Disc Messages

If the disc comes out, it could be for one of the following reasons:

- You're driving on a very rough road. When the road becomes smoother the disc should play.
- It's very hot. When the temperature returns to normal, the disc should play.
- The disc is dirty, scratched, wet or upside down.
- The air is very humid. If so, wait about an hour and try again.

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 can't be corrected, contact your dealer.

Radio with Six-Disc CD

Playing the Radio

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

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

AUTO VOL (Automatic Volume): Your system has a feature called automatic volume. With this feature, your audio system adjusts automatically to make up for road and wind noise as you drive.

Set the volume at the desired level. Press this button to select MIN, MED or MAX. Each higher setting will allow for more volume compensation at faster vehicle speeds. Then, as you drive, automatic volume increases the volume, as necessary, to overcome noise at any speed. The volume level should always sound the same to you as you drive. If you don't want to use automatic volume, select OFF.

RCL (Recall): Push this knob to switch the display between the radio station frequency and the time. Pushing this knob with the ignition off will display the time.

To change the default on the display, push this knob until you see the display you want, then hold the knob until the display flashes. The selected display will now be the default.

Finding a Station

BAND: Press this button to switch between AM, FM1, FM2. The display will show your 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 seek only to stations that are in the selected band and only to those with a strong signal.

⊲ **SCAN** ⊳ : Press and hold either SCAN arrow for two seconds until SC appears on the display and you hear a beep. The radio will go to a station, play for a few seconds, then go on to the next station. Press either SCAN arrow again to stop scanning.

To scan preset stations, press and hold either SCAN arrow for more than four seconds. PRESET SCAN will appear on the display. You will hear a double beep. The radio will go to a preset station stored on your pushbuttons, play for a few seconds, then go on to the next preset station. Press either SCAN arrow again to stop scanning presets.

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

Setting Preset Stations

The six numbered pushbuttons let you return to your favorite stations. You can set up to 18 stations (six AM, six FM1 and six FM2), by performing the following steps:

1. Turn the radio on.
2. Press BAND to select AM, FM1 or FM2.
3. Tune in the desired station.
4. Press AUTO EQ to select the equalization.
5. Press and hold one of the six numbered pushbuttons until you hear a beep. Whenever you press that numbered pushbutton, the station you set will return and the equalization that you selected will also be automatically selected for that pushbutton.
6. Repeat the steps for each pushbutton.

Setting the Tone (Bass/Treble)

AUDIO: Press and release the AUDIO knob until BASS, MID, or TREB appears on the display. Turn the knob to increase or to decrease. The display will show the bass, midrange, or treble level. If a station is weak or noisy, you may want to decrease the treble.

To adjust the bass, midrange, and treble to the middle position, push the AUDIO knob. The radio will produce one beep and adjust the display level to the middle position.

To adjust all tone and speaker controls to the middle position, push and hold the AUDIO knob when no tone or speaker control is displayed. The radio will produce one beep and display CENTERED.

AUTO EQ (Automatic Equalization): Press this button to choose bass and treble equalization settings designed for country/western, jazz, talk, pop, rock and classical stations.

To return the bass and treble to the custom mode, press and release the AUDIO knob, until CUSTOM appears.

Adjusting the Speakers (Balance/Fade)

AUDIO: To adjust the balance to the right and the left speakers, push and release the AUDIO knob until BAL appears on the display. Turn the knob to move the sound toward the right or the left speakers.

To adjust the fade to the front and the rear speakers, push and release the AUDIO knob until FADE appears on the display. Turn the knob to move the sound toward the front or the rear speakers.

To adjust the balance and fade to the middle position, push and hold the AUDIO knob. The radio will produce one beep and adjust the display level to the middle position.

To adjust all tone and speaker controls to the middle position, push and hold the AUDIO knob when no tone or speaker control is displayed. The radio will produce one beep and display CENTERED.

Using RDS

Your audio system is equipped with a Radio Data System (RDS). RDS features are available for use only on FM stations that broadcast RDS information.

- Seek to stations broadcasting the selected type of programming,
- receive announcements concerning local and national emergencies,
- display messages from radio stations, and
- seek to stations with traffic announcements.

This system relies upon receiving specific information from these stations and will only work when the information is available. In rare cases, a radio station may broadcast incorrect information that will cause the radio features to work improperly. If this happens, contact the radio station.

While you are tuned to an RDS station, the station name or the call letters will appear on the display instead of the frequency. RDS stations may also provide the time of day, a program type (PTY) for current programming and the name of the program being broadcast.

Finding a PTY Station

To select and find a desired PTY perform the following:

1. Press the P-TYPE button. P-TYPE and the last selected PTY will be displayed on the screen.
2. Select a category by turning the P-TYPE knob.
3. Once the desired category is displayed, press either SEEK arrow to select the category and take you to the category's first station.
4. If you want to go to another station within that category and the category is displayed, press either SEEK arrow once. If the category is not displayed, press either SEEK arrow twice to display the category and then to go to another station.
5. If PTY times out and is no longer on the display, go back to Step 1.

If both P-TYPE and TRAF are on, the radio will search for stations with the selected PTY and traffic announcements.

To use the PTY interrupt feature, press and hold the P-TYPE button until you hear a beep on the PTY you want to interrupt with. When selected, an asterick will appear beside that PTY on the display. You may select multiple interrupts if desired. When you are listening to a compact disc, the last selected RDS station will interrupt play if that selected program type format is broadcast.

SCAN: You can also scan through the stations within a category by performing the following:

1. Press the P-TYPE button. P-TYPE and the last selected PTY will be displayed on the screen.
2. Select a category by turning the P-TYPE knob.
3. Once the desired category is displayed, press and hold either SCAN arrow, and the radio will begin scanning within your chosen category.
4. Press either SCAN arrow again to stop at a particular station.

BAND (Alternate Frequency): Alternate frequency allows the radio to switch to a stronger station with the same program type. Press and hold BAND for two seconds to turn alternate frequency on. AF ON will appear on the display. The radio may switch to stronger stations. Press and hold BAND again for two seconds to turn alternate frequency off. AF OFF will appear on the display. The radio will not switch to other stations. When you turn the ignition off and then on again, the alternate frequency feature will automatically be turned on.

Setting Preset PTYs

The six numbered pushbuttons let you return to your favorite PTYs. These buttons have factory PTY presets. You can set up to 12 PTYs (six FM1 and six FM2) by performing the following steps:

1. Press BAND to select FM1 or FM2.
2. Press the P-TYPE button. P-TYPE and the last selected PTY will be displayed on the screen.
3. Select a category by turning the P-TYPE knob.
4. Press and hold one of the six numbered pushbuttons until you hear a beep. Whenever you press that numbered pushbutton, the PTY you set will return.
5. Repeat the steps for each pushbutton.

RDS Messages

ALERT!: Alert warns of local or national emergencies. When an alert announcement comes on the current radio station, ALERT! will appear on the display. You will hear the announcement, even if the volume is muted or a compact disc is playing. If the compact disc player is playing, play will stop during the announcement. You will not be able to turn off alert announcements.

ALERT! will not be affected by tests of the emergency broadcast system. This feature is not supported by all RDS stations.

INFO (Information): If the current station has a message, INFO will appear on the display. Press this button to see the message. The message may display the artist and song title, call in phone numbers, etc.

If the whole message is not displayed, parts of it will appear every three seconds. To scroll through the message at your own speed, press the INFO button repeatedly. A new group of words will appear on the display with each press. Once the complete message has been displayed, INFO will disappear from the display until another new message is received. The old message can be displayed by pressing the INFO button until a new message is received or a different station is tuned to.

TRAF (Traffic): TRAF will appear on the display if the tuned station broadcasts traffic announcements. To receive the traffic announcement from the tuned station, press this button. Brackets will be displayed around TRAF and when a traffic announcement comes on the tuned radio station you will hear it.

If the current tuned station does not broadcast traffic announcements, press this button and the radio will seek to a station that does. When the radio finds a station that broadcasts traffic announcements, it will stop. Brackets will be displayed around TRAF and when a traffic announcement comes on the tuned radio station you will hear it. If no station is found, NO TRAFFIC will appear on the display.

Traffic Interrupt Feature: Your radio can interrupt the play of a CD. Press the TRAF button. The radio will seek to a station that broadcasts traffic announcements. When the radio finds a station that broadcasts traffic announcements, it will stop. Brackets around TRAF will appear on the display. When a traffic announcement comes on the station that was found, you will hear it. When the traffic announcement is over, the radio will resume play of the CD. If no station is found, NO TRAFFIC will appear on the display.

Playing a Compact Disc

If an error appears on the display, see "Compact Disc Messages" later in this section.

LOAD CD ⏏: Press the LOAD side of this button to load CDs into the compact disc player. This compact disc player will hold up to six discs.

To insert one disc, do the following:

1. Turn the ignition on.
2. Press and release the LOAD side of the LOAD CD button.
3. Wait for the light, located to the right of the slot, to turn green.
4. Load a disc. Insert the disc partway into the slot, label side up. The player will pull the disc in.

When a disc is inserted, the CD symbol will be displayed. If you select an equalization setting for your disc, it will be activated each time you play a disc.

If the radio is on or off, the disc will begin to play automatically.

To insert multiple discs, do the following:

1. Turn the ignition on.
2. Press and hold the LOAD side of the LOAD CD button for two seconds.

   You will hear a beep and the light, located to the right of the slot, will begin to flash and LOAD ALL will appear on the display.
3. Once the light stops flashing and turns green, load a disc. Insert the disc partway into the slot, label side up. The player will pull the disc in.

   Once the disc is loaded, the light will begin flashing again. Once the light stops flashing and turns green you can load another disc. The disc player takes up to six discs. Do not try to load more than six.

To load more than one disc but less than six, complete Steps 1 through 3. When you have finished loading discs, with the radio on or off, press the LOAD side of the LOAD CD button to cancel the loading function. The radio will begin to play the last CD loaded.

When a disc is inserted, the CD symbol will be displayed. If more than one disc has been loaded, a number for each disc will be displayed. If you select an equalization setting for your disc, it will be activated each time you play a disc.

If the radio is on or off, the last disc loaded will begin to play automatically.

As each new track starts to play, the track number will appear on the display.

Playing a Specific Loaded Compact Disc

For every CD loaded, a number will appear on the radio display. To play a specific CD, first press the CD AUX button to start playing a CD. Then press the numbered pushbutton that corresponds to the CD you want to play. A small bar will appear under the CD number that is playing, and the track number will appear.

If an error appears on the radio display, see "Compact Disc Messages" later in this section.

LOAD CD ⏏ (Eject): Pressing the CD eject side of this button will eject a single disc or multiple discs. To eject the disc that is currently playing, press and release this button. To eject multiple discs, press and hold this button for two seconds. You will hear a beep and the light will flash to let you know when a disc is being ejected.

REMOVE CD will be displayed. You can now remove the disc. If the disc is not removed, after 25 seconds, the disc will be automatically pulled back into the receiver. If you try to push the disc back into the receiver, before the 25 second time period is complete, the receiver will sense an error and will try to eject the disc several times before stopping.

Do not repeatedly press the CD eject side of the LOAD CD eject button to eject a disc after you have tried to push it in manually. The receivers 25-second eject timer will reset at each press of eject, which will cause the receiver to not eject the disc until the 25-second time period has elapsed.

Once the player stops and the disc is ejected, remove the disc. After removing the disc, press the PWR knob off and then on again. This will clear the disc-sensing feature and enable discs to be loaded into the player again.

≪ REV (Reverse): Press and hold this button to reverse quickly within a track. You will hear sound at a reduced volume. Release it to play the passage. The display will show elapsed time.

FWD ≫ (Forward): Press and hold this button to advance quickly within a track. You will hear sound at a reduced volume. Release it to play the passage. The display will show elapsed time.

RPT (Repeat): With repeat, you can repeat one track or an entire disc. To use repeat, do the following:

- To repeat the track you are listening to, press and release the RPT button. RPT will appear on the display. Press RPT again to turn it off.
- To repeat the disc you are listening to, press and hold the RPT button for two seconds. RPT will appear on the display. Press RPT again to turn it off.

RDM (Random): With random, you can listen to the tracks in random, rather than sequential, order, on one disc or on all of the discs. To use random, do one of the following:

- To play the tracks on the disc you are listening to in random order, press and hold RDM for more than two seconds. You will hear a beep and RANDOM ONE will appear on the display. Press RDM again to turn it off.
- To play the tracks on all of the discs that are loaded in random order, press and release the RDM button. RANDOM ALL will appear on the display. Press RDM again to turn it off.

|< SEEK >| : Press the left arrow to go to the start of the current track, if more than ten seconds have passed. Press the right arrow to go to the next track. If you press the button more than once, the player will continue moving backward or forward through the disc.

|< SCAN >| : To scan one disc, press and hold either SCAN arrow for more than two seconds until SCAN appears on the display and you hear a beep. Use this feature to listen to 10 seconds of each track of the currently selected disc. SCAN will appear on the display. Press either SCAN arrow again, to stop scanning.

To scan all loaded discs, press and hold either SCAN arrow for more than four seconds until DISC SCAN appears on the display and you hear a beep. Use this feature to listen to 10 seconds of the first tracks of each disc loaded. Press either SCAN arrow again, to stop scanning.

RCL (Recall): Push this knob to see how long the current track has been playing. To change the default on the display (track or elapsed time), push the knob until you see the display you want, then hold the knob until the display flashes. The selected display will now be the default.

BAND: Press this button to play the radio when a disc(s) is in the player.

Using Song List Mode

The integrated six-disc CD changer has a feature called song list. This feature is capable of saving 20 track selections.

To save tracks into the song list feature, perform the following steps:

1. Turn the disc player on and load it with at least one disc. See "LOAD CD" listed previously in this section for more information.
2. Check to see that the disc changer is not in song list mode. S-LIST should not appear in the display. If S-LIST is present, press the SONG LIST button to turn it off.
3. Select the desired disc by pressing the numbered pushbutton and then use the SEEK SCAN right arrow button to locate the track that you want to save. The track will begin to play.
4. Press and hold the SONG LIST button for two or more seconds to save the track into memory. When SONG LIST is pressed a beep will be heard immediately. After two seconds of pressing SONG LIST continuously, two beeps will sound to confirm that the track has been saved.
5. Repeat Steps 3 and 4 for saving other selections.

If you attempt to save more than 20 selections, S-LIST FULL will appear on the display.

To play the song list, press the SONG LIST button. One beep will be heard and S-LIST will appear on the display. The recorded tracks will begin to play in the order that they were saved.

You may seek through the song list by using the SEEK SCAN arrows. Seeking past the last saved track will return you to the first saved track.

To delete tracks from the song list, perform the following steps:

1. Turn the disc player on.
2. Press the SONG LIST button to turn song list on. S-LIST will appear on the display.
3. Press the SEEK SCAN arrows to select the desired track to be deleted.
4. Press and hold the SONG LIST button for two seconds. When pressing SONG LIST, one beep will be heard immediately. After two seconds of pressing the SONG LIST button continuously, two beeps will be heard to confirm that the track has been deleted.

After a track has been deleted, the remaining tracks are moved up the list. When another track is added to the song list, the track will be added to the end of the list.

To delete the entire song list, perform the following steps:

1. Turn the disc player on.
2. Press the SONG LIST button to turn song list on. S-LIST will appear on the display.
3. Press and hold the SONG LIST button for more than four seconds. A beep will be heard, followed by two beeps after two seconds and a final beep will be heard after four seconds. S-LIST EMPTY will appear on the display indicating that the song list has been deleted.

If a disc is ejected, and the song list contains saved tracks from that disc, those tracks are automatically deleted from the song list. Any tracks saved to the song list again are added to the bottom of the list.

To end song list mode, press the SONG LIST button. One beep will be heard and S-LIST will be removed from the display.

Compact Disc Messages

CHECK CD: If this message appears on the radio display, it could be due to one of the following reasons:

- You're driving on a very rough road. When the road becomes smoother, the disc should play.
- The disc is dirty, scratched, wet or upside down.
- The air is very humid. If so, wait about an hour and try again.

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 can't be corrected, contact your dealer. If your 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 and control any of the music sources: radio, cassette tapes and CDs. However, the rear seat passengers can only control the music sources that the front seat passengers are not listening to. For example, rear seat passengers may listen to a cassette tape or 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. Be aware that 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 play the same remote source.

Primary Radio Controls

The following function is controlled by the knob on the main radio:

PWR (Power): Push this knob twice to turn RSA off.

Rear Seat Radio Controls

The following functions are controlled by the RSA system buttons:

PWR (Power): Press this button to turn RSA on or off. The rear speakers will be muted when the RSA power is turned on. You may operate the RSA functions even when the main radio is off.

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

AM FM: Press this button to switch between AM, FM1 and FM2. If the front passengers are already listening to the radio, the RSA controller will not switch between the bands and cannot change the frequency. Press this button to play a cassette tape or a compact disc when listening to the radio. The inactive tape or CD will remain safely inside the radio for future listening.

△ SEEK ▽: While listening to the radio, press the up or the down arrow to tune to the next or the previous station and stay there. The sound will mute while seeking. The SEEK button is inactive if the front radio is in use.

While listening to a cassette tape, press the up or the down arrow to hear the next or the previous selection. The SEEK button is inactive if the tape mode on the front radio is in use.

While listening to a CD, press the up arrow to hear the next track on the CD. Press the down arrow to go back to the start of the current track (if more than eight seconds have played). The SEEK button is inactive if the CD mode on the front radio is in use.

To scan stations, press and hold one of the SEEK arrows until the radio goes into scan mode. The radio will scan to a station, play for a few seconds, then go on to the next station. Press SEEK again to stop scanning. The scan function is inactive if front radio is in use.

P.SET PROG (Preset Program): The front passengers must be listening to something different for each of these functions to work:

- Press this button to scan through the preset radio stations set on the pushbuttons on the main radio. The radio will go to a preset station stored on your pushbuttons, play for a few seconds, then go on to the next preset station. Press this button again to stop scanning presets.
- When a cassette tape is playing, press this button to go to the other side of the tape.
- When a CD is playing, press this button to select a disc.

TAPE CD: Press this button to switch between playing a cassette tape or a CD when listening to the radio. The inactive tape or compact disc will remain safely inside the radio for future listening.

Theft-Deterrent Feature (Non-RDS Radios)

THEFTLOCK® is designed to discourage theft of your radio. The feature works automatically by learning a portion of the Vehicle Identification Number (VIN). If the radio is moved to a different vehicle, it will not operate and LOC will be displayed.

With THEFTLOCK® activated, your radio will not operate if stolen.

Theft-Deterrent Feature (RDS Radios)

THEFTLOCK® is designed to discourage theft of your radio. The feature works automatically by learning a portion of the Vehicle Identification Number (VIN). If the radio is moved to a different vehicle, it will not operate and LOCKED will be displayed.

When the radio and vehicle are turned off, the blinking red light indicates that THEFTLOCK® is armed.

With THEFTLOCK® activated, your radio will not operate if stolen.

Understanding 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 if you ever get it.

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 Cassette Tape Player

A tape player that is not cleaned regularly can cause reduced sound quality, ruined cassettes or a damaged mechanism. Cassette tapes should be stored in their cases away from contaminants, direct sunlight and extreme heat. If they aren't, they may not operate properly or may cause failure of the tape player.

Your tape player should be cleaned regularly after every 50 hours of use. Your radio may display CLEAN to indicate that you have used your tape player for 50 hours without resetting the tape clean timer. If this message appears on the display, your cassette tape player needs to be cleaned. It will still play tapes, but you should clean it as soon as possible to prevent damage to your tapes and player. If you notice a reduction in sound quality, try a known good cassette to see if the tape or the tape player is at fault. If this other cassette has no improvement in sound quality, clean the tape player.

For best results, use a scrubbing action, non-abrasive cleaning cassette with pads which scrub the tape head as the hubs of the cleaner cassette turn. The recommended cleaning cassette is available through your dealership.

When cleaning the cassette tape player with the recommended non-abrasive cleaning cassette, it is possible that the cassette may eject, because the cut tape detection feature on your radio may recognize it as a broken tape, in error. To prevent the cleaning cassette from being ejected, use the following steps:

1. Turn the ignition on.
2. Turn the radio off.
3. Press and hold the TAPE DISC button for five seconds. READY will appear on the display and the cassette symbol will flash for five seconds.
4. Insert the scrubbing action cleaning cassette.
5. Eject the cleaning cassette after the manufacturer's recommended cleaning time.

When the cleaning cassette has been ejected, the cut tape detection feature is active again.

You may also choose a non-scrubbing action, wet-type cleaner which uses a cassette with a fabric belt to clean the tape head. This type of cleaning cassette will not eject on its own. A non-scrubbing action cleaner may not clean as thoroughly as the scrubbing type cleaner. The use of a non-scrubbing action, dry-type cleaning cassette is not recommended.

After you clean the player, press and hold the eject button for five seconds to reset the CLEAN indicator. The radio will display --- or CLEANED to show the indicator was reset.

Cassettes are subject to wear and the sound quality may degrade over time. Always make sure the cassette tape is in good condition before you have your tape player serviced.

Care of Your CDs

Handle discs carefully. Store them in their original cases or other protective cases and away from direct sunlight and dust. If the surface of a disc 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 discs. Pick up discs 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 cleaner discs 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, you can straighten it out by hand. If the mast is badly bent, as it might be by vandals, you should replace it.

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

Chime Level Adjustment

The radio is the vehicle chime producer. The chime is produced from the driver's side front door speakers. To change the volume level, press and hold pushbutton 6 with the ignition on and the radio power off. The chime volume level will change from the normal level to loud, and LOUD will be displayed on the radio. To change back to the default or normal setting, press and hold pushbutton 6 again. The chime level will change from the loud level to normal, and NORMAL will be displayed. Each time the chime volume is changed, three chimes will sound to indicate the change. Removing the radio and not replacing it with a factory radio or chime module will disable vehicle chimes.

Section 4 Driving Your Vehicle

Your Driving, the Road, and Your Vehicle 4-2
Defensive Driving 4-2
Drunken Driving 4-2
Control of a Vehicle 4-5
Braking 4-6
Locking Rear Axle 4-8
Steering 4-9
Off-Road Recovery 4-11
Passing 4-11
Loss of Control 4-13
Driving at Night 4-14
Driving in Rain and on Wet Roads 4-15
City Driving 4-18
Freeway Driving 4-19
Before Leaving on a Long Trip 4-20
Highway Hypnosis 4-21
Hill and Mountain Roads 4-22
Winter Driving 4-24
If You Are Stuck: In Sand, Mud, Ice or Snow ...4-28
Towing 4-29
Towing Your Vehicle 4-29
Recreational Vehicle Towing 4-29
Loading Your Vehicle 4-30
Towing a Trailer 4-32

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 1-9.*

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's 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's 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.

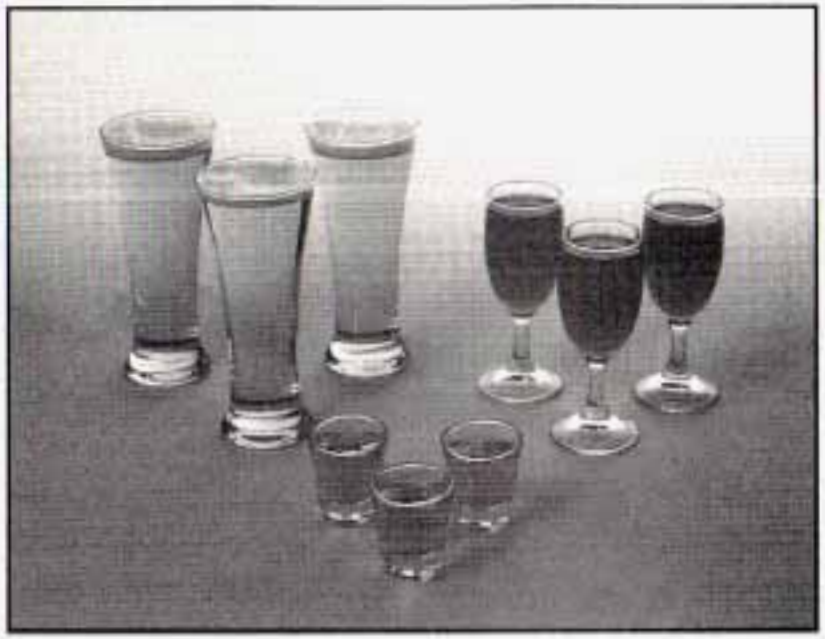
Many adults — by some estimates, nearly half the adult population — choose never to drink alcohol, so they never drive after drinking. For persons under 21, it's against the law in every U.S. state to drink alcohol. There are good medical, psychological and developmental reasons for these laws.

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's 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 a liquor like whiskey, gin or vodka.



It's 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 when each has the same number of drinks.

The law in an increasing number of 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've 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'll be careful" isn't the right answer. What if there's 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.

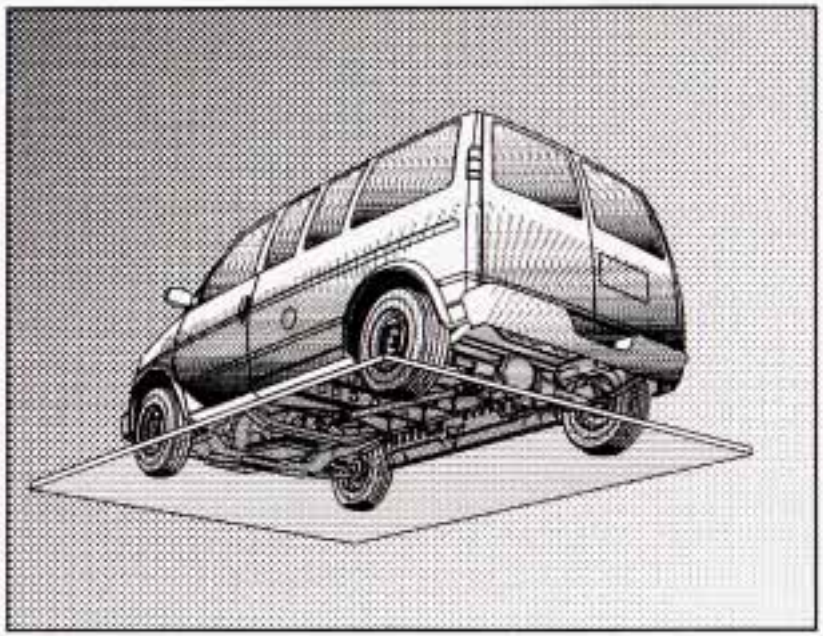
There's something else about drinking and driving that many people don't know. Medical research shows that alcohol in a person's system can make crash injuries worse, especially injuries to the brain, spinal cord or heart. This means that when anyone who has been drinking — driver or passenger — is in 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 judgement 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 don't drink and drive or ride with a driver who has been drinking. Ride home in a cab; or if you're 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're driving on snow or ice, it's 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's *perception time*. Then you have to bring up your foot and do it. That's *reaction time*.

Average *reaction time* is about 3/4 of a second. But that's 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 3/4 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's 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.

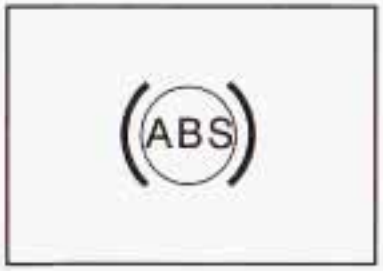
Avoid needless heavy braking. Some people drive in spurts — heavy acceleration followed by heavy braking — rather than keeping pace with traffic. This is a mistake. Your brakes may not have time to cool between hard stops. Your brakes will wear out much faster if you do a lot of heavy braking. If you 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're driving, brake normally but don't 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.

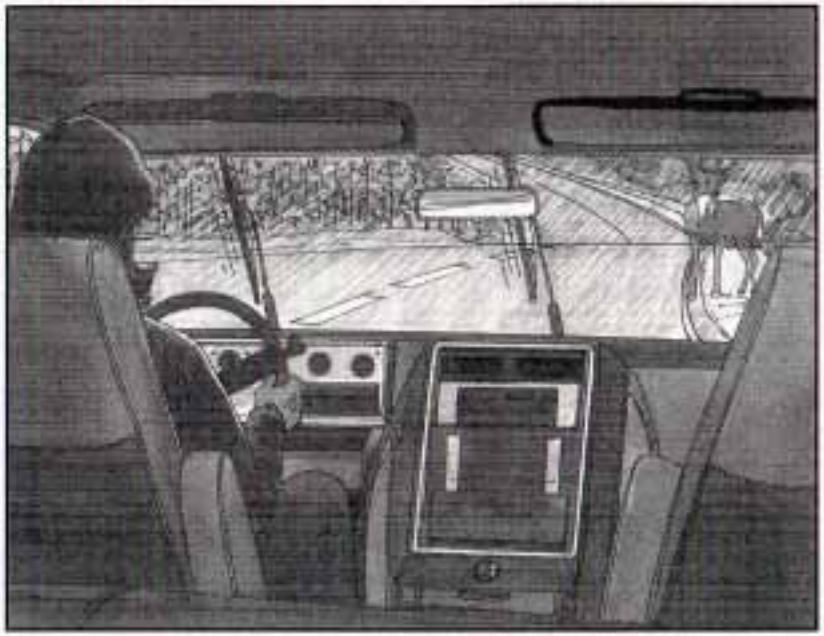
Anti-lock Brake System

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's a problem with the anti-lock brake system, this warning light will stay on. See *Anti-Lock Brake System Warning Light on page 3-33.*



Let's say the road is wet and you're driving safely. Suddenly, an animal jumps out in front of you. You slam on the brakes and continue braking. Here's 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 doesn't 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 won't 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

Don't 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's important to take curves at a reasonable speed.

A lot of the "driver lost control" accidents mentioned on the news happen on curves. Here's 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's no traction, inertia will keep the vehicle going in the same direction. If you've ever tried to steer a vehicle on wet ice, you'll 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're in a curve, speed is the one factor you can control.

Suppose you're 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'll 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 can't; there isn't room. That's the time for evasive action — steering around the problem.

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

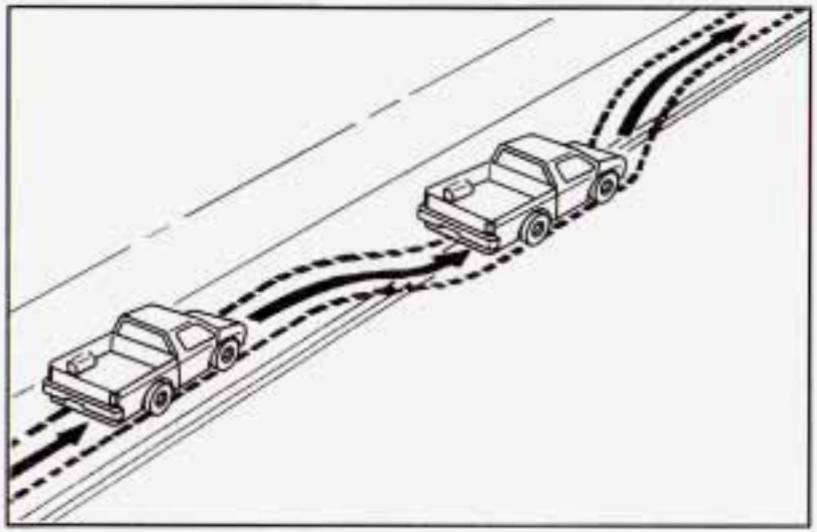
See *Braking on page 4-6*. It is better to remove as much speed as you can from a possible collision. Then steer around the problem, to the left or right depending on the space available.

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're 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's 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're awaiting an opportunity. For one thing, following too closely reduces your area of vision, especially if you're following a larger vehicle. Also, you won't 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 don't 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 isn't 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.
- Don't 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're 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's review what driving experts say about what happens when the three control systems (brakes, steering and acceleration) don't have enough friction where the tires meet the road to do what the driver has asked.

In any emergency, don't 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 aren't 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.

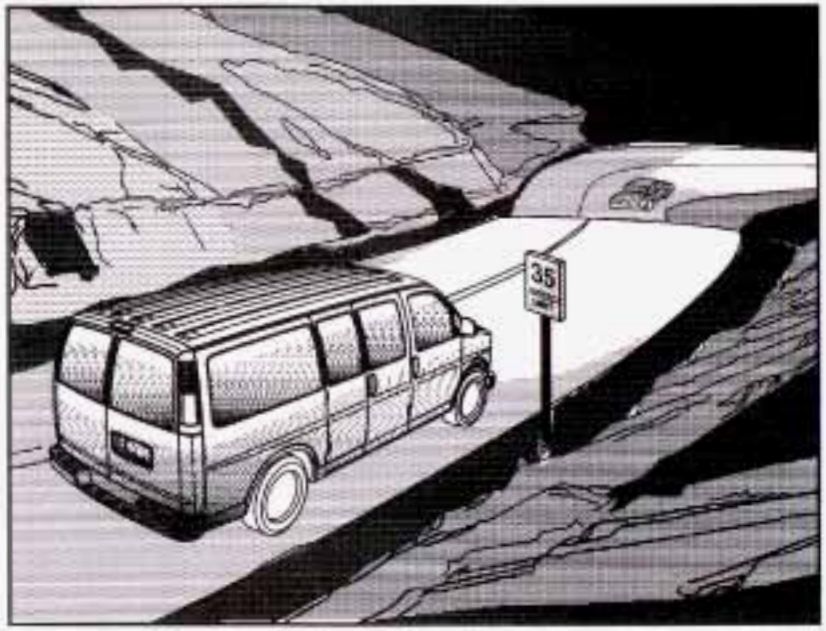
If your vehicle starts to slide, ease your foot off the accelerator pedal and quickly steer the way you want the vehicle to go. If you start steering quickly enough, your vehicle may straighten out. Always be ready for a second skid if it occurs.

Of course, traction is reduced when water, snow, ice, gravel or other material is on the road. For safety, you'll 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.
- Don't drink and drive.
- Adjust your inside rearview mirror to reduce the glare from headlamps behind you.
- Since you can't 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're 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're driving, don't 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 doesn't 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's 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 aren't even aware of it.

Driving in Rain and on Wet Roads

Rain and wet roads can mean driving trouble. On a wet road, you can't stop, accelerate or turn as well because your tire-to-road traction isn't as good as on dry roads. And, if your tires don't have much tread left, you'll get even less traction. It's 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's 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 can't, try to slow down before you hit them.

⚠ CAUTION:

Wet brakes can cause accidents. They won't 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're going fast enough. When your vehicle is hydroplaning, it has little or no contact with the road.

Hydroplaning doesn't 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 isn't 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 can't avoid deep puddles or standing water, drive through them very slowly.**

Driving Through Flowing Water

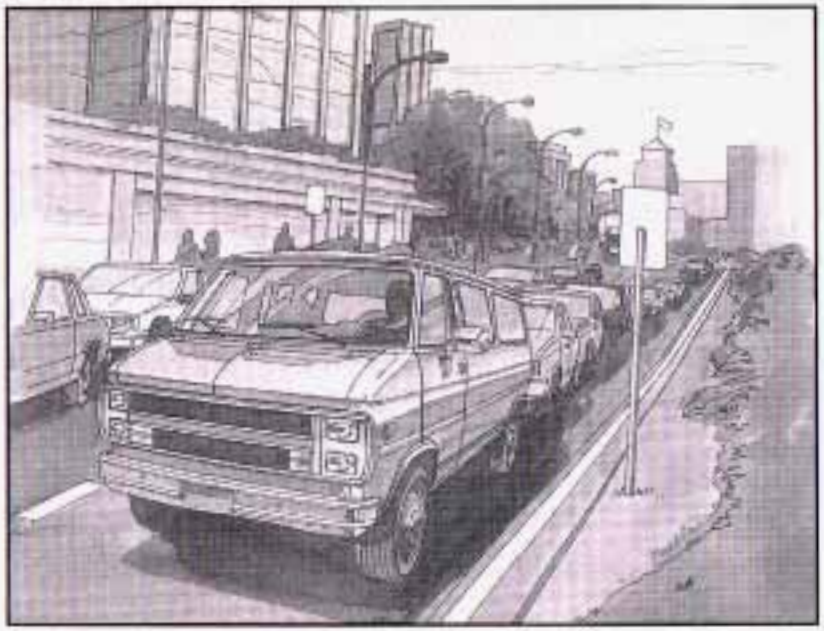
⚠ CAUTION:

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. Don't 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 5-60.*

City Driving

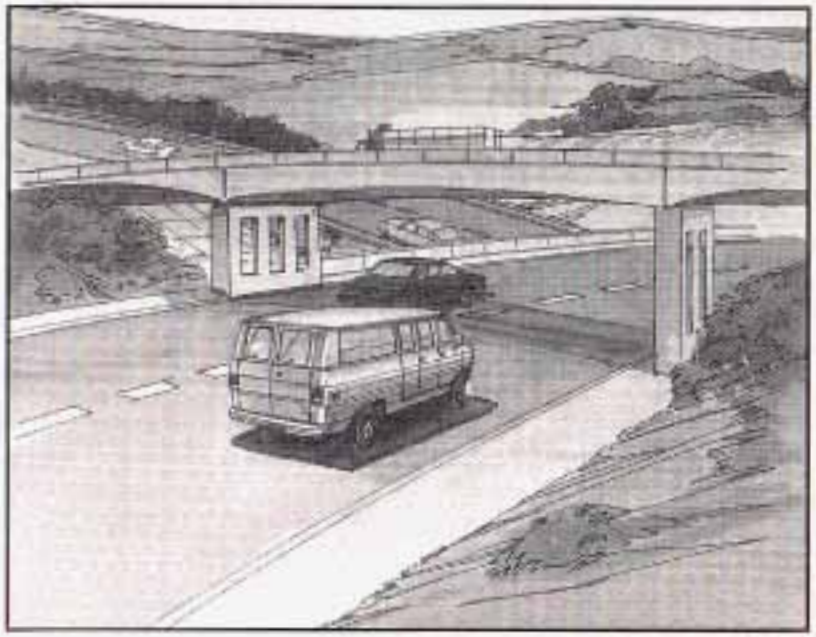


One of the biggest problems with city streets is the amount of traffic on them. You'll want to watch out for what the other drivers are doing and pay attention to traffic signals.

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'll save time and energy. See the next part, "Freeway Driving."
- 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's 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 isn't 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're ready. Try to be well rested. If you must start when you're not fresh — such as after a day's work — don't 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's ready to go. If it needs service, have it done before starting out. Of course, you'll find experienced and able service experts in dealerships all across North America. They'll 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 reservior 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's 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. Don't 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're 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 don't shift down, your brakes could get so hot that they wouldn't 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 wouldn't 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. Don't 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:

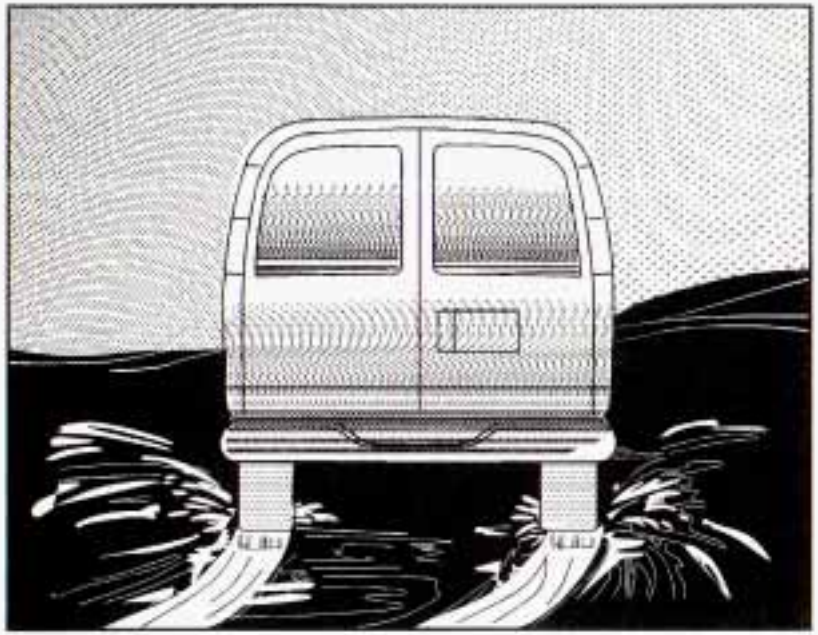
- Have your vehicle in good shape for winter.
- You may want to put winter emergency supplies in your vehicle.

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'll have a lot less traction or "grip" and will need to be very careful.



What's 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's 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.

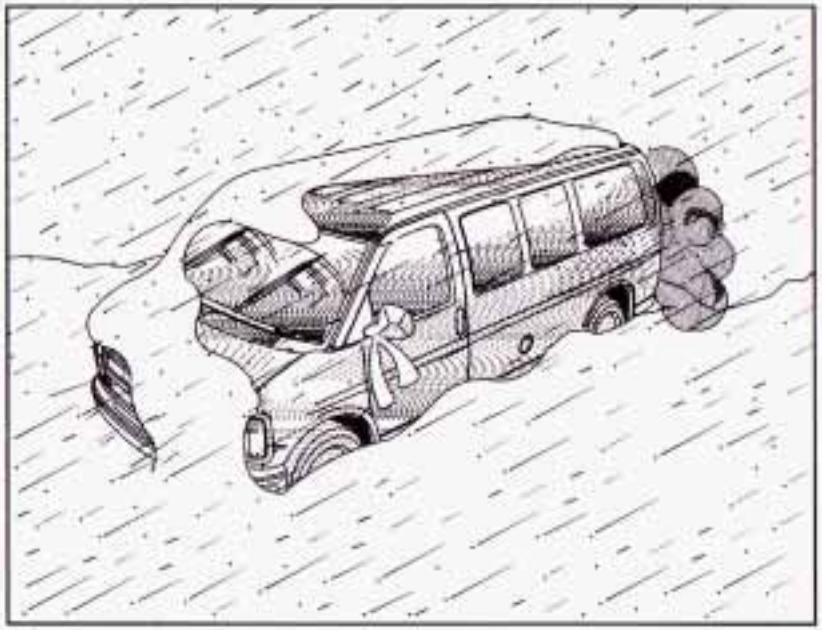
Whatever the condition — smooth ice, packed, blowing or loose snow — drive with caution.

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'll want to begin stopping sooner than you would on dry pavement. See *Braking on page 4-6*.

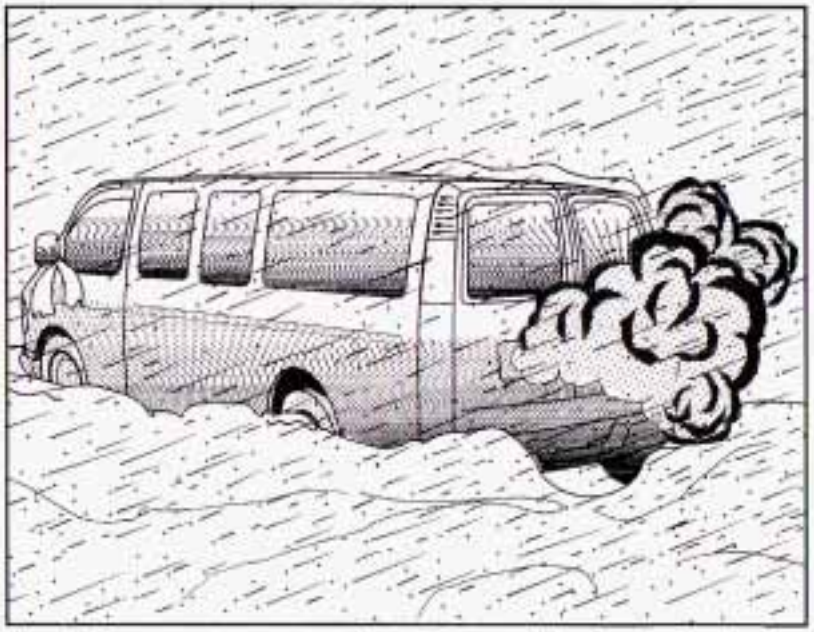
- Allow greater following distance on any slippery road.
- Watch for slippery spots. The road might be fine until you hit a spot that's covered with ice. On an otherwise clear road, ice patches may appear in shaded areas where the sun can't reach: around clumps of trees, behind buildings or under bridges. 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're actually on the ice, and avoid sudden steering maneuvers.

If You're 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've 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 can't 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 doesn't collect there.

Open a window just a little on the side of the vehicle that's 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 (or batteries) charged. You will need a well-charged battery (or batteries) 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 don't want to spin your wheels too fast. The method known as "rocking" can help you get out when you're 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're stuck, spin the wheels as little as possible. Don't 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 information about using tire chains on your vehicle, see *Tire Chains on page 5-69.*

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 doesn't 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" following.

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*.

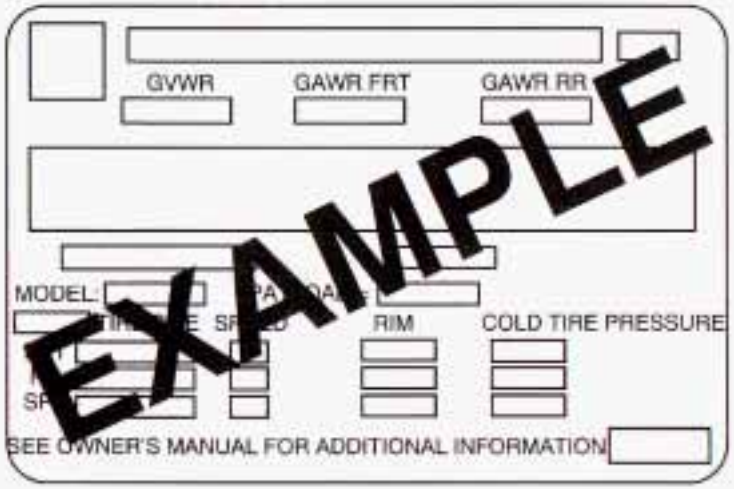
If you want to tow your vehicle behind another vehicle for recreational purposes (such as behind a motorhome), see "Recreational Vehicle Towing" following.

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").

Your vehicle was not designed to be towed with any of its wheels on the ground. If your vehicle must be towed, see "Towing Your Vehicle" earlier in this section.

Loading Your Vehicle



The Certification/Tire label is found on the rear edge of the driver's door. The 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 Gross Vehicle Weight Rating (GVWR). The GVWR includes the weight of the vehicle, all occupants, fuel and cargo.

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 GVWR, or either the maximum front or rear 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.

⚠ 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.**
- **Don't leave an unsecured child restraint in your vehicle.**
- **When you carry something inside the vehicle, secure it whenever you can.**
- **Don't leave a seat folded down unless you need to.**

Payload

The Payload Capacity is shown on the Certification/Tire label. This is the maximum load capacity that your vehicle can carry. Be sure to include the weight of the people inside as part of your load. If you added any accessories or equipment after your vehicle left the factory, remember to subtract the weight of these things from the payload. Your dealer can help you with this.

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 a Trailer

⚠ CAUTION:

If you don't 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 not covered by your warranty. To pull a trailer correctly, follow the advice in this part, and see your dealer for important information about towing a trailer with your vehicle. Additional rear axle maintenance is required for a vehicle used to tow a trailer. See "Scheduled Maintenance Services" in the Index.**

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, 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 if your trailer will weigh 4,000 lbs (1 800 kg) or less. You should always use a sway control if your trailer will weigh more than 4,000 lbs (1 800 kg). You can ask a hitch dealer about sway controls.
- 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.
- 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).

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 a feature that assists when pulling a heavy trailer or a large or heavy load. The purpose of the tow/haul mode is to:

- Reduce the frequency and improve the predictability of transmission shifts when pulling a heavy trailer or a large or heavy load.
- Provide the same solid shift feel when pulling a heavy trailer or a large or heavy load as when the vehicle is unloaded.
- Improve control of vehicle speed while requiring less throttle pedal activity when pulling a heavy trailer or a large or heavy load.

Your vehicle is equipped with a button on the instrument panel, to the right of the steering wheel, which when pressed enables tow/haul.

TOW / HAUL

When the button is pressed, this light on the instrument panel will illuminate to indicate that tow/haul has been selected.

Tow/haul may be turned off by pressing the button again, at which time the indicator light on the instrument panel will turn off. The vehicle will automatically turn off tow/haul every time it is started

Tow/haul is designed to be most effective when the vehicle and trailer combined weight is at least 75% of the vehicle's Gross Combined Weight Rating (GCWR). Tow/haul is most useful under the following driving conditions:

- When pulling a heavy trailer or a large or heavy load through rolling terrain.
- When pulling a heavy trailer or a large or heavy load in stop and go traffic.
- When pulling a heavy trailer or a large or heavy load in busy parking lots where improved low speed control of the vehicle is desired.

Operating the vehicle in tow/haul when lightly loaded or with no trailer at all will not cause damage. However, there is no benefit to the selection of tow/haul when the vehicle is unloaded. Such a selection when unloaded may result in unpleasant engine and transmission driving characteristics and reduced fuel economy. Tow/haul is recommended only when pulling a heavy trailer or a large or heavy load.

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 vehicle model and options.

Vehicle*	Axle Ratio	Maximum Trailer Weight	GCWR
G1500 Cargo Van 2WD*			
4300 V6	3.42	4,400 lbs. (1 998 kg)	9,000 lbs. (4 086 kg)
5300 V8	3.42 3.73	6,400 lbs. (2 906 kg)	12,000 lbs. (5 448 kg)
*Trailer tongue weight should be 10 percent to 15 percent of trailer weight up to 1,000 lbs (454 kg).			

Vehicle*	Axle Ratio	Maximum Trailer Weight	GCWR
H1500 Cargo Van AWD*			
5300 V8	3.42 3.73	6,600 lbs. (2 997 kg)	12,000 lbs. (5 448 kg)
* Tongue weight should be 10 percent to 15 percent of trailer weight up to 1,000 lbs (454 kg).			

Vehicle*	Axle Ratio	Maximum Trailer Weight	GCWR
G1500 Passenger Van 2WD*			
4300 V6	3.42	4,000 lbs. (1 816 kg)	9,000 lbs. (4 086 kg)

Vehicle*	Axle Ratio	Maximum Trailer Weight	GCWR
G1500 Passenger Van 2WD*			
5300 V8	3.42 3.73	6,400 lbs. (2 906 kg)	12,000 lbs. (5 448 kg
* Tongue weight should be 10 percent to 15 percent of trailer weight up to 1,500 lbs (680kg).			

Vehicle*	Axle Ratio	Maximum Trailer Weight	GCWR
H1500 Passenger Van AWD*			
5300 V8	3.42 3.73	6,200 lbs. (2 815 kg)	12,000 lbs. (5 448 kg)
* Tongue weight should be 10 percent to 15 percent of trailer weight up to 1,000 lbs (454 kg).			

Vehicle*	Axle Ratio	Maximum Trailer Weight	GCWR
G2500 Cargo Van 2WD*			
4300 V6	3.73	4,700 lbs. (2 1234 kg)	9,500 lbs. (4 313 kg)
4800 V8	3.73 4.10	6,300 lbs. (2 860 kg) 7,300. (3 314 kg)	11,000 lbs. (4 994 kg) 12,000 lbs. (5 448 kg)
5300 V8	3.73	6,600 lbs. (2 996 kg)	12,000 lbs. (5 448 kg)
6000 V8	3.73 4.10	8,300 lbs. (3 768 kg 10,000 lbs. (4 540 kg	14,000 lbs. (6 356 kg 16,000 lbs. (7 264 kg
* Tongue weight should be 10 percent to 15 percent of trailer weight up to 1,000 lbs (454 kg).			

Vehicle*	Axle Ratio	Maximum Trailer Weight	GCWR
H2500 Cargo Van AWD*			
5300 V8	3.73	6,400 lbs. (2 906 kg)	12,000 lbs. (5 448 kg)
* Tongue weight should be 10 percent to 15 percent of trailer weight up to 1,000 lbs (454 kg).			

Vehicle*	Axle Ratio	Maximum Trailer Weight	GCWR
G2500 Cargo Van 2WD Long Wheelbase			
4300 V6	3.73	4,500 lbs. (2 043 kg)	9,500 lbs. (4 313 kg)
4800 V8	3.73 4.10	6,100 lbs. (2 769 kg) 7,100 lbs. (3 223 kg)	11,000 lbs. (4 994 kg) 12,000 lbs. (5 448 kg)
5300 V8	3.73	6,400 lbs. (2 906 kg)	12,000 lbs. (5 448 kg)
6000 V8	3.73 4.10	8,100 lbs. (3 677 kg) 10,000 lbs. (4 540 kg)	14,000 lbs.(6 538 kg) 16,000 lbs. (7 264 kg)
* Tongue weight should be 10 percent to 15 percent of trailer weight up to 1,500 lbs (680 kg).			

Vehicle*	Axle Ratio	Maximum Trailer Weight	GCWR
G2500 Passenger Van 2WD Short Wheelbase*			
6000 V8	3.73 4.10	7,900 lbs. (3 587 kg) 9,900 lbs. (4 495 kg)	14,000 lbs.(6 538 kg) 16,000 lbs. (7 264 kg)
* Tongue weight should be 10 percent to 15 percent of trailer weight up to 1,000 lbs (454 kg).			

Vehicle*	Axle Ratio	Maximum Trailer Weight	GCWR
G2500 Passenger Van 2WD Long Wheelbase*			
6000 V8	3.73 4.10	7,600 lbs. (3 450 kg) 9,600 lbs. (4 358 kg)	14,000 lbs.(6 356 kg) 16,000 lbs. (7 264 kg)
* Tongue weight should be 10 percent to 15 percent of trailer weight up to 1,000 lbs (454 kg).			

Vehicle*	Axle Ratio	Maximum Trailer Weight	GCWR
G3500 Cargo Van 2WD Short Wheelbase*			
6000 V8	3.73 4.10	8,300 lbs. (3 768 kg) 10,000 lbs. (4 540 kg)	14,000 lbs. (6 356 kg) 16,000 lbs. (7 264 kg
* Tongue weight should be 10 percent to 15 percent of trailer weight up to 1,500 lbs (680 kg).			

Vehicle*	Axle Ratio	Maximum Trailer Weight	GCWR
G3500 Cargo Van 2WD Long Wheelbase*			
6000 V8	3.73 4.10	8,100 lbs. (3 677 kg) 10,000 lbs. (4 540 kg)	14,000 lbs. (6 356 kg) 16,000 lbs. (7 264 kg
* Tongue weight should be 10 percent to 15 percent of trailer weight up to 1,500 lbs (680 kg).			

Vehicle*	Axle Ratio	Maximum Trailer Weight	GCWR
G3500 Passenger Van 2WD Short Wheelbase*			
6000 V8	3.73 4.10	7,700 lbs. (3 496 kg) 9,700 lbs. (4 404 kg)	14,000 lbs. (6 356 kg) 16,000 lbs. (7 264 kg
* Tongue weight should be 10 percent to 15 percent of trailer weight up to 1,500 lbs (680 kg).			

Vehicle*	Axle Ratio	Maximum Trailer Weight	GCWR
G3500 Passenger Van 2WD Long Wheelbase*			
6000 V8	3.73 4.10	7,400 lbs. (3 360 kg) 9,400 lbs. (4 268 kg)	14,000 lbs. (6 356 kg) 16,000 lbs. (7 264 kg
* Tongue weight should be 10 percent to 15 percent of trailer weight up to 1,500 lbs (680 kg).			

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

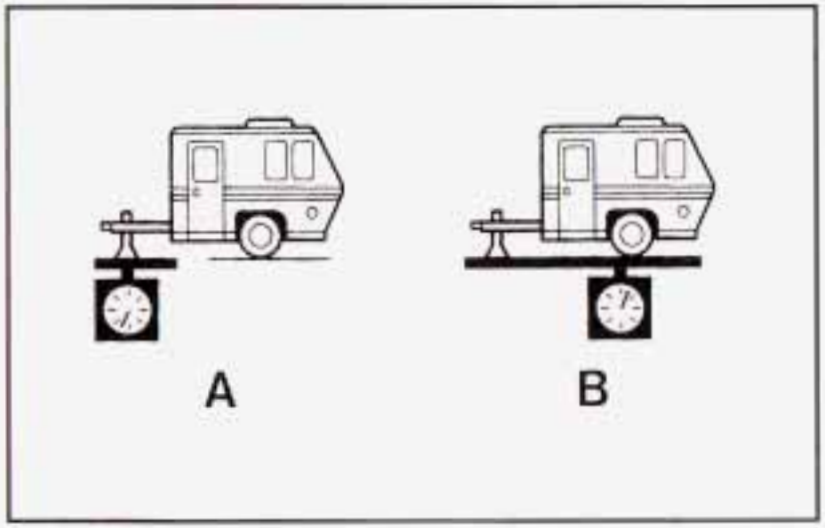
You can ask your dealer for our trailering information or advice, or you can write us at the address listed in your Warranty and Owner Assistance Information Booklet.

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. 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 4-30* about your vehicle's maximum load capacity.



If you're using a weight-carrying or a weight-distributing hitch, the trailer tongue weight (A) should be 10 percent to 15 percent of the total loaded trailer weight (B). Do not exceed the maximum allowable tongue weight for your vehicle.

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 label at the rear edge of the driver's door or see *Loading Your Vehicle on page 4-30*. Then be sure you don't go over the GVW limit for your vehicle, including the weight of the trailer tongue.

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. Here are some rules to follow:

- The bumpers on your vehicle are not intended for hitches. Do not attach rental hitches or other bumper-type hitches to them. Use only a frame-mounted hitch that does not attach to the bumper. Do not use a ball hitch, because it could pull the bumper loose.
- If you'll be pulling a trailer that, when loaded, will weigh more than 4,000 lbs (1 800 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.
- 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 by the factory-installed hitch, 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. Dirt and water can, too.

Safety Chains

You should always attach chains between your vehicle and your trailer. Cross the safety chains under the tongue of the trailer 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 double-walled steel 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't see or smell CO. It can cause unconsciousness or death. See "Engine Exhaust" in the Index. 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 Controls" 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 and a heavy-duty turn signal flasher (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.

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 automatic 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. Then turn your wheels into the curb if facing downhill or into traffic if facing uphill.
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 then 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

The optional heavy-duty trailer wiring package includes a seven-wire harness assembly at the rear of the vehicle and a four-wire harness assembly under the left hand side of the instrument panel. The seven-wire harness assembly is taped together and located in a frame pocket at the driver side rear left corner of the frame. The seven-wire harness includes a 30-amp feed wire. Both harnesses come without connectors and should be wired by a qualified electrical technician. The technician can use the following color code chart when connecting the wiring harness to your trailer and trailer brake controller.

Seven-Wire Harness

- Light Green: Back-up lamps
- Brown: Parking lamps
- Yellow: Left stoplamp and turn signal
- Dark Green: Right stoplamp and turn signal
- Dark Blue: Use for electric trailer brakes
- Orange: Trailer accessory
- White (heavy gage): Ground wire

Four-Wire Harness (Trailer Brake Controller)

- Black: Ground
- Red/White Stripe: Fused Battery
- Dark Blue: Trailer Brake Feed
- Light Blue: Fused Stop/CHMSL

Section 5 Service and Appearance Care

Service 5-3
Doing Your Own Service Work 5-3
Adding Equipment to the Outside of Your Vehicle 5-4
Fuel 5-5
Gasoline Octane 5-5
Gasoline Specifications 5-5
California Fuel 5-6
Additives 5-6
Fuels in Foreign Countries 5-6
Filling Your Tank 5-7
Filling a Portable Fuel Container 5-8
Checking Things Under the Hood 5-9
Hood Release 5-9
Engine Compartment Overview 5-12
Engine Oil 5-14
Engine Air Cleaner/Filter 5-19
Automatic Transmission Fluid 5-21
Engine Coolant 5-24
Radiator Pressure Cap 5-27
Engine Overheating 5-28
Cooling System 5-30
Engine Fan Noise 5-37
Power Steering Fluid 5-37
Windshield Washer Fluid 5-38
Brakes 5-40
Battery 5-43
Jump Starting 5-44
All-Wheel Drive 5-49
Rear Axle 5-50
Front Axle 5-51
Noise Control System 5-52
Tampering with Noise Control System Prohibited 5-52
Bulb Replacement 5-54
Halogen Bulbs 5-54
Headlamps 5-54
Front Turn Signal, Sidemarker and Parking Lamps 5-56
Taillamps 5-56
Replacement Bulbs 5-58

Section 5 Service and Appearance Care

Windshield Wiper Blade Replacement 5-59

Tires 5-60
- Inflation -- Tire Pressure 5-61
- Dual Tire Operation 5-62
- Tire Inspection and Rotation 5-62
- When It Is Time for New Tires 5-64
- Buying New Tires 5-65
- Uniform Tire Quality Grading 5-66
- Wheel Alignment and Tire Balance 5-67
- Wheel Replacement 5-68
- Tire Chains 5-69
- If a Tire Goes Flat 5-69
- Changing a Flat Tire 5-70

Appearance Care 5-86
- Cleaning the Inside of Your Vehicle 5-86
- Care of Safety Belts 5-89
- Weatherstrips 5-89
- Cleaning the Outside of Your Vehicle 5-90
- Sheet Metal Damage 5-92
- Finish Damage 5-93
- Underbody Maintenance 5-93
- Chemical Paint Spotting 5-93
- GM Vehicle Care/Appearance Materials 5-94

Vehicle Identification 5-96
- Vehicle Identification Number (VIN) 5-96
- Service Parts Identification Label 5-96

Electrical System 5-97
- Add-On Electrical Equipment 5-97
- Headlamp Wiring 5-97
- Windshield Wiper Fuses 5-97
- Fuses and Circuit Breakers 5-98

Capacities and Specifications 5-103

Normal Maintenance Replacement Parts 5-106

Service

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

We hope you'll want to keep your GM vehicle all GM. Genuine GM parts have one of these marks:

ACDelco

GENUINE GM Parts

GM Goodwrench

Doing Your Own Service Work

If you want to do some of your own service work, you'll 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 7-11*.

Your vehicle may have an air bag system. If it does, see *Servicing Your Air Bag-Equipped Vehicle on page 1-73* before attempting to do your own service work.

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 6-19.*

⚠ 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 the American Automobile Manufacturers Association and endorsed by the Canadian Vehicle Manufacturers Association for better vehicle performance and engine protection. Gasoline meeting these specifications could provide improved driveability and emission control system performance compared to other gasoline.

Canada Only

In Canada, look for the "Auto Makers' Choice" label on the pump.

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 (see *Malfunction Indicator Lamp on page 3-34*) and your vehicle may fail a smog-check test. 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. You should not have to add anything to your fuel. 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. Don't use fuel containing methanol. It can corrode metal parts in your fuel system and also damage the plastic and rubber parts. That damage wouldn't 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 wouldn't be covered by your warranty.

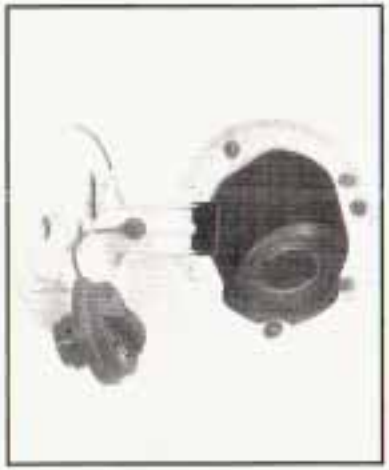
To check the fuel availability, ask an auto club, or contact a major oil company that does business in the country where you'll be driving.

Filling Your Tank

⚠ CAUTION:

Fuel vapor is highly flammable. It burns violently, and that can cause very bad injuries. Don't smoke if you're near fuel or refueling your vehicle. Keep sparks, flames and smoking materials away from fuel.

The fuel cap is located behind a hinged door on the driver's side of your vehicle.



To remove the fuel cap, turn it slowly to the left (counterclockwise). While refueling, place the fuel cap in the holder provided.

⚠ CAUTION:

If you get fuel on yourself 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. Clean fuel from painted surfaces as soon as possible. See *Cleaning the Outside of Your Vehicle on page 5-90*. When filling the tank do not overfill by squeezing in much more fuel after the pump shuts off.

When you put the fuel cap back on, turn it to the right (clockwise) until you hear a clicking sound. Make sure you fully install the cap. 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 3-34*.

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" in the Index.**

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.**
- **Don't smoke while pumping gasoline.**

Checking Things Under the Hood

⚠ 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 this handle inside the vehicle. It is located in front of the driver's side door frame near the floor.

2. Then go to the front of the vehicle and lift up the secondary hood release underneath the middle of the hood.
3. Lift the hood.

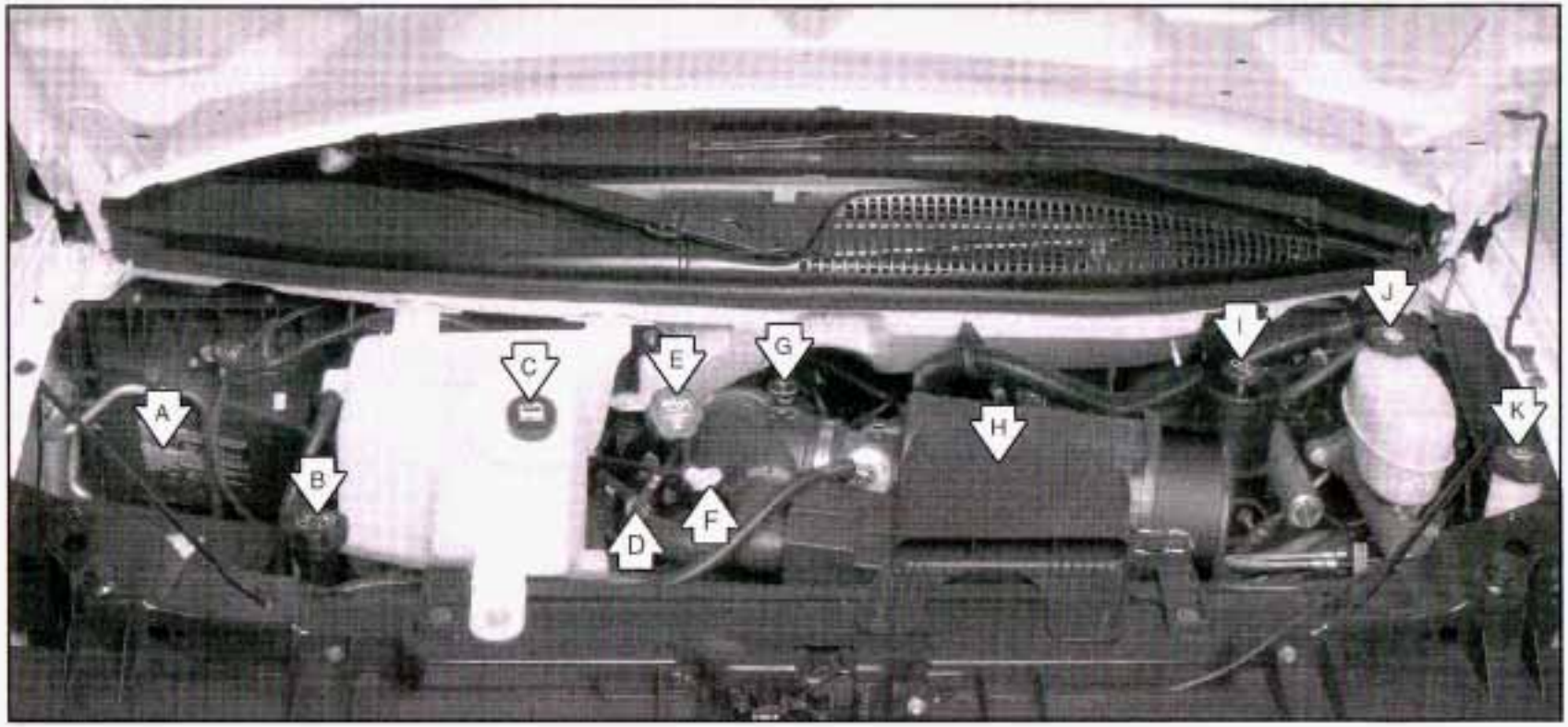
4. Release the hood prop from its retainer and put the hood prop into the slot in the hood hinge on the driver's side.

If your vehicle has an underhood lamp, it will automatically come on and stay on until the hood is closed.

Before closing the hood, be sure all of the filler caps are on properly. Then lift the hood to relieve pressure on the hood prop. Remove the hood prop from the slot in the hood and return the prop to its retainer, then let the hood down and close it firmly.

Engine Compartment Overview

When you lift the hood, you'll see these items:



A. Battery
B. Radiator Pressure Cap
C. Coolant Recovery Tank
D. Transmission Fluid Dipstick
E. Engine Oil Fill
F. Engine Oil Dipstick
G. Air Filter Restriction Indicator
H. Engine Air Cleaner/Filter
I. Power Steering Reservoir
J. Brake Master Cylinder
K. Windshield Washer Fluid

Engine Oil

Checking Engine Oil

It's 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 has a yellow handle and is located near the center of the engine compartment. See *Engine Compartment Overview on page 5-12* for more information on location.

Turn off the engine and give the oil several minutes to drain back into the oil pan. If you don't, the oil dipstick might not show the actual level.

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 ADD mark, then you'll need to add at least one quart of oil. But you must use the right kind. This part explains what kind of oil to use. For engine oil crankcase capacity, see *Capacities and Specifications on page 5-103.*

Notice: **Don't 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.**

The engine oil filler cap is located between the coolant recovery tank and the engine air cleaner/filter. See *Engine Compartment Overview on page 5-12* for more information on location.

Be sure to fill it enough to put the level somewhere in the proper operating range. Push the dipstick all the way back in when you're through.

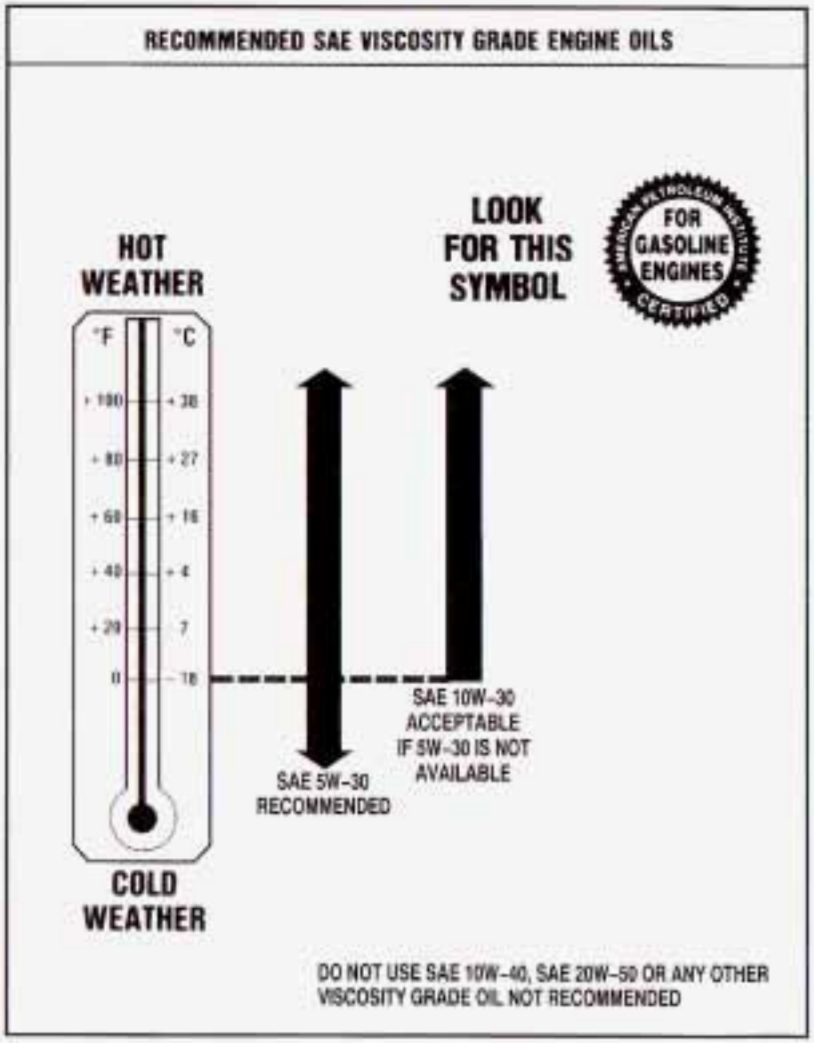
What Kind of Engine Oil to Use

Oils recommended for your vehicle can be identified by looking for the starburst symbol.

This symbol indicates that the oil has been certified by the American Petroleum Institute (API). Do not use any oil which does not carry this starburst symbol.

If you choose to perform the engine oil change service yourself, be sure the oil you use has the starburst symbol on the front of the oil container. If you have your oil changed for you, be sure the oil put into your engine is American Petroleum Institute certified for gasoline engines.

You should also use the proper viscosity oil for your vehicle, as shown in the viscosity chart.



As in the chart shown previously, SAE 5W-30 is the only viscosity grade recommended for your vehicle. You should look for and use only oils which have the API Starburst symbol and which are also identified as SAE 5W-30. If you cannot find such SAE 5W-30 oils, you can use an SAE 10W-30 oil which has the API Starburst symbol, if it's going to be 0°F (–18°C) or above. Do not use other viscosity grade oils, such as SAE 10W–40 or SAE 20W-50 under any conditions.

Notice: **Use only engine oil with 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

Don't add anything to your oil. The recommended oils with the starburst symbol are all you will need for good performance and engine protection.

When to Change Engine Oil (GM Oil Life System)

Your vehicle has a computer system that lets you know when to change the engine oil and filter. This is based on engine revolutions and engine temperature, and not on mileage. Based on driving conditions, the mileage at which an oil change will be indicated can vary considerably. For the oil life system to work properly, you must reset the system every time the oil is changed.

When the system has calculated that oil life has been diminished, it will indicate that an oil change is necessary. A change engine oil light on the instrument panel will come on. Change your oil as soon as possible within the next two times you stop for fuel. It is possible that, if you are driving under the best conditions, the oil life system may not indicate that an oil change is necessary for over a year. However, your engine oil and filter must be changed at least once a year and at this time they system must be reset. It is also important to check your oil regularly and keep it at the proper level.

If the system is ever reset accidentally, you must change your oil at 3,000 miles (5 000 km) since your last oil change. Remember to reset the oil life system whenever the oil is changed.

How to Reset the CHANGE ENGINE OIL Light

The GM Oil Life System calculates when to change your engine oil and filter based on vehicle use. Anytime your oil is changed, reset the system so it can calculate when the next oil change is required. If a situation occurs where you change your oil prior to a change engine oil light being turned on, reset the system.

To reset the change engine oil light, do the following:

1. Turn the ignition key to RUN with the engine off.
2. Fully press and release the accelerator pedal three times within five seconds.
3. If the change engine oil light flashes for five seconds, the system is reset.

If the system does not reset, try the procedure once again. If it still does not reset, see your dealer for service.

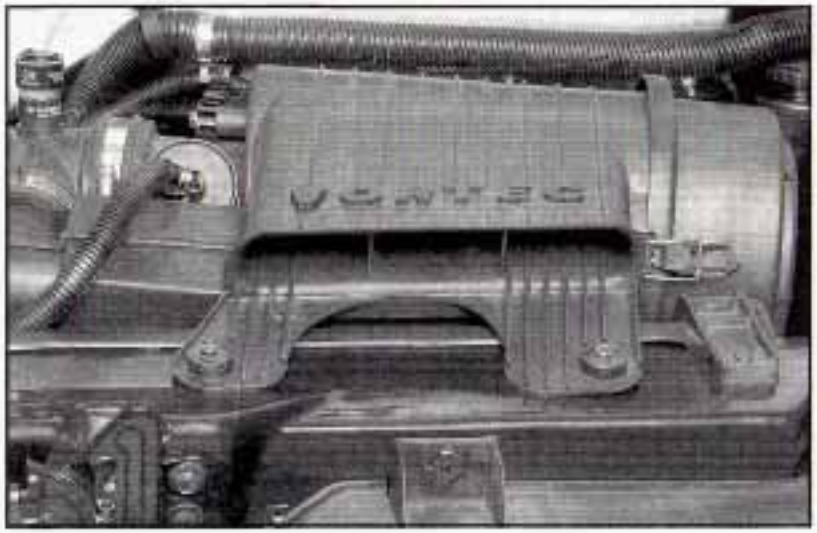
See *Change Engine Oil Light on page 3-38.*

What to Do with Used Oil

Used engine oil contains certain elements that may be unhealthy for your skin and could even cause cancer. Don't 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 Air Cleaner/Filter



The engine air cleaner/filter is located near the center of the engine compartment. See *Engine Compartment Overview on page 5-12* for more information on location.

Your vehicle may have this feature. The engine air cleaner/filter assembly has an indicator that lets you know when the air filter is dirty and needs to be serviced.

If the area inside the clear section of the indicator is green, no air filter service is required. When the area inside the indicator is orange and CHANGE AIR FILTER appears, press the button to reset.

Check the indicator again after your vehicle has been driven. If the area inside the indicator is orange and CHANGE AIR FILTER appears, the filter should be replaced.

To replace the engine air cleaner/filter, do the following:

1. Unhook the retainer clips and remove the cover.
2. Lift the filter out of the engine air cleaner/filter housing. Care should be taken to dislodge as little dirt as possible.
3. Clean the engine air cleaner/filter housing.
4. Install the new engine air cleaner/filter into the engine air cleaner/filter housing. Make sure that it fits properly into the housing.
5. Install the cover and fasten the retaining clips.
6. After the engine air cleaner/filter is properly serviced, the indicator should be reset. Push the button on the top of the indicator to reset it to the green (clean) filter zone.

See *Normal Maintenance Replacement Parts on page 5-106* for the proper filter to use.

Refer to the maintenance schedule to determine when to replace the engine air cleaner/filter. See *Part A: Scheduled Maintenance Services on page 6-4*.

⚠ 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 stops flame if the engine backfires. If it isn't there and the engine backfires, you could be burned. Don't 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're 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 50,000 miles (83,000 km) if the vehicle's GVWR is over 8,600 or 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 your vehicle's GVWR is not over 8,600 and you do not use your vehicle under any of these conditions, change the fluid and filter every 100,000 miles (166 000 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's 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.

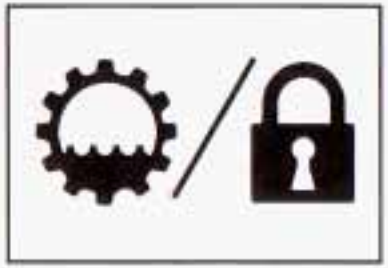
A cold fluid check can be made after the vehicle has been sitting for eight hours or more with the engine off, but this is used only as a reference. Let the engine run at idle for five minutes if outside temperatures are 50°F (10°C) or more. If it's colder than 50°F (10°C), you may have to idle the engine 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 this graphic shown. See *Engine Compartment Overview on page 5-12* for more information on location.

- Flip the handle up and then pull out the dipstick and wipe it with a clean rag or paper towel.
- Push it back in all the way, wait three seconds and then pull it back out again.

- 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 area or cross-hatched area for a hot check.
- 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 6-17.*

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.) 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. It doesn't take much fluid, generally less than one pint (0.5 L). *Don't overfill.*

Notice: **We recommend you use only fluid labeled DEXRON® -III, because fluid with that label is made especially for your automatic transmission. Damage caused by fluid other than DEXRON® -III is not covered by your new vehicle warranty.**

- After adding fluid, recheck the fluid level as described under "How to Check."
- 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: **When adding coolant, it is important that you use only DEX-COOL® (silicate-free) coolant. If coolant other than DEX-COOL® is added to the system, premature engine, heater core or radiator corrosion may result. In addition, the engine coolant will require change sooner -- at 30,000 miles (50,000 km) or 24 months, whichever occurs first. Damage caused by the use of coolant other than DEX-COOL® is not covered by your new vehicle warranty.**

What to Use

Use a mixture of one-half *clean, drinkable water* and one-half DEX-COOL® coolant which won't damage aluminum parts. If you use this coolant mixture, you don't 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 wouldn't 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 wouldn't 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 don't have to add extra inhibitors or additives which claim to improve the system. These can be harmful.**

Checking Coolant

The coolant recovery tank is located near the center of the engine compartment. 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 COLD FILL, or a little higher.

Adding Coolant

If you need more coolant, add the proper DEX-COOL® coolant mixture *at the coolant recovery tank.*

⚠ 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.

Add coolant mixture at the recovery tank, but be careful not to spill it.

⚠ 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. Don't 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

The radiator pressure cap is located near the center of the engine compartment.

Notice: **Your radiator cap is a pressure-type cap and must be tightly installed to prevent coolant loss and possible engine damage from overheating.**

Engine Overheating

You will find a coolant temperature gage on your vehicle's instrument panel.

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.

See "Overheated Engine Protection Operating Mode" in the Index for information on driving to a safe place in an emergency.

Notice: **If your engine catches fire because you keep driving with no coolant, your vehicle can be badly damaged. The costly repairs would not be covered by your warranty. See "Overheated Engine Protection Operating Mode" in the Index for information on driving to a safe place in an emergency.**

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" in *Towing a Trailer on page 4-32*.

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 window 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 doesn't come back on, you can drive normally.

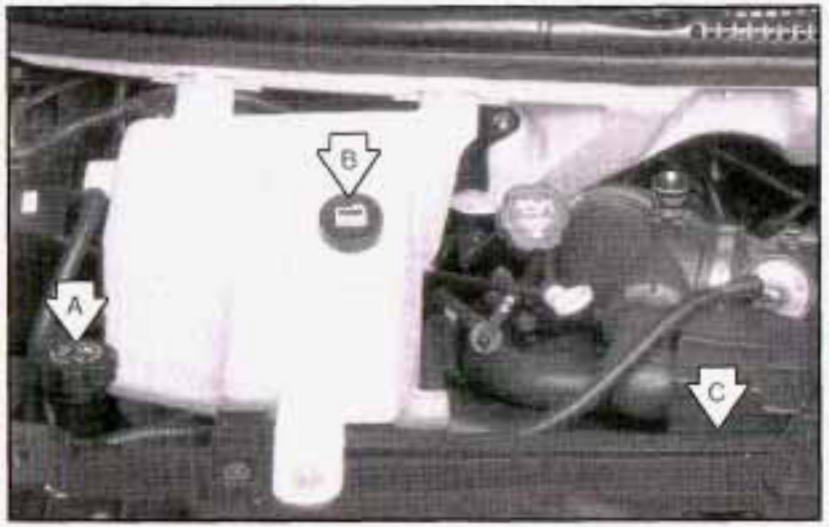
If the warning continues, and you have not stopped, pull over, stop, and park your vehicle right away.

If there's still no sign of steam, push down the accelerator until the engine speed is about twice as fast as normal idle speed for at least three minutes while you're 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's safe to lift the hood, here's what you'll see:



A. Radiator Pressure Cap

B. Coolant Recovery Tank

C. Engine Cooling Fan(s)

If the coolant inside the coolant recovery tank is boiling, don't do anything else until it cools down.

When the engine is cold, the coolant level should be at or above the COLD FILL mark. If it isn't, 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. Don't touch them. If you do, you can be burned.

Don't 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. See if the engine cooling fan speed increases when idle speed is doubled by pushing the accelerator pedal down. If it doesn't, your vehicle needs service. Turn off the engine.

Notice: **Engine damage from running your engine without coolant isn't covered by your warranty. See "Overheated Engine Protection Operating Mode" in the Index for information on driving to a safe place in an emergency.**

Notice: **When adding coolant, it is important that you use only DEX-COOL® (silicate-free) coolant. If coolant other than DEX-COOL® is added to the system, premature engine, heater core or radiator corrosion may result. In addition, the engine coolant will require change sooner — at 30,000 miles (50 000 km) or 24 months, whichever occurs first. Damage caused by the use of coolant other than DEX-COOL® is not covered by your new vehicle warranty.**

If there seems to be no leak, start the engine again. See if the engine cooling fan speed increases when idle speed is doubled by pushing the accelerator pedal down. If it doesn't, your vehicle needs service. Turn off the engine.

How to Add Coolant to the Coolant Recovery Tank

If you haven't found a problem yet, but the coolant level isn't at the COLD FILL 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 5-24* for more information.

⚠ CAUTION:

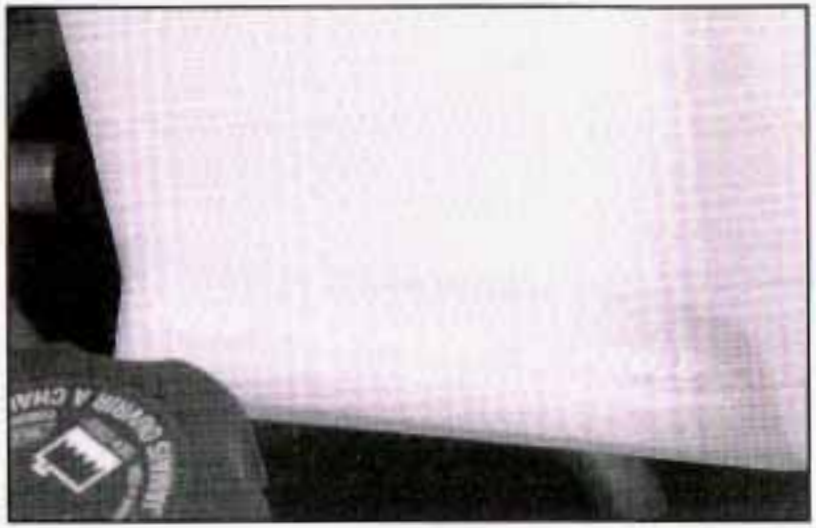
Adding only plain water to your cooling system can be dangerous. Plain water, or some other liquid such as alcohol, can boil before the proper coolant mixture will. Your vehicle's coolant warning system is set for the proper coolant mixture. With plain water or the wrong mixture, your engine could get too hot but you wouldn't get the overheat warning. Your engine could catch fire and you or others could be burned. Use a 50/50 mixture of clean, drinkable water and DEX COOL® coolant.

Notice: **In cold weather, water can freeze and crack the engine, radiator, heater core and other parts. Use the recommended coolant and the proper coolant mixture.**

⚠ CAUTION:

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

When the coolant in the coolant recovery tank is at the COLD FILL mark, start your vehicle.



If the overheat warning continues, there's 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.

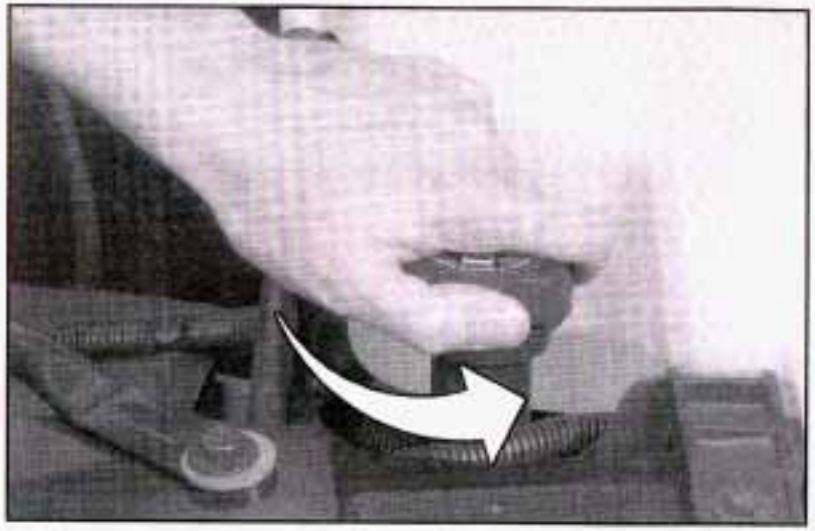
⚠ CAUTION:

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.

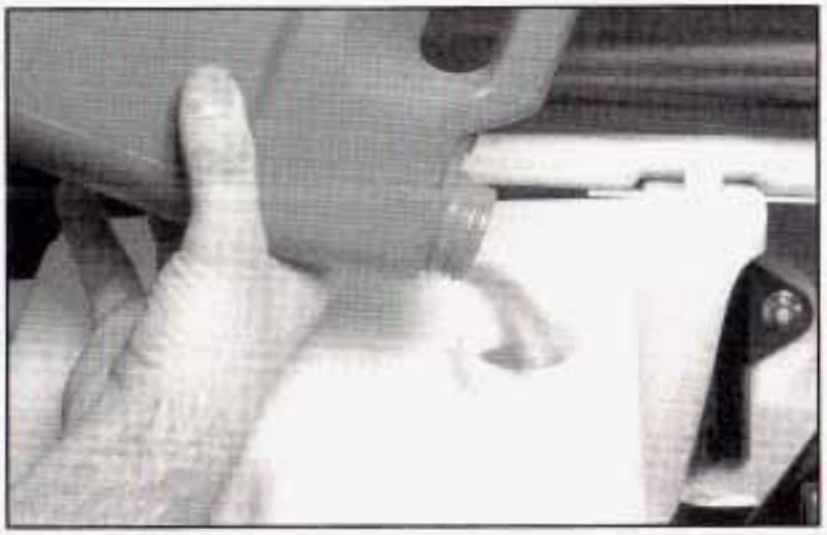
How to Add Coolant to the Radiator

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. (Don't 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 5-24* for more information about the proper coolant mixture.
4. Then fill the coolant recovery tank to the COLD FILL 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.
8. 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.

Engine Fan Noise

Your 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 fan is spinning slower and 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 as the clutch more fully 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 partially disengages.

You may also hear this fan noise when you start the engine. It will go away as the fan clutch partially disengages.

Power Steering Fluid

The power steering fluid reservoir is located in the engine compartment on the driver's side of the vehicle.

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

Turn the key off, let the engine compartment cool down, wipe the cap and the top of the reservoir clean, then unscrew the cap and wipe the dipstick with a clean rag. Replace the cap and completely tighten it. Then remove the cap again and look at the fluid level on the dipstick.

The level should be at the COLD FILL mark. If necessary, add only enough fluid to bring the level up to the mark.

To prevent contamination of brake fluid, never check or fill the power steering reservoir with the brake master cylinder cover off.

What to Use

To determine what kind of fluid to use, see *Part D: Recommended Fluids and Lubricants on page 6-17.* 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.

Notice:

- **When using concentrated washer fluid, follow the manufacturer's instructions for adding water.**
- **Don't 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 doesn't clean as well as washer fluid.**
- **Fill your washer fluid tank only three-quarters full when it's very cold. This allows for expansion if freezing occurs, which could damage the tank if it is completely full.**
- **Don't 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 won't work well, or won't work at all.

So, it isn't a good idea to "top off" your brake fluid. Adding brake fluid won't correct a leak. If you add fluid when your linings are worn, then you'll 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 6-15.*

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 isn't, 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 6-17.*

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'll have to be replaced. Don't 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" in the Index.**

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 won't 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 6-16.*

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 don't, 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've come to expect can change in many other ways if someone puts in the wrong replacement brake parts.

Battery

Your new vehicle comes with a maintenance free ACDelco® battery. When it's time for a new battery, get one that has the replacement number shown on the original battery's label. We recommend an ACDelco® 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're 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 aren't careful. See "Jump Starting" next for tips on working around a battery without getting hurt.

Contact your dealer to learn how to prepare your vehicle for longer storage periods.

Also, for your audio system, see *Theft-Deterrent Feature (Non-RDS Radios) on page 3-73* or *Theft-Deterrent Feature (RDS Radios) on page 3-73.*

Jump Starting

If your battery has run down, you may want to use another vehicle and some jumper cables to start your vehicle. Be sure to follow the steps below 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 don't 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 wouldn't be covered by your warranty.**

Trying to start your vehicle by pushing or pulling it won't 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 system isn't a 12-volt system with a negative ground, both vehicles can be damaged.**

2. Get the vehicles close enough so the jumper cables can reach, but be sure the vehicles aren't touching each other. If they are, it could cause a ground connection you don't want. You wouldn't 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) or a manual transmission in NEUTRAL before setting the parking brake.

Notice: **If you leave your radio on, it could be badly damaged. The repairs wouldn't be covered by your warranty.**

3. Turn off the ignition on both vehicles. Unplug unnecessary accessories plugged into the cigarette lighter or in the accessory power outlet. Turn off the radio and all lamps that aren't needed. This will avoid sparks and help save both batteries. And it could save your radio!
4. Open the hoods and locate the positive (+) and negative (–) terminal locations of the other vehicle.

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

The remote positive (+) terminal is located behind a red plastic cover near the engine accessory drive bracket on the driver's side below the alternator. To uncover the remote positive (+) terminal, open the red plastic cover.

The remote negative (–) terminal is located on the engine drive bracket on all V8 engines and it is marked "GND."

On V6 engines the remote negative (–) terminal is located on a tab attached to the engine accessory drive bracket where it is marked "GND."

See *Engine Compartment Overview on page 5-12.*

⚠ 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.

CAUTION: (Continued)

CAUTION: (Continued)

Be sure the battery has enough water. You don't need to add water to the ACDelco® battery installed in your new vehicle. But if a battery has filler caps, be sure the right amount of fluid is there. If it is low, add water to take care of that first. If you don't, explosive gas could be present.

Battery fluid contains acid that can burn you. Don't 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 don't 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.

   Don't connect positive (+) to negative (–) or you will get a short that would damage the battery and maybe other parts, too. And don't connect the negative (–) cable to the negative (–) terminal on the dead battery because this can cause sparks.

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

7. Don't 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.

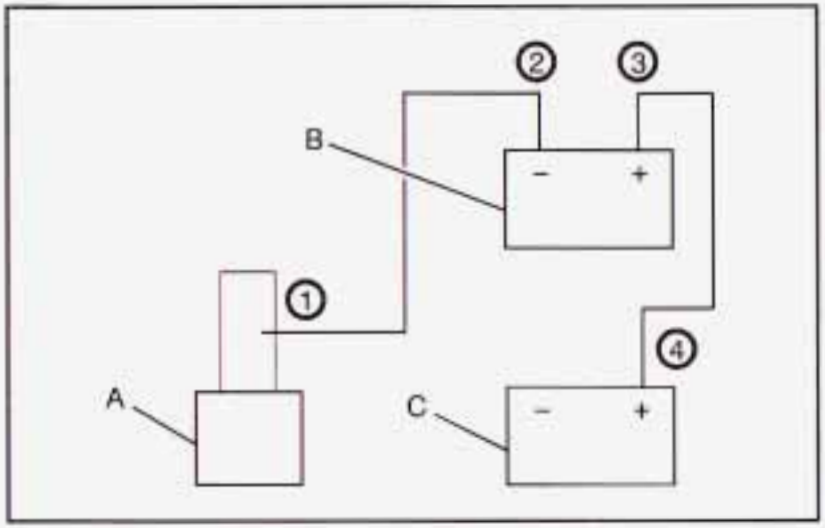
   Don't let the other end touch anything until the next step. The other end of the negative (–) cable doesn't go to the dead battery. It goes to a heavy, unpainted metal engine part or to a remote negative (–) terminal on the vehicle with the dead battery.

9. Connect the other end of the negative (–) cable to the negative (–) terminal of the dead battery or to a remote negative (–) terminal if the vehicle has one.

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 won't start after a few tries, it probably needs service.

Notice: **Damage to your vehicle may result from electrical shorting if jumper cables are removed incorrectly. To prevent electrical shorting, take care that the cables don't touch each other or any other metal. The repairs wouldn't be covered by your warranty.**



Jumper Cable Removal

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

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

C. Dead Battery or Remote Positive (+) Terminal

To disconnect the jumper cables from both vehicles, do the following:

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

All-Wheel Drive

Lubricant checks in this section also apply to these vehicles. However, there are two additional systems that need lubrication.

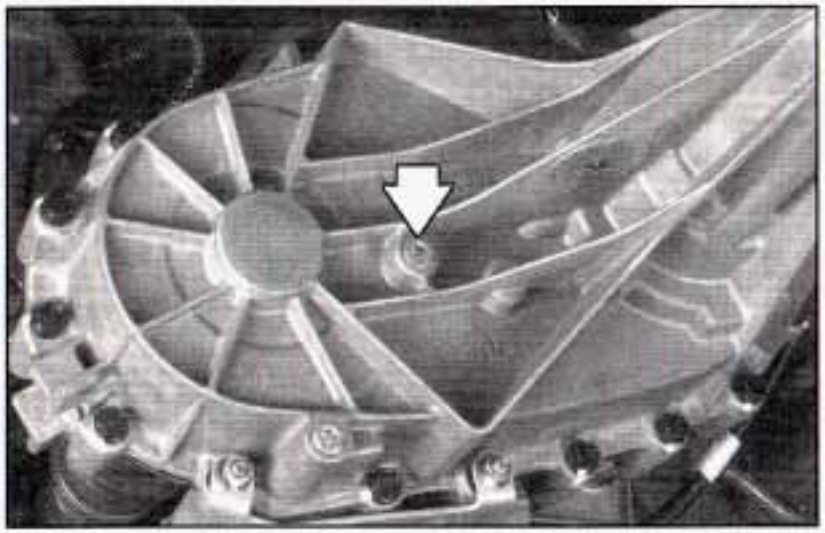
Transfer Case

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 6-15.*

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

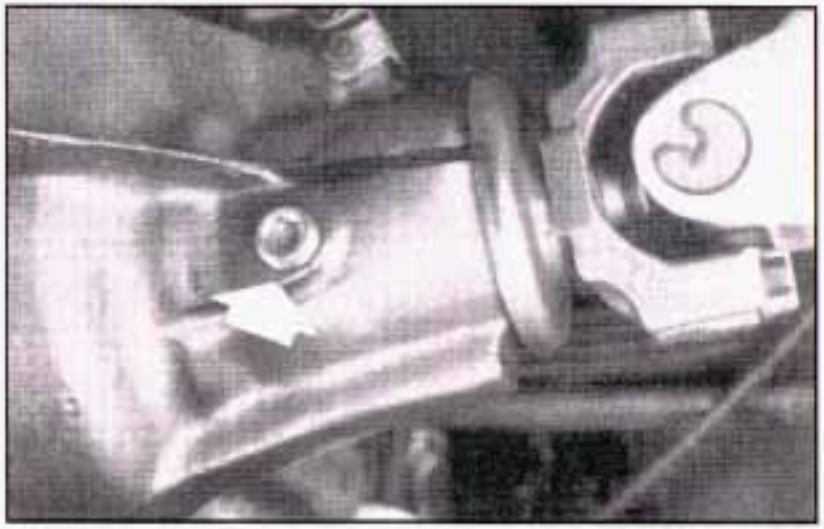
Refer to the Maintenance Schedule to determine what kind of lubricant to use. See *Part D: Recommended Fluids and Lubricants on page 6-17.*

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 you have the 1500 Series, the proper level is from 5/8 inch (15 mm) to 1 5/8 inch (40 mm) below the bottom of the filler plug hole. The proper level for the 2500 and 3500 Series is from 0 to 1/4 (6 mm) below the bottom of the filler plug hole. Add only enough fluid to reach the proper level.

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 6-17.*

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 3/8 inch (10 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 6-17.*

Noise Control System

Tampering with Noise Control System Prohibited

The following information relates to compliance with federal noise emission standards for vehicles with a Gross Vehicle Weight Rating (GVWR) of more than 10,000 lbs (4 536 kg). The Maintenance Schedule provides information on maintaining the noise control system to minimize degradation of the noise emission control system during the life of your vehicle. The noise control system warranty is given in your warranty booklet.

These standards apply only to vehicles sold in the United States.

Tampering With Noise Control System Prohibited

Federal law prohibits the following acts or the causing thereof:

1. The removal or rendering inoperative by any person, other than for purposes of maintenance, repair or replacement, of any device or element of design incorporated into any new vehicle for the purpose of noise control, prior to its sale or delivery to the ultimate purchaser or while it is in use; or
2. The use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

Among those acts presumed to constitute tampering are the acts listed below.

Insulation:

- Removal of the noise shields or any underhood insulation.

Engine:

- Removal or rendering engine speed governor (if equipped) inoperative so as to allow engine speed to exceed manufacturer specifications.

Fan and Drive:

- Removal of fan clutch (if equipped) or rendering clutch inoperative.
- Removal of the fan shroud (if equipped).

Air Intake:

- Removal of the air cleaner silencer.
- Modification of the air cleaner.

Exhaust:

- Removal of the muffler and/or resonator.
- Removal of the exhaust pipes and exhaust pipe clamps.

Bulb Replacement

For any bulb changing procedure not listed in this section, contact your dealer.

For the type of bulbs, see *Replacement Bulbs on page 5-58.*

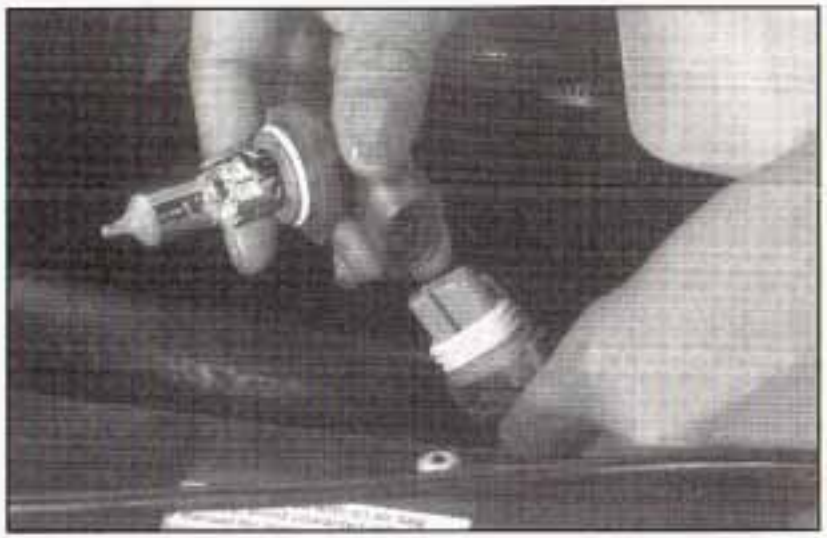
Halogen Bulbs

⚠ 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

1. Remove the two bolts from the headlamp assembly.
2. Remove the two pins on the top of the headlamp assembly. To remove the pins, turn the outer pin clockwise and pull it straight up. To remove the inner pin, turn it counterclockwise and pull it straight up.
3. Lift the inboard side of the headlamp to release the inboard tab from the radiator support.
4. Lift the outboard side of the headlamp to release the outboard tab from the radiator support.
5. Lower the headlamp to allow the vertical adjustor to clear tie bar.
6. Turn the headlamp forward and upward to remove it from the grille.
7. Turn the bulb connector counterclockwise and pull it out of the housing.

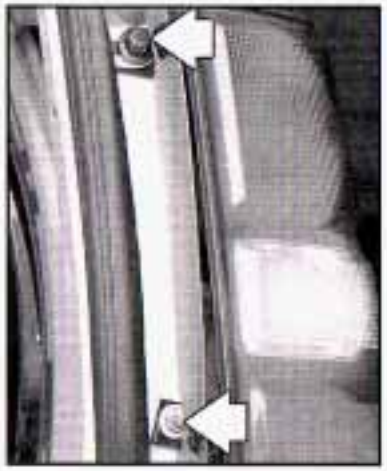


8. Without removing the headlamp assembly itself, remove the bulb socket from the back of the headlamp on the driver's side.
9. Turn the bulb counterclockwise one quarter turn to remove it from the socket.
10. On the passenger's side, turn the bulb clockwise one turn. Do not touch the glass part of the bulb.
11. Install the new bulb into the socket and return it to the headlamp assembly.
12. Put the headlamp assembly back into the vehicle and reinstall the two pins.

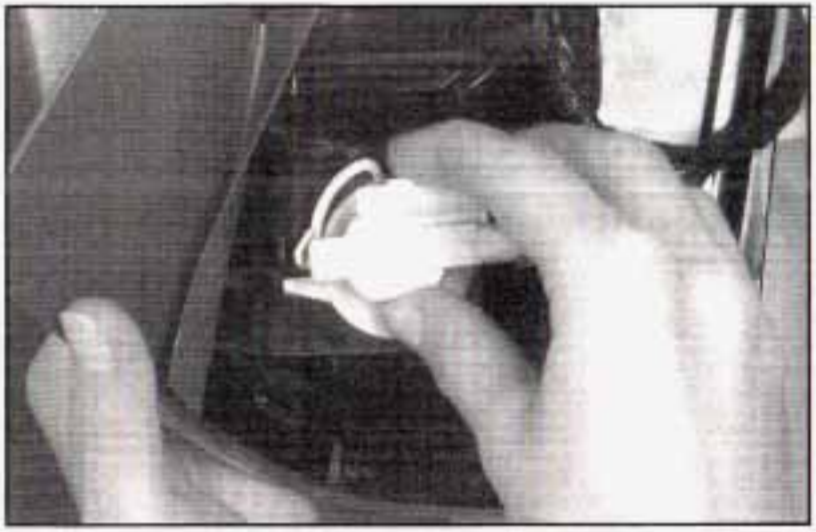
Front Turn Signal, Sidemarker and Parking Lamps

1. Use a small tool to unlatch the outboard clip on this lamp.
2. Pull the lamp forward to completely unlatch the clip. Move the lamp outboard to loosen the tabs.
3. Remove the lamp from the grille.
4. Squeeze the tab on the side of the bulb assembly while turning it counterclockwise.
5. Remove the bulb assembly from the back of the lens and replace the bulb.
6. Turn the socket clockwise to reinstall it in the lens assembly.

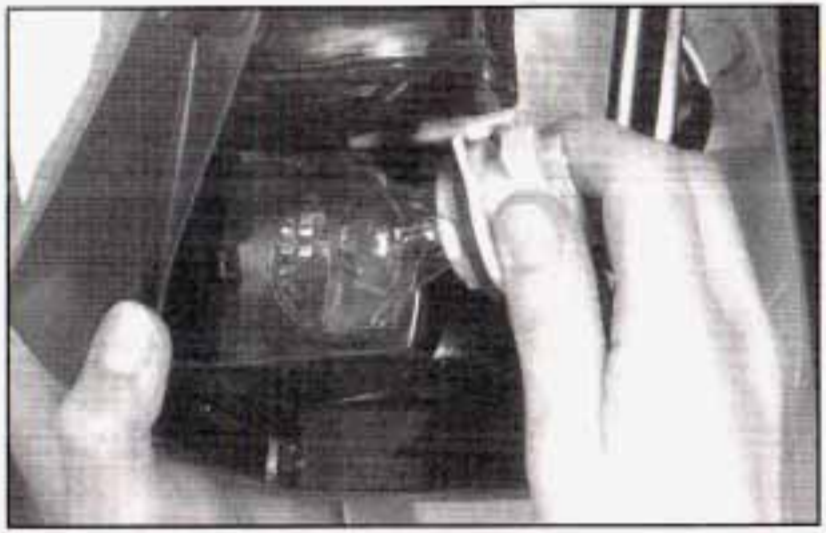
Taillamps



1. Remove the two inboard nuts on the side assembly.
2. Pull side assembly rearward to clear studs.
3. Rotate side assembly on the outboard side, releasing the upper clip.
4. Slide assembly slightly upward to release lower clip.
5. Reinstall the clips to the side assembly.
6. Remove the three nuts on the taillamp.
7. Remove the taillamp from the vehicle.

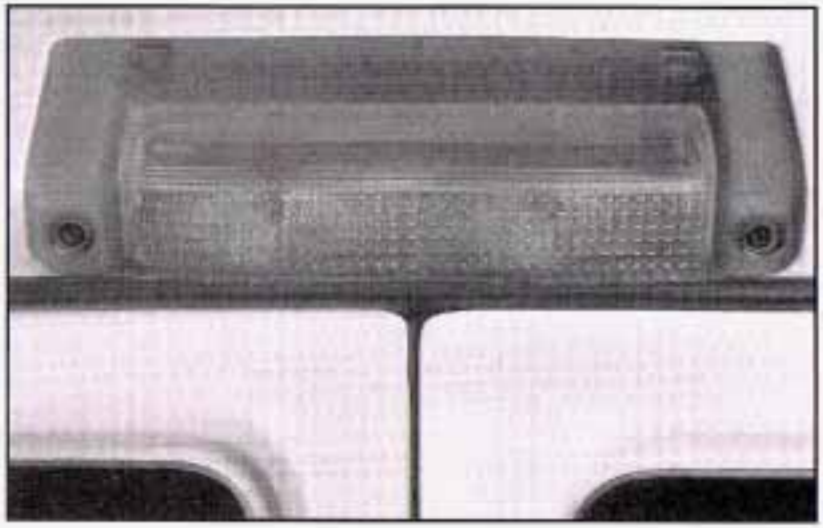


8. To remove, squeeze the tab on the side of the sockets while turning them counterclockwise.



9. Turn the bulb counterclockwise to remove it. Install the new bulb.
10. Reverse the above steps to reinstall the lamp.

Center High Mounted Stoplamp (CHMSL)



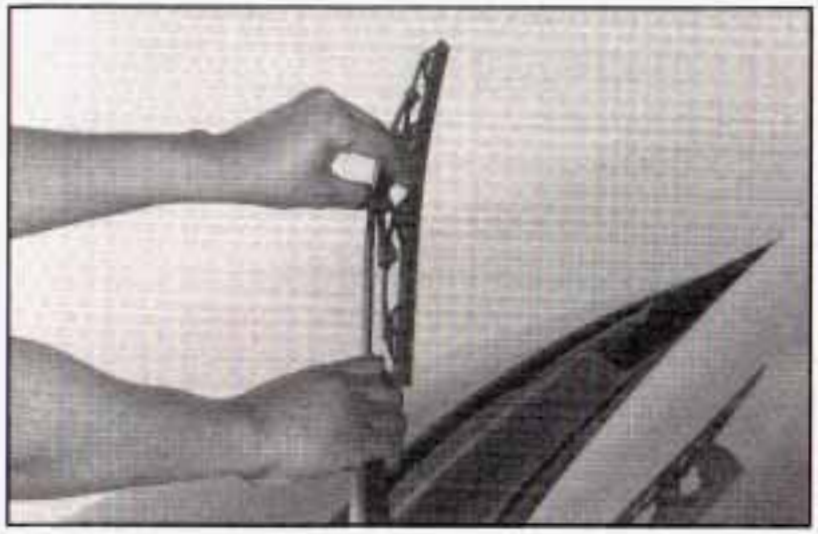
It is recommended that this component be replaced as a unit by your dealer.

Replacement Bulbs

Exterior Lamp	Bulb Number
Sealed Beam Headlamps	H6054
Composite Low-Beam Headlamps	9006GS
Composite High-Beam Headlamps	9005
Front Sidemarker Lamp	194
Front Parking and Turn Lamp	3157KX
Back-up Lamp	3157
Rear Parking, Stop, and Turn Lamp	3157
CHMSL	912
For any bulb 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 6-11* for more information.



Replacement blades come in different types and are removed in different ways. To remove the type with a release clip, do the following:

1. Lift the wiper arm until it locks into a vertical position.
2. Press down on the blade assembly pivot locking tab. Pull down on the blade assembly to release it from the wiper arm hook.
3. The insert has two notches at one end that are locked by bottom claws of the blade assembly. At the notched end, pull the insert from the blade assembly.
4. To install the new wiper insert, slide the notched end last, into the end with two blade claws. Then slide the insert all the way through the blade claws at the opposite end.
5. Make sure that the notches are locked by the bottom claws. Make sure that all other claws are properly locked on both sides of the insert slot.
6. Put the blade assembly pivot in the wiper arm hook. Pull it up until the pivot locking tab locks in the hook slot.
7. Carefully lower the wiper arm and blade assembly into the windshield.

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 Warranty booklet for details.

⚠ 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" in the Index.**
- **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.**
- **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.**

Inflation -- Tire Pressure

The Certification/Tire label, which is on the rear edge of the driver's door, shows the correct inflation pressures for your tires when they're cold. "Cold" means your vehicle has been sitting for at least three hours or driven no more than 1 mile (1.6 km).

Notice: **Don't let anyone tell you that underinflation or overinflation is all right. It's not. If your tires don't have enough air (underinflation), you can get the following:**

- **Too much flexing**
- **Too much heat**
- **Tire overloading**
- **Bad wear**
- **Bad handling**
- **Bad fuel economy**

If your tires have too much air (overinflation), you can get the following:

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

When to Check

Check your tires once a month or more.

Also, check the tire pressure of the spare tire.

How to Check

Use a good quality pocket-type gage to check tire pressure. You can't tell if your tires are properly inflated simply by looking at them. Radial tires may look properly inflated even when they're underinflated.

Be sure to put the valve caps back on the valve stems. They help prevent leaks by keeping out dirt and moisture.

Dual Tire Operation

When the vehicle is new, or whenever a wheel, wheel bolt or wheel nut is replaced, check the wheel nut torque after 100, 1,000 and 6,000 miles (160, 1 600 and 10 000 km) of driving. For proper torque and wheel nut tightening information, see "Tightening the Wheel Nuts" later in this section.

The outer tire on a dual wheel setup generally wears faster than the inner tire. Your tires will wear more evenly and last longer if you rotate the tires periodically. See "Tire Inspection and Rotation" earlier in this section. Also see "Scheduled Maintenance Services" in the Index for scheduled rotation intervals

⚠ CAUTION:

If you operate your vehicle with a tire that is badly underinflated, the tire can overheat. An overheated tire can lose air suddenly or catch fire. You or others could be injured. Be sure all tires (including the spare) are properly inflated.

See "Tires" and "Inflation – Tire Pressure" in the Index for more information on proper tire inflation.

Tire Inspection and Rotation

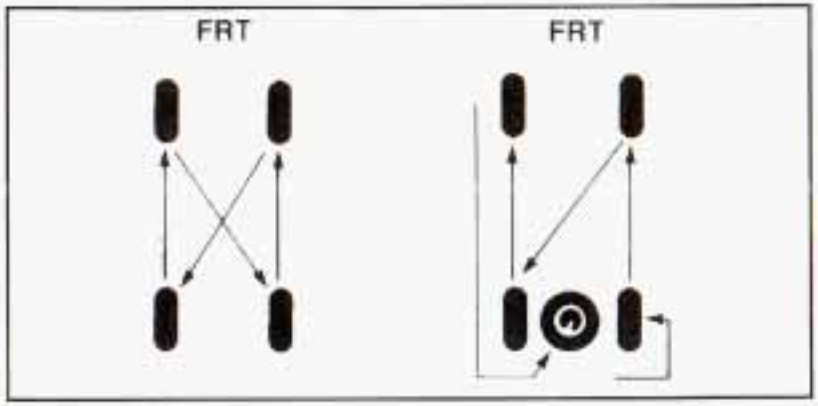
Tires should be rotated every 6,000 to 8,000 miles (10 000 to 13 000 km).

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 5-64* and *Wheel Replacement on page 5-68* for more information.

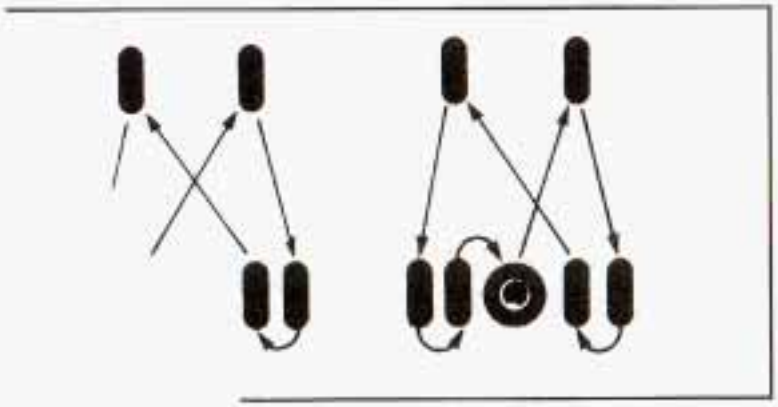
Make sure the spare tire is stored securely. Push, pull, and then try to rotate or turn the tire. If it moves, use the ratchet/wheel wrench to tighten the cable. See *Changing a Flat Tire on page 5-70*.

If your vehicle has dual rear wheels, also see *Dual Tire Operation on page 5-62*.

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," in Section 6, for scheduled rotation intervals.



If your vehicle has single rear wheels, always use one of the correct rotation patterns shown here when rotating your tires.



If your vehicle has dual rear wheels, always use one of the correct rotation patterns shown here when rotating your tires.

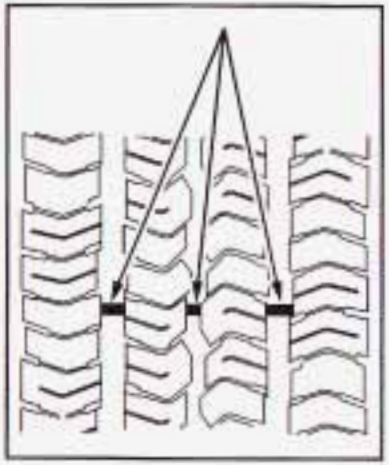
When you install dual wheels, be sure that vent holes in the inner and outer wheels on each side are lined up.

After the tires have been rotated, adjust the front and rear inflation pressures as shown on the Certification/Tire label. Make certain that all wheel nuts are properly tightened. See "Wheel Nut Torque" under *Capacities and Specifications on page 5-103.*

⚠ 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" in the Index.

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.

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, get ones 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.

⚠ 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.

Scheduled wheel alignment and wheel balancing are not needed. However, 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.**

Whenever a wheel, wheel bolt or wheel nut is replaced on a dual wheel setup, check the wheel nut torque after 100, 1,000 and 6,000 miles (160, 1 600 and 10 000 km) of driving. For proper torque, see "Wheel Nut Torque" under *Capacities and Specifications on page 5-103.*

See *Changing a Flat Tire on page 5-70* 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 chains that are the proper size for your tires. Install them on the tires of the rear axle. 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.

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

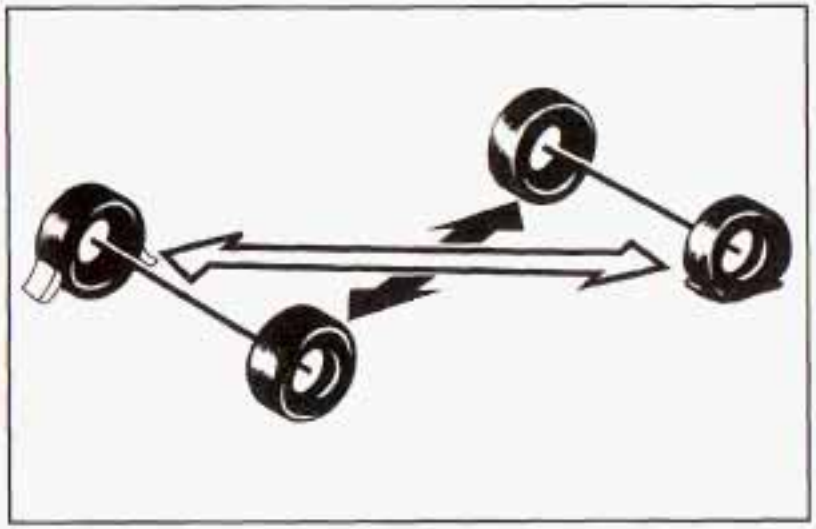
If a tire goes flat, avoid further tire and wheel damage by driving slowly to a level place. Turn on your hazard warning flashers.

⚠ CAUTION:

Changing a tire can cause an injury. The vehicle can slip off the jack and roll over you or other people. You and they could be badly injured. 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.**

   To be even more certain the vehicle won't move, you can 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 of the vehicle, at the opposite end.

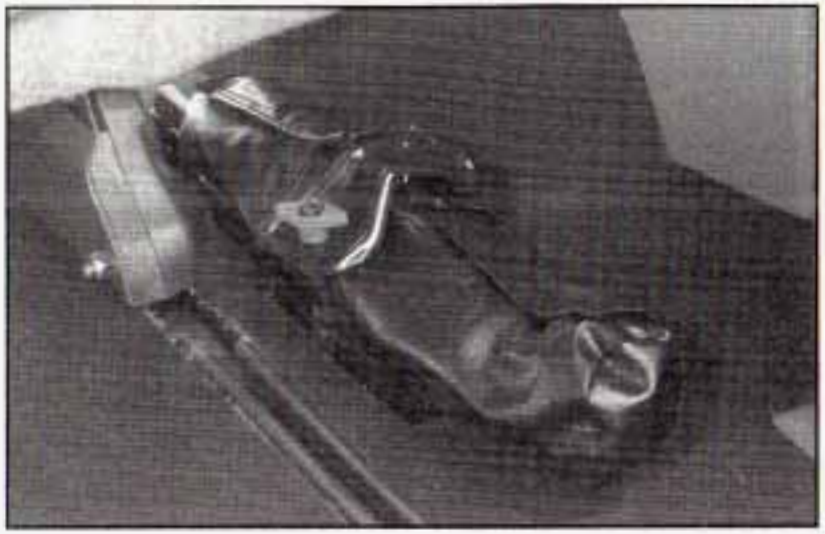


The following steps will tell you how to use the jack and change a tire.

Removing the Spare Tire and Tools

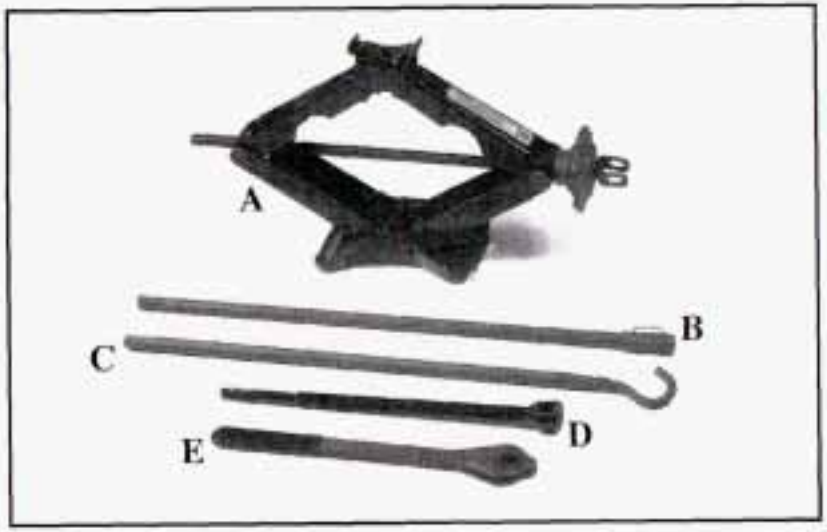
If you have a cargo van or a passenger van, the equipment you'll need is located in the rear passenger side of corner of the vehicle.

Remove the retaining wing bolt and lift it off the mounting bracket.



If you have a van with the 15-passenger seating arrangement, the equipment you'll need is secured on the rear passenger side floor of the vehicle.

Remove the retaining wing bolt and lift it out of the mounting bracket.



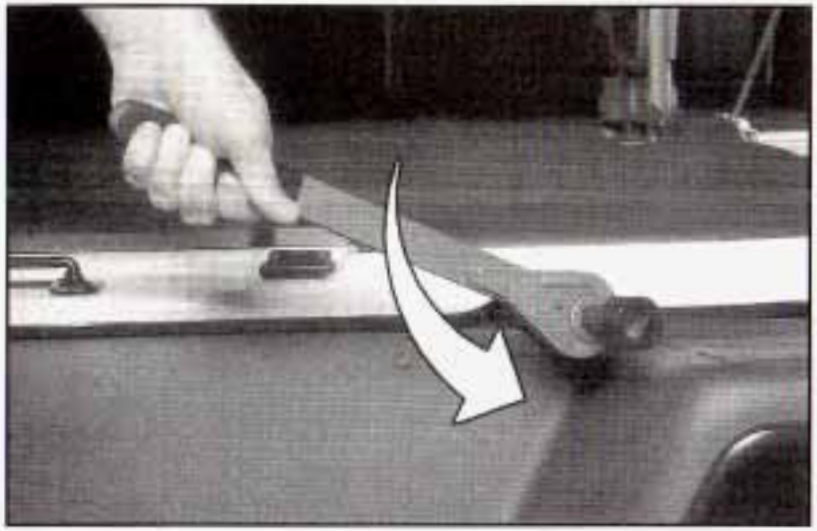
The tools you'll be using include the jack (A), jack handle extension (B), jack handle (C), wheel wrench (D) and the ratchet (E).

Your spare tire is stored underneath the rear of your vehicle. You will use the wheel wrench (D) and the ratchet (E) to lower the spare tire.

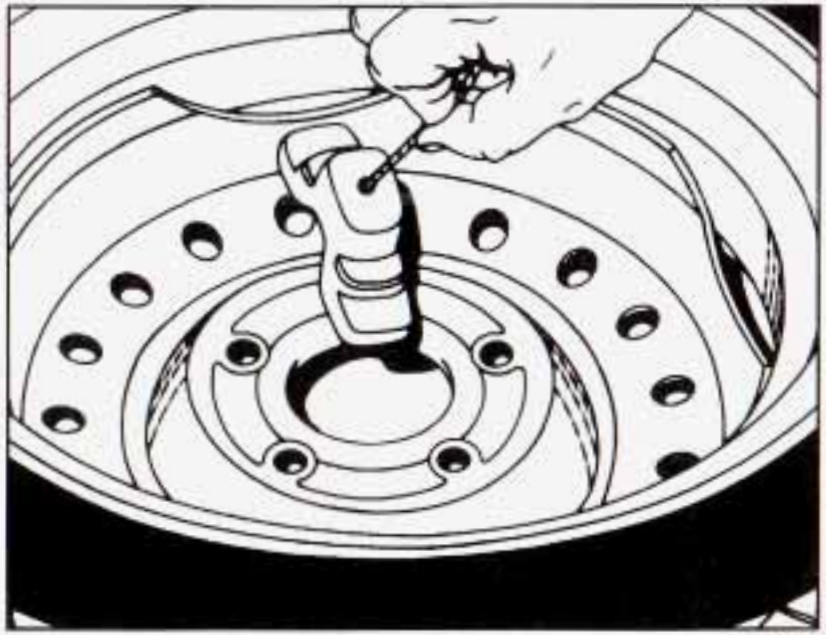
The ratchet has a DOWN side and an UP side.

Attach the wheel wrench and ratchet, with the DOWN side facing you. The wheel wrench has a socket end and a flat chisel end.

Put the flat chisel end of the wheel wrench on an angle through the hole between the body and the bumper. Be sure the flat end connects into the hoist shaft.



Turn the ratchet counterclockwise to lower the spare tire to the ground. If the spare tire does not lower to the ground, the secondary latch is engaged causing the tire not to lower. See "Secondary Latch System" later in this section.



When the tire has been lowered, pull the tire toward you so you can reach the tire retainer and pull it up through the wheel opening.

If you have a vehicle which was completed from a cab and chassis, refer to the information from the body supplier/installer.

The spare tire is a full-size tire, like the other tires on your vehicle.

Notice: **To help avoid vehicle damage, do not drive the vehicle before the cable is restored.**

Secondary Latch System

Your vehicle has an underbody mounted tire hoist assembly equipped with a secondary latch system. It's designed to stop the spare tire from suddenly falling off your vehicle if the cable holding the spare tire is damaged. For the secondary latch to work, the tire must be stowed with the valve stem pointing down.

See "Storing the Spare Tire and Tools" later in this section for instructions on storing the spare tire correctly.

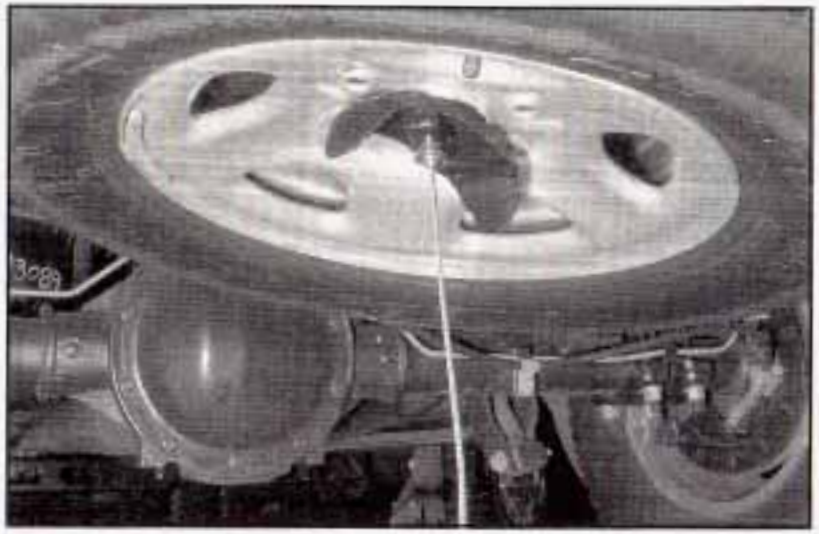
⚠ CAUTION:

Before beginning this procedure read all the instructions. Failure to read and follow the instructions could damage the hoist assembly and you and others could get hurt. Read and follow the instructions listed below.

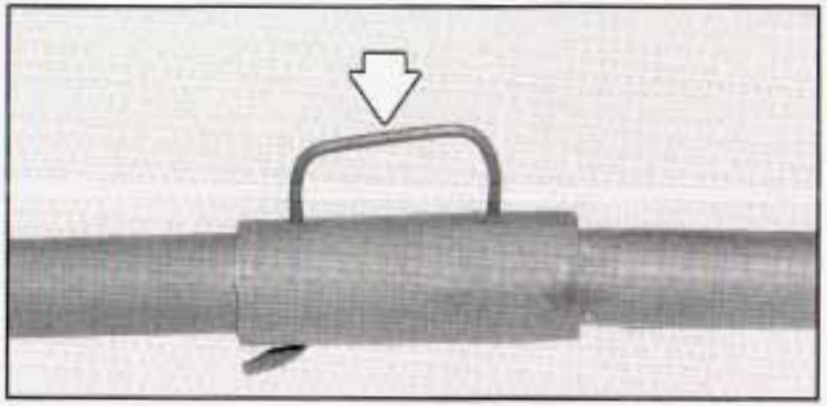
To release the spare tire from the secondary latch, do the following:

⚠ CAUTION:

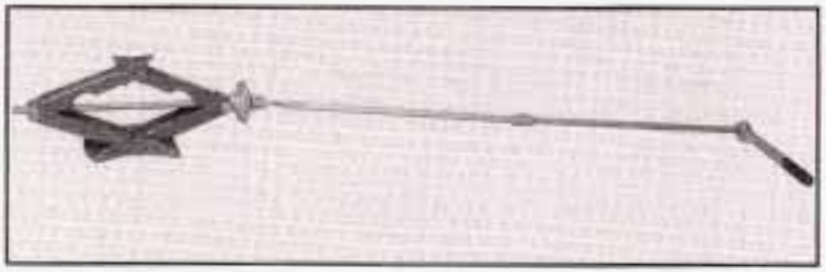
Someone standing too close during the procedure could be injured by the jack. If the spare tire does not slide off the jack completely, make sure no one is behind you or on either side of you as you pull the jack out from the spare.



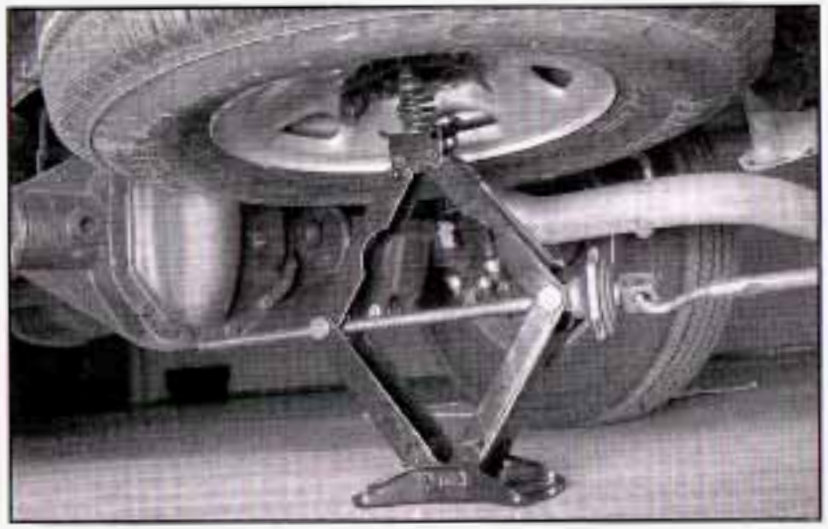
1. Check under the vehicle to see if the cable end is visible.
2. If the cable is not visible, start this procedure at Step 6.
3. Turn the wrench counterclockwise until approximately 6 inches (15 cm) of cable is exposed.



4. Connect the jack handle (C) and jack handle extension (B) together and press the retention clip (arrow) so it engages.



5. Attach the jack handle/jack handle extension to the jack and slide the ratchet with the UP mark facing you onto the end of the jack handle extension so your set-up looks like the picture above.



6. Place the jack under the vehicle, ahead of the rear bumper. Position the center lift point of the jack under the center of the spare tire and turn the handle clockwise to raise the jack until it lifts the secondary latch spring.
7. Keep raising the jack until the spare tire stops moving upward and is held firmly in place, this lets you know that the secondary latch has released. The secondary latch has released and the spare tire is balancing on the jack.
8. Lower the jack by turning the ratchet counterclockwise. Keep lowering the jack until the spare tire slides off the jack or is hanging by the cable.
9. Disconnect the jack handle from the jack and carefully remove the jack. Use one hand to push against the spare while firmly pulling the jack out from under the spare tire with the other hand.

   If the spare tire is hanging from the cable, slide the ratchet onto the wheel wrench and insert the wheel wrench into the hoist shaft hole above the bumper and turn the wheel wrench counterclockwise to lower the spare the rest of the way. Be sure the DOWN mark on the ratchet is facing you.
10. Tilt the retainer at the end of the cable and pull it through the wheel opening. Pull the tire out from under the vehicle.
11. If the cable is hanging under the vehicle, turn the wheel wrench in the hoist shaft hole in the bumper clockwise to raise the cable back up.

Have the hoist assembly inspected as soon as you can. You will not be able to store a spare or flat tire using the hoist assembly until it has been repaired or replaced.

To continue changing the flat tire, return to Step 4 of "Removing the Flat Tire and Installing the Spare Tire" later in this section.

Removing the Wheel Covers

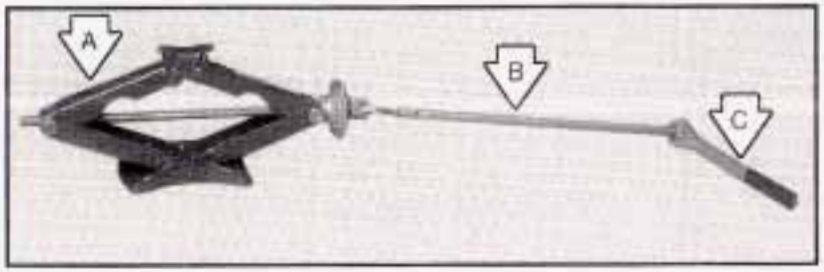
If your vehicle has plastic wheel nut caps, loosen them by turning the wheel wrench counterclockwise. The wheel nut caps are designed to remain with the center cap. Remove the center cap.

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.

Removing the Flat Tire and Installing the Spare Tire

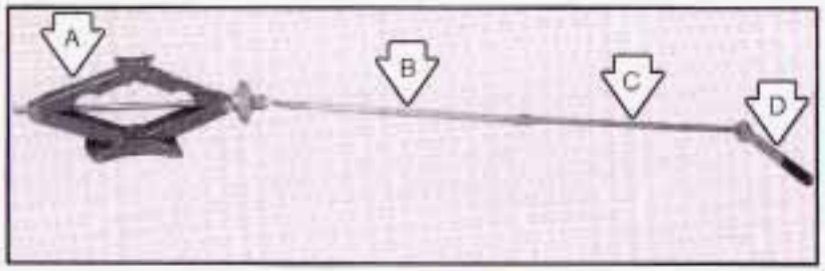
1. With the DOWN side facing you, use the ratchet and wheel wrench to loosen all the wheel nuts. Don't remove them yet.

2. Assemble the jack and tools for a front or rear flat as follows:



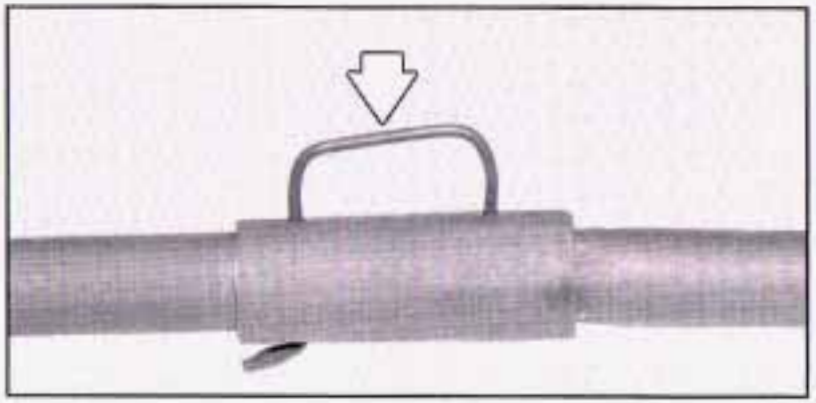
Front Position

Front Flat: Assemble the jack (A) together with the jack handle (B) and ratchet (C) as shown. Be sure that the ratchet has the UP mark facing you.

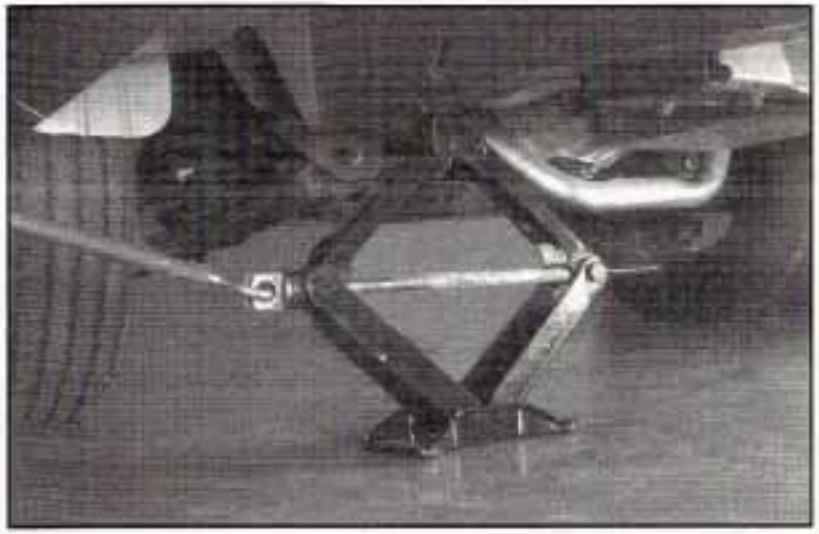


Rear Position

Rear Flat: Assemble the jack (A) together with the jack handle (B), jack handle extension (C) and ratchet (D) as shown. Be sure that the ratchet has the UP mark facing you. To assemble the jack handle and jack handle extension, use the art and text following.



Connect the jack handle (B) and jack handle extension (C) together and press the retention clip (arrow) so it engages.



Front Position

3. Position the jack under the vehicle as shown.

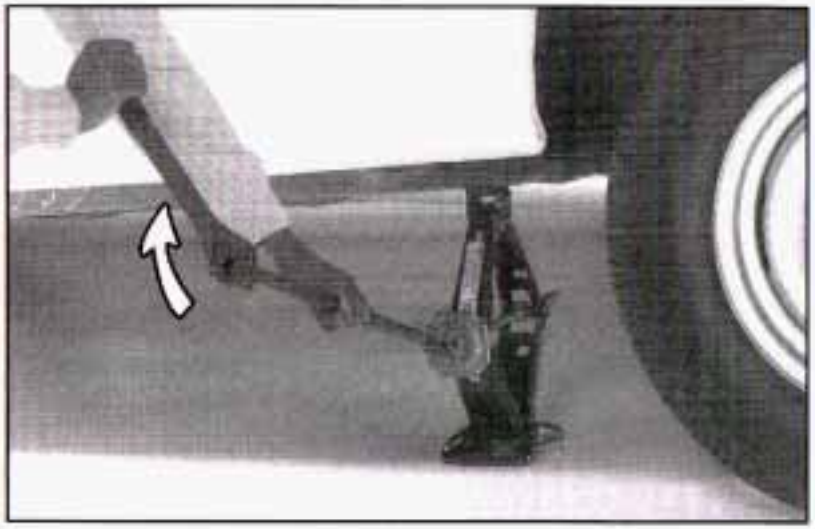
Rear Position

⚠ 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.



4. 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 spare tire to fit.

5. Remove all the wheel nuts, and take off the flat tire.

6. Remove any rust or dirt from the wheel bolts, mounting surfaces and spare wheel.

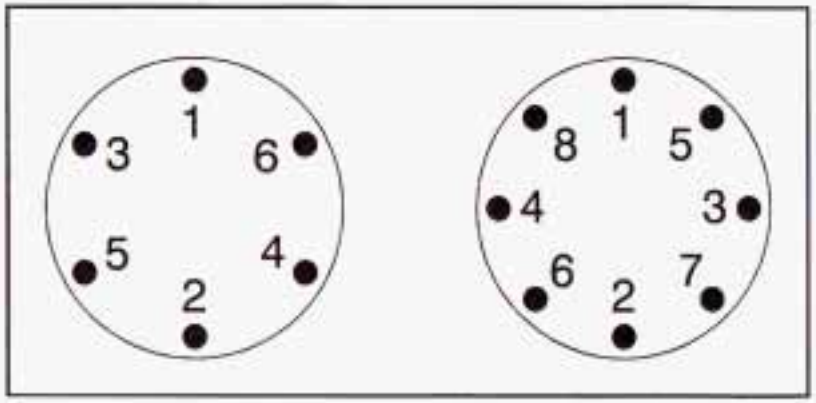
⚠ CAUTION:

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.

⚠ 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.

7. Put the wheel nuts back on with the rounded end of the nuts toward the wheel. Tighten each wheel nut by hand until the wheel is held against the hub.



9. Tighten the nuts firmly in a crisscross sequence as shown. Turn the wheel wrench clockwise.

8. Lower the vehicle by turning the jack handle counterclockwise. Lower the jack completely.

⚠ CAUTION:

Incorrect wheel nuts or improperly tightened wheel nuts can cause the wheel to come loose and even come off. This could lead to an accident. Be sure to use the correct wheel nuts. If you have to replace them, be sure to get new GM original equipment wheel nuts. Stop somewhere as soon as you can and have the nuts tightened with a torque wrench to the proper torque specification. See "Capacities and Specifications" in the Index 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" in the index for the wheel nut torque specification.**

10. Put the wheel cover back on, or put the center cap and plastic wheel nut caps back on. Remove any wheel blocks.

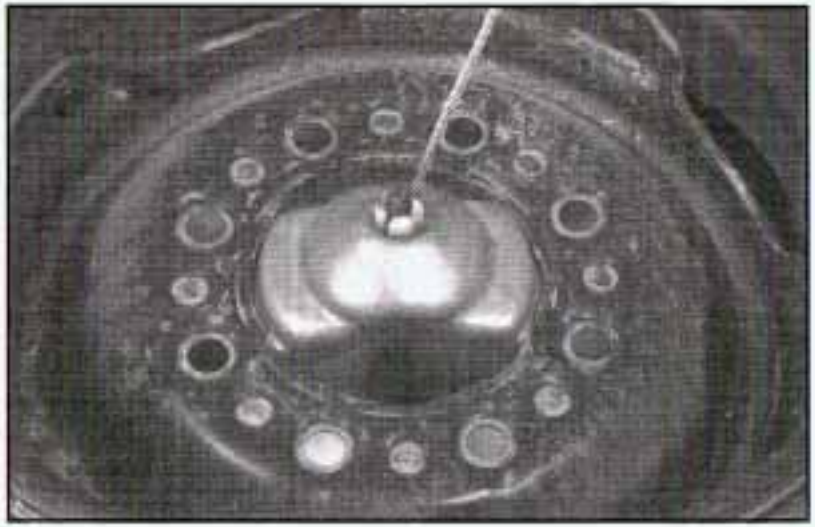
Remember that the jack, jacking equipment and tire must be properly stored in their original storage position before you begin driving again. The next part will show you how.

Storing a Flat or Spare Tire and Tools

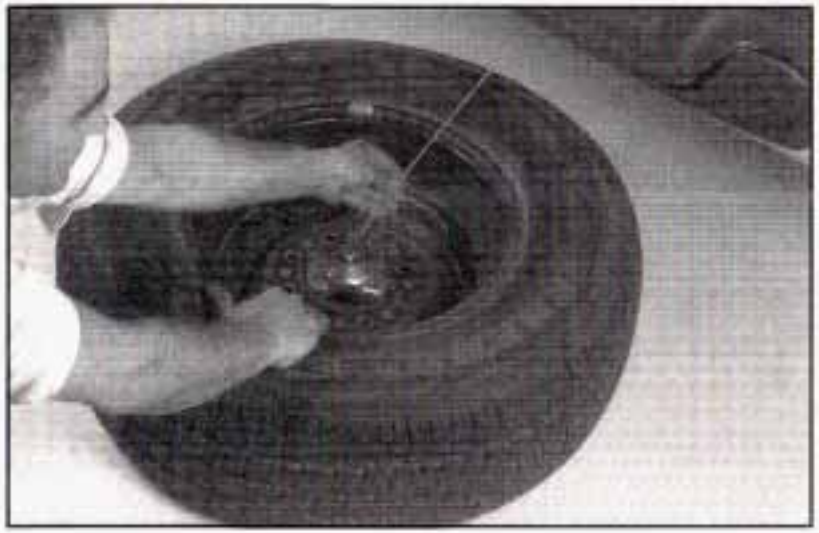
⚠ CAUTION:

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.

1. Put the tire on the ground at the rear of the vehicle with the valve stem pointed down.



2. Pull the retaining bar through the center of the wheel, making sure it is properly attached.



3. Pull the wheel toward the rear of the vehicle, keeping the cable tight.
4. Attach the ratchet, with the UP side facing you, to the wheel wrench.
5. Put the flat end of the wheel wrench on an angle through the hole in the rear door frame, above the bumper.
6. Raise the tire fully against the underside of the vehicle. Continue turning the ratchet until the tire is secure and the cable is tight. The spare tire hoist cannot be overtightened.
7. Make sure the tire is stored securely. Push, pull, and then try to rotate or turn the tire. If the tire moves, use the ratchet to tighten the cable.

You will hear two "clicks" when the tire is up all the way.

Return the jacking equipment to the proper location. Secure the items and replace the jack cover.

Appearance Care

Remember, cleaning products can be hazardous. Some are toxic. Others can burst into flames if you strike a match or get them on a hot part of the vehicle. Some are dangerous if you breathe their fumes in a closed space. When you use anything from a container to clean your vehicle, be sure to follow the manufacturer's warnings and instructions. And always open your doors or windows when you're cleaning the inside.

Never use these to clean your 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 your vehicle, too.

Don't use any of these unless this manual says you can. In many uses, these will damage your vehicle:

- Alcohol
- Laundry Soap
- Bleach
- Reducing Agents

Cleaning the Inside of Your Vehicle

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.

Fabric/Carpet

Your dealer has cleaners for the cleaning of fabric and carpet. They will clean normal spots and stains very well.

You can get GM – approved cleaning products from your dealer. See *GM Vehicle Care/Appearance Materials on page 5-94*.

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.
- If a ring forms on fabric after spot cleaning, clean the entire area immediately or it will set.

Using Cleaner on Fabric

1. Vacuum and brush the area to remove any loose dirt.
2. Always clean a whole trim panel or section. Mask surrounding trim along stitch or welt lines.
3. Follow the directions on the container label.
4. Apply cleaner with a clean sponge. Don't saturate the material and don't rub it roughly.
5. As soon as you've cleaned the section, use a sponge to remove any excess cleaner.
6. Wipe cleaned area with a clean, water-dampened towel or cloth.
7. Wipe with a clean cloth and let dry.

Special Fabric Cleaning Problems

Stains caused by such things as catsup, coffee (black), egg, fruit, fruit juice, milk, soft drinks, vomit, urine and blood can be removed as follows:

1. Carefully scrape off excess stain, then sponge the soiled area with cool water.
2. If a stain remains, follow the cleaner instructions described earlier.
3. If an odor lingers after cleaning vomit or urine, treat the area with a water/baking soda solution: 1 teaspoon (5 ml) of baking soda to 1 cup (250 ml) of lukewarm water.
4. Let dry.

Stains caused by candy, ice cream, mayonnaise, chili sauce and unknown stains can be removed as follows:

1. Carefully scrape off excess stain.
2. Clean with cool water and allow to dry completely.
3. If a stain remains, follow the cleaner instructions described earlier.

Vinyl

Use warm water and a clean cloth.

- Rub with a clean, damp cloth to remove dirt. You may have to do this more than once.
- Things like tar, asphalt and shoe polish will stain if you don't get them off quickly. Use a clean cloth and vinyl/leather 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. See your dealer for this product.
- *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.

Top of the 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 *GM Vehicle Care/Appearance Materials on page 5-94.*

Notice: **Don't use abrasive cleaners on glass, because they may cause scratches. Avoid placing decals on the inside rear window, since they may have to be scraped off later. If abrasive cleaners are used on the inside of the rear window, an electric defogger element may be damaged. Any temporary license should not be attached across the defogger grid.**

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 at least every six months. During very cold, damp weather more frequent application may be required. See *Part D: Recommended Fluids and Lubricants on page 6-17.*

Cleaning the Outside of Your Vehicle

The paint finish on your vehicle provides beauty, depth of color, gloss retention and durability.

Washing Your Vehicle

The best way to preserve your vehicle's finish is to keep it clean by washing it often with lukewarm or cold water.

Don't wash your vehicle in the direct rays of the sun. Use a car washing soap. Don't use strong soaps or chemical detergents. Be sure to rinse the vehicle well, removing all soap residue completely. You can get GM-approved cleaning products from your dealer. See *GM Vehicle Care/Appearance Materials on page 5-94*. Don't use cleaning agents that are petroleum based, or that contain acid or abrasives. All cleaning agents should be flushed promptly and not allowed to dry on the surface, or they could stain. Dry the finish with a soft, clean chamois or an all-cotton towel to avoid surface scratches and water spotting.

High pressure car washes may cause water to enter your vehicle.

Cleaning Exterior Lamps/Lenses

Use only lukewarm or cold water, a soft cloth and a car washing soap to clean exterior lamps and lenses. Follow instructions under "Washing Your Vehicle."

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 *GM Vehicle Care/Appearance Materials on page 5-94*.

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 dull the finish or leave swirl marks.**

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 full-strength glass cleaning liquid. The windshield is clean if beads do not form when you rinse it 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

Keep your 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.

The surface of these wheels is similar to the painted surface of your vehicle. Don't use strong soaps, chemicals, abrasive polishes, abrasive cleaners, cleaners with acid, or abrasive cleaning brushes on them because you could damage the surface. Do not use chrome polish on aluminum wheels.

Don't take your vehicle through an automatic car wash that has silicone carbide tire cleaning brushes. These brushes can also damage the surface of these wheels.

Tires

To clean your tires, use a stiff brush with tire cleaner.

Notice: **When applying a tire dressing, always take care to wipe off any overspray or splash from all painted surfaces on the body or wheels of the vehicle. Petroleum-based products may damage the paint finish and tires.**

Sheet Metal Damage

If your 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 avaliable from your dealer or other service outlets. Larger areas of finish damage can be corrected in your dealer's body and paint shop.

Underbody Maintenance

Chemicals used for ice and snow removal and dust control can collect on the underbody. If these are not removed, accelerated corrosion (rust) can occur on the underbody parts such as fuel lines, frame, floor pan and exhaust system even though they have corrosion protection.

At least every spring, flush these materials from the underbody with plain water. Clean any areas where mud and debris can collect. Dirt packed in close areas of the frame should be loosened before being flushed. Your dealer or an underbody car washing system can do this for you.

Chemical Paint Spotting

Some weather and atmospheric conditions can create a chemical fallout. Airborne pollutants can fall upon and attack painted surfaces on your vehicle. This damage can take two forms; blotchy, ringlet-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.

GM Vehicle Care/Appearance Materials

See your GM dealer for more information on purchasing the following products.

GM Vehicle Care/Appearance Materials

Description	Usage
Polishing Cloth Wax–Treated	Interior and exterior polishing cloth.
Tar and Road Oil Remover	Removes tar, road oil and asphalt.
Chrome Cleaner and Polish	Use on chrome or stainless steel.
White Sidewall Tire Cleaner	Removes soil and black marks from whitewalls.
Vinyl Cleaner	Cleans vinyl tops, upholstery and convertible tops.
Glass Cleaner	Removes dirt, grime, smoke and fingerprints.

GM Vehicle Care/Appearance Materials (cont'd)

Description	Usage
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.

GM Vehicle Care/Appearance Materials (cont'd)

Description	Usage
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.

GM Vehicle Care/Appearance Materials (cont'd)

Description	Usage
Odor Eliminator	Odorless spray odor eliminator used on fabrics, vinyl, leather and carpet.
See your General Motors parts department for these products. See *Part D: Recommended Fluids and Lubricants on page 6-17.*	

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'll find this label on the front passenger door frame. It's very helpful if you ever need to order parts. On this label is:

- your VIN,
- the model designation,
- paint information and
- a list of all 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 Air Bag-Equipped Vehicle on page 1-73.*

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.

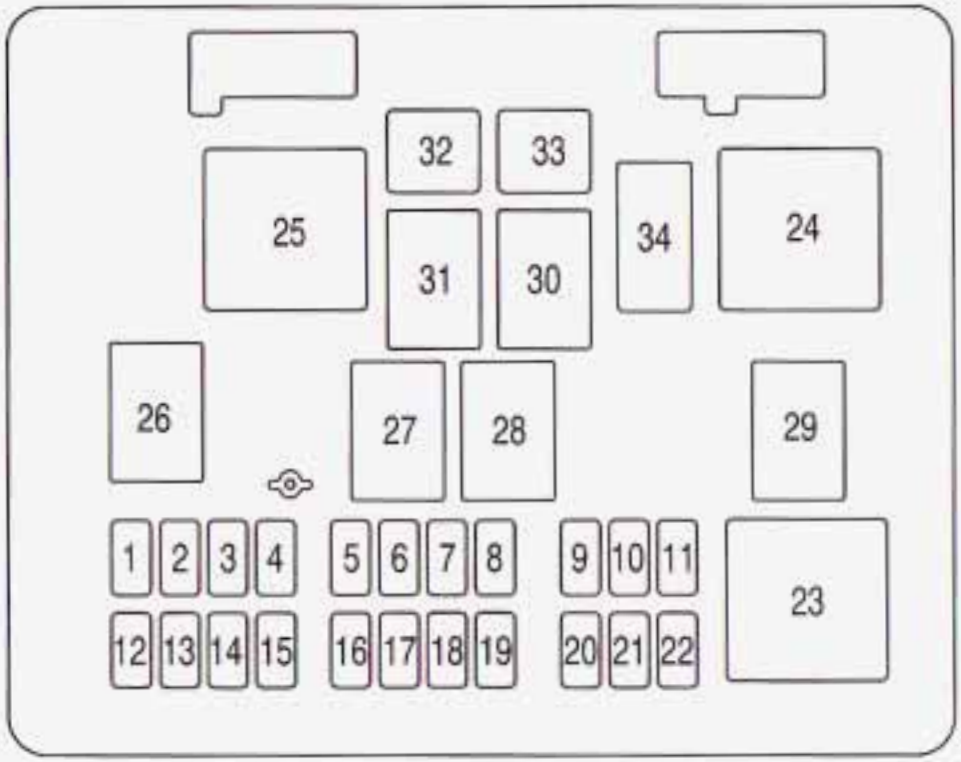
Windshield Wiper Fuses

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.

Fuses and Circuit Breakers

Floor Console Fuse Block

The floor console fuse block is located under the driver's seat.



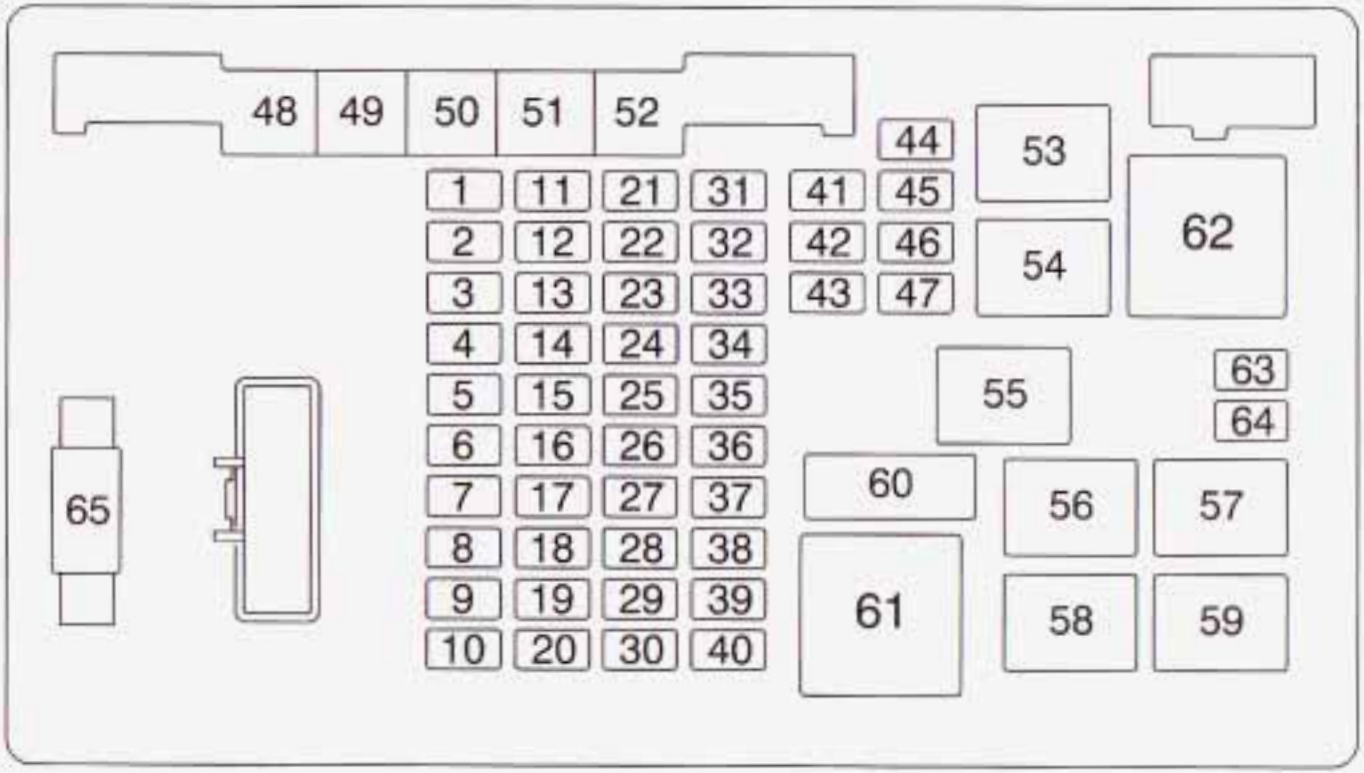
Front of Vehicle

Fuse	Usage
1	Spare
2	Outside Rear View Mirror
3	Courtesy Lamp/SEO
4	Left Rear Stop/Turn Signal
5	Cargo Locks
6	Right Rear Stop/Turn Signal
7	Driver Locks
8	Stop/Center High Mounted Stop Lamp
9	Climate Control 1
10	Climate Control
11	Brakes
12	Heated Mirror/Defogger
13	Right Rear Blower
14	Driver Turn Mirror
15	Door Locks
16	Upfitter Park
17	Not Available
18	Left Rear Park Lamp
19	Pass Turn Mirror
20	Right Rear Park Lamp
21	Trailer Park Lamp

Fuse	Usage
22	Front Park Lamp
32	Auxilary1
33	Auxilary2
Relays	**Usage**
23	Window Residual Accessory Power
24	Auxiliary
25	Right Rear Defogger
26	Courtesy Lamp
27	Cargo Unlock
28	Driver Unlock
29	Park Lamp
30	Door Locks
31	Pass Unlock
Circuit Breaker	**Usage**
34	Power Window

Engine Compartment Fuse Block

The fuse block is in the engine compartment on the driver's side of the vehicle.



Front of Vehicle

Fuse	Usage
1	Radio Battery
2	Powertrain Control Module Battery
3	Left Rear Turn Lamp
4	Right Rear Turn Lamp
5	Backup Lamps Trailer Wiring
6	Ignition 0
7	Stop Lamp
8	Right Rear Defogger/Heated Mirror
9	Right Daytime Running Lamp/Turn Signal
10	Left Daytime Running Lamp/Turn Signal
11	Truck Body Control Module 4
12	Fuel Pump
13	Trailer
14	Flasher
15	Horn
16	Truck Body Control Module 3
17	Trailer Stop/Turn Signal
18	Truck Body Control Module 2
19	Truck Body Control Module
20	Remote Function Actuator
21	Engine 2
22	Ignition E

Fuse	Usage
23	Engine 1
24	Truck Body Control Module Ignition 1
25	Spare
26	RPA/Inside Rearview Mirror
27	Crankcase
28	Brake Transmission Shift Interlock System
29	Auxiliary Power Outlets
30	Cigarette Lighter
31	Instrument Panel Cluster
32	Air Conditioning
33	Spare
34	Vent
35	Spare
36	Vehicle Back Up
37	Supplemental Inflatable Restraint System
38	Powertrain Control Module Ignition 1
39	Oxygen Sensor B
40	Oxygen Sensor A
41	Windshield Wipers
42	Right Headlamp — Low Beam
43	Left Headlamp — Low Beam

Fuse	Usage
44	Left Headlamp — High Beam
45	Right Headlamp — High Beam
46	Truck Body Control Module-Accessory
47	Front Windshield Wiper
48	Anti-Lock Brakes
49	Ignition A
50	Trailer
51	Climate Control Blower
52	Ignition B
63	Spare
64	Spare

Relay	Usage
53	Windshield Wiper
54	Air Conditioning
55	Spare
56	Headlamp —High Beam
57	Fuel Pump
58	Headlamp — Low Beam
59	Horn
61	Starter
62	Spare

Fuse Circuit Breaker	Usage Usage
60	Power Seat

Capacities and Specifications

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

See refrigerant charge label under the hood for charge capacity information and requirements.

Engine Specifications

Engine	VIN Code	Transmission	Spark Plug Gap	Firing Order	Wheel Nut Torque
VORTEC™ 4300 V6 MFI[1]	W	M30	0.060 inches (1.52 mm)	1–6–5–4–3–2	140 lb ft 190 N•m
VORTEC™ 4800 V8 MFI[1]	V	MT1	0.060 inches (1.52 mm)	1–8–7–2–6–5–4–3	140 lb ft 190 N•m
VORTEC™ 5300 V8 MFI[1]	T	M30	0.060 Inches (1.52 mm)	1–8–7–2–6–5–4–3	140 lb ft 190 N•m
VORTEC™ 6000 V8 MFI[1]	U	MT1	0.060 inches (1.52 mm)	1–8–7–2–6–5–4–3	140 lb ft 190 N•m

[1]Sequential Fuel Injection

Application	Capacities	
	QTY Without Rear Heater	QTY With Rear Heater
Cooling System		
After refill, the level must be rechecked. See "Cooling System" in the Index.		
VORTEC™ 4300 V6	14.2 quarts (13.5 L)	16.3 quarts (15.5 L)
VORTEC™ 4800 V8	14.7 quarts (14.0 L)	16.9 quarts (16.0 L)
VORTEC™ 5300 V8	13.9 quarts (13.2 L)	16.0 quarts (15.2 L)
VORTEC™ 6000 V8	14.5 quarts (13.8 L)	17.1 quarts (16.2 L)

Application	Capacities	
	English	Metric
Engine Oil With Filter		
After refill, the level must be rechecked. Add enough engine oil so that the fluid is within the proper operating range. See *Engine Oil on page 5-14*		
VORTEC™ 4300 V6 (Vin W)	4.5 quarts	4.3 L
VORTEC™ 4800 V8 (Vin V)	6.0 quarts	5.7 L
VORTEC™ 5300 V8 (Vin T)	6.0 quarts	5.7 L

Application	Capacities	
	QTY Without Rear Heater	QTY With Rear Heater
VORTEC™ 6000 V8 (Vin U)	6.0 quarts	5.7 L
Fuel Tank		
Standard Tank (Passenger and Cargo)	31.0 gallons	117.3 L
Standard Tank (Cab and Chassis)	35.0 gallons	132.5 L
Optional Tank* (Cab and Chassis)	55.0 gallons	208.1 L
* 159 inch wheelbase or 177 inch wheel base only		
Air Conditioning Refrigerant Capacity		
Air Conditioning Refrigerant R-134a (Front)	1.8 lbs	(0.81 kg)
Air Conditioning Refrigerant R-134a (Front and Rear)	3.1 lbs	(1.41 kg)

Normal Maintenance Replacement Parts

Replacement part numbers listed in this section are based on the latest information available at the time of printing, and are subject to change. If a part listed in this manual is not the same as the part used in your vehicle when it was built, or if you have any questions, please contact your GM dealer.

These specifications are for information only. If you have any questions, see the service manual for the chassis or refer to the body manufacturer's publications.

VIN Code	W	V	T	U
Oil Filter*	PF47	PF44	PF44	PF44
Engine Air Cleaner /Filter*	A1519C	A1519C	A1519C	A1519C
Passenger Compartment Air Filter Kit**	52485513	52485513	52485513	52485513
PCV Valve*	CV 769–C	CV 2001–C	CV 2001–C	CV 2001–C
Spark Plugs	41–932	41–974	41–974	41–974
Fuel Filter*	6F6Z6	GF626	GF626	GF626
Wiper Blades**	15153642	15153642	15153642	15153642
Wiper Blade Type	ITTA	ITTA	ITTA	ITTA
Wiper Blade Length	22 inches (56.0 cm)	22 inches (56.0 cm)	22 inches (56.0 cm)	22 inches (56.0 cm)

* ACDelco® part number
** GM part number

Section 6 Maintenance Schedule

Maintenance Schedule 6-2
Introduction 6-2
Your Vehicle and the Environment 6-2
Maintenance Requirements 6-2
How This Section is Organized 6-3
Part A: Scheduled Maintenance Services 6-4
Using Your Maintenance Schedule 6-4
Scheduled Maintenance 6-5
Part B: Owner Checks and Services 6-10
At the First 100, 1,000 and 6,000 Miles (160, 1 600 and 10 000km) 6-10
At Each Fuel Fill 6-10
At Least Once a Month 6-10
At Least Twice a Year 6-11
At Least Once a Year 6-12
Part C: Periodic Maintenance Inspections 6-15
Steering and Suspension Inspection 6-15
Exhaust System Inspection 6-15
Fuel System Inspection 6-15
Engine Cooling System Inspection 6-15
Throttle System Inspection 6-16
Rear Axle Service 6-16
Transfer Case and Front Axle (All-Wheel Drive) Inspection 6-16
Brake System Inspection 6-16
Part D: Recommended Fluids and Lubricants 6-17
Part E: Maintenance Record 6-19

Maintenance Schedule

Introduction

IMPORTANT:
KEEP ENGINE OIL AT THE PROPER LEVEL AND CHANGE AS RECOMMENDED

Protection Plan

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.

Your Vehicle and the Environment

Proper vehicle maintenance not only helps to keep your vehicle in good working condition, but also helps the environment. All recommended maintenance procedures are important. Improper vehicle maintenance can even affect the quality of the air we breathe. Improper fluid levels or the wrong tire inflation can increase the level of emissions from your vehicle. To help protect our environment, and to keep your vehicle in good condition, please maintain your vehicle properly.

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 recommended maintenance may not be covered by warranty.

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 dealer's service department or another qualified service center do these jobs.

⚠ 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 7-11.*

"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 or another qualified service center should perform.

"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

This part contains engine oil and chassis lubrication scheduled maintenance which explains the engine oil life system and how it indicates when to change the engine oil and filter. Lubricate chassis components with each oil change. Also, listed 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 don't know exactly how you'll 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 you should schedule them. When you go to your dealer for your service needs, you'll 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.

This schedule is for vehicles that:

- carry passengers and cargo within recommended limits. You will find these limits on your vehicle's Certification/Tire label. See *Loading Your Vehicle on page 4-30.*
- are driven on reasonable road surfaces within driving limits.
- use the recommended fuel. See *Gasoline Octane on page 5-5.*

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 6-10* and *Part C: Periodic Maintenance Inspections on page 6-15.*

Footnotes

†The U.S. Environmental Protection Agency or the California Air Resources Board has determined that the failure to perform this maintenance item will not nullify the emission warranty or limit recall liability prior to the completion of the vehicle's useful life. We, however, urge that all recommended maintenance services be performed at the indicated intervals and the maintenance be recorded.

+A good time to check your brakes is during tire rotation. See Brake System Inspection on page 6-16.

Engine Oil and Chassis Lubrication Scheduled Maintenance

Change engine oil and filter as indicated by the GM Oil Life System (or every 12 months, whichever occurs first.) Reset the system.

Your vehicle has a computer system that lets you know when to change the engine oil and filter. This is based on engine revolutions and engine temperature, and not on mileage. Based on driving conditions, the mileage at which an oil change will be indicated can vary considerably. For the oil life system to work properly, you must reset the system every time the oil is changed.

When the system has calculated that oil life has been diminished, it will indicate that an oil change is necessary. A change engine oil message will come on. Change your oil as soon as possible within the next two times you stop for fuel. It is possible that, if you are driving under the best conditions, the oil life system may not indicate that an oil change is necessary for over a year. However, your engine oil and filter must be changed at least once a year and at this time the system must be reset. It is also important to check your oil regularly and keep it at the proper level.

If the system is ever reset accidentally, you must change your oil at 3,000 miles (5 000 km) since your last oil change. Remember to reset the oil life system whenever the oil is changed. See *Engine Oil on page 5-14* for information on resetting the system.

An Emission Control Service.

Lubricate chassis components with each engine oil and filter change.

Lubricate the front suspension, kingpin bushings, steering linkage and rear driveline center splines.

After the services are performed, record the date, odometer reading and who performed the service on the maintenance record pages in Part E of this schedule.

7,500 Miles (12 500 km)

- ❑ Check rear/front axle fluid level and add fluid as needed. Check constant velocity joints and axle seals for leaking.
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-62* for proper rotation pattern and additional information. *(See footnote +.)*

15,000 Miles (25 000 km)

- ❑ Check rear/front axle fluid level and add fluid as needed. Check constant velocity joints and axle seals for leaking.
- ❑ Vehicles With GVWR Above 10,000 lbs. Only: Inspect shields for damage or looseness. Adjust or replace as required. *This is a Noise Emission Control Service. Applicable only to vehicles sold in the United States.*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-62* for proper rotation pattern and additional information. *(See footnote +.)*

22,500 Miles (37 500 km)

- ❑ Check rear/front axle fluid level and add fluid as needed. Check constant velocity joints and axle seals for leaking.
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-62* for proper rotation pattern and additional information. *(See footnote +.)*

30,000 Miles (50 000 km)

- ❑ Check rear/front axle fluid level and add fluid as needed. Check constant velocity joints and axle seals for leaking.
- ❑ Clean and repack the front wheel bearings (or at each brake relining, whichever occurs first).
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-62* for proper rotation pattern and additional information. *(See footnote +.)*
- ❑ Replace fuel filter. *An Emission Control Service. (See footnote †.)*

- ❑ Vehicles With GVWR Above 10,000 lbs. Only: Inspect shields for damage or looseness. Adjust or replace as required. *This is a Noise Emission Control Service. Applicable only to vehicles sold in the United States.*

37,500 Miles (62 500 km)

- ❑ Check rear/front axle fluid level and add fluid as needed. Check constant velocity joints and axle seals for leaking.
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-62* for proper rotation pattern and additional information. *(See footnote +.)*

45,000 Miles (75 000 km)

- ❑ Check rear/front axle fluid level and add fluid as needed. Check constant velocity joints and axle seals for leaking.
- ❑ Vehicles With GVWR Above 10,000 lbs. Only: Inspect shields for damage or looseness. Adjust or replace as required. *This is a Noise Emission Control Service. Applicable only to vehicles sold in the United States.*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-62* for proper rotation pattern and additional information. *(See footnote +.)*

50,000 Miles (83 000 km)

- ❑ Change automatic transmission fluid and filter if the vehicle's GVWR is over 8,600 lbs or 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 at 100,000 miles (166 000 km).

52,500 Miles (87 500 km)

- ❑ Check rear/front axle fluid level and add fluid as needed. Check constant velocity joints and axle seals for leaking.
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-62* for proper rotation pattern and additional information. *(See footnote +.)*

60,000 Miles (100 000 km)

- ❑ Check rear/front axle fluid level and add fluid as needed. Check constant velocity joints and axle seals for leaking.
- ❑ Clean and repack the front wheel bearings (or at each brake relining, whichever occurs first).
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-62* for proper rotation pattern and additional information. *(See footnote +.)*
- ❑ Replace fuel filter. *An Emission Control Service. (See footnote †.)*
- ❑ Vehicles With GVWR Above 10,000 lbs. Only: Inspect shields for damage or looseness. Adjust or replace as required. *This is a Noise Emission Control Service. Applicable only to vehicles sold in the United States.*
- ❑ Inspect Evaporative Control System. Check all fuel and vapor lines and hoses for proper hook-up, routing and condition. Check that the purge valve works properly, if equipped. Replace as needed. *An Emission Control Service. (See footnote †.)*

67,500 Miles (112 500 km)

- ❑ Check rear/front axle fluid level and add fluid as needed. Check constant velocity joints and axle seals for leaking.
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-62* for proper rotation pattern and additional information. *(See footnote +.)*

75,000 Miles (125 000 km)

- ❑ Check rear/front axle fluid level and add fluid as needed. Check constant velocity joints and axle seals for leaking.
- ❑ Vehicles With GVWR Above 10,000 lbs. Only: Inspect shields for damage or looseness. Adjust or replace as required. *This is a Noise Emission Control Service. Applicable only to vehicles sold in the United States.*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-62* for proper rotation pattern and additional information. *(See footnote +.)*

82,500 Miles (137 500 km)

- ❑ Check rear/front axle fluid level and add fluid as needed. Check constant velocity joints and axle seals for leaking.
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-62* for proper rotation pattern and additional information. *(See footnote +.)*

90,000 Miles (150 000 km)

- ❑ Check rear/front axle fluid level and add fluid as needed. Check constant velocity joints and axle seals for leaking.
- ❑ Clean and repack the front wheel bearings (or at each brake relining, whichever occurs first.)

- ❑ Replace fuel filter. *An Emission Control Service. (See footnote †.)*
- ❑ Vehicles With GVWR Above 10,000 lbs. Only: Inspect shields for damage or looseness. Adjust or replace as required. *This is a Noise Emission Control Service. Applicable only to vehicles sold in the United States.*
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-62* for proper rotation pattern and additional information. *(See footnote +.)*

97,500 Miles (162 500 km)

- ❑ Check rear/front axle fluid level and add fluid as needed. Check constant velocity joints and axle seals for leaking.
- ❑ Rotate tires. See *Tire Inspection and Rotation on page 5-62* 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.*
- ❑ Change automatic transmission fluid and filter if the vehicle's GVWR is over 8600 lbs or 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 haven't used your vehicle under severe service conditions listed previously and, therefore, haven't changed your automatic transmission fluid, change both the fluid and filter.

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 5-24* 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 the First 100, 1,000 and 6,000 Miles (160, 1 600 and 10 000km)

For vehicles with dual wheels, check dual wheel nut torque. For proper torque, see *Capacities and Specifications on page 5-103.*

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 5-14* 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 5-24* 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 5-38* for further details.

At Least Once a Month

Tire Inflation Check

Make sure tries are inflated to the correct pressures. Don't forget to check your spare tire. See *Tires on page 5-60* for further details.

Cassette Tape Player Service

Clean cassette tape player. Cleaning should be done every 50 hours of tape play. See *Audio System(s) on page 3-41* 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 air bag coverings, and have them repaired or replaced. (The air bag 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 *Cleaning the Outside of Your Vehicle on page 5-90.*

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 ratchet/wheel wrench to tighten the cable. See *Changing a Flat Tire on page 5-70.*

Engine Air Cleaner Filter Restriction Indicator Check

Your vehicle has an engine air cleaner filter restriction indicator located on the air cleaner in the engine compartment. The indicator lets you know when the air cleaner filter is dirty and needs to be changed. Check the indicator at least twice a year or when your engine oil is changed, whichever occurs first. See *Engine Air Cleaner/Filter on page 5-19* for more information. Inspect your air cleaner filter restriction indicator more often if the vehicle is used in dusty areas or under off road conditions.

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 6-17.*

Automatic Transmission Check

Check the transmission fluid level; add if needed. See *Automatic Transmission Fluid on page 5-21.* 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 hood hinges, hood prop rod pivot, fuel filler door, rear compartment hinges, latches, locks, hood latch assembly, secondary latch, pivots, spring anchor, release pawl and any moving seat hardware. 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 check, the vehicle could move suddenly. If it does, you or others could be injured. Follow the steps below.

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 2-26* 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 check, the vehicle could move suddenly. If it does, you or others could be injured. Follow the steps below.

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 2-26* if necessary.

   Be ready to apply the regular brake immediately if the vehicle begins to move.
3. With the engine off, turn the key to the RUN position, but don't 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 key to LOCK in each shift lever position.

- The key 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 or other qualified service center 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 7-11.*

Steering and Suspension 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.

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 2-30.*

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.

Rear Axle Service

Check the gear lubricant level in the rear axle and add if needed. See *Rear Axle on page 5-50*. A fluid loss may indicate a problem. Check the axle and repair it if needed.

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 with the American Petroleum Institute Certified for Gasoline Engines starburst symbol of the proper viscosity. To determine the preferred viscosity for your vehicle's engine, see *Engine Oil on page 5-14.*
Engine Coolant	50/50 mixture of clean, drinkable water and use only DEX-COOL® Coolant. See *Engine Coolant on page 5-24.*
Hydraulic Brake System	Delco Supreme 11 Brake Fluid or equivalent DOT-3 brake fluid.
Windshield Washer Solvent	GM Optikleen® Washer Solvent or equivalent.

Usage	Fluid/Lubricant
Parking Brake Cable Guides	Chassis Lubricant (GM Part No. U.S. 12377985, in Canada 88901242, or equivalent) or lubricant meeting requirements of NLGI #2, Category LB or GC-LB.
Power Steering System	GM Power Steering Fluid (GM Part No. U.S. 1052884, in Canada 993294, or equivalent).
Automatic Transmission	DEXRON® -III Automatic Transmission Fluid.
Key Lock Cylinders	Multi-Purpose Lubricant, Superlube (GM Part No. U.S. 12346241, in Canada 10953474, or equivalent).
Chassis Lubrication	Chassis Lubricant (GM Part No. U.S. 12377985, in Canada 88901242, or equivalent) 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, or equivalent).

Usage	Fluid/Lubricant
Front and Rear Axle	SAE 75W-90 Synthetic Axle Lubricant (GM Part No. U.S. 12378261, in Canada 10953455) or equivalent meeting GM Specification 9986115.
Transfer Case	DEXRON® -III Automatic Transmission Fluid.
One-Piece Propshaft Spline, Two-Piece Propshaft Spline	Spline Lubricant, Special Lubricant (GM Part No. U.S. 12345879, in Canada 10953511) or lubricant meeting requirements of GM 9985830.

Usage	Fluid/Lubricant
Hood Hinges	Multi-Purpose Lubricant, Superlube (GM Part No. U.S. 12346241, in Canada 10953474, or equivalent).
Weatherstrip Conditioning	Dielectric Silicone Grease (GM Part No. U.S. 12345579, in Canada 10953014, or equivalent).
Weatherstrip Squeaks	Synthetic Grease with Teflon, Superlube (GM Part No. U.S. 12371287, in Canada 10953437, or equivalent).

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

Section 7 Customer Assistance Information

Customer Assistance Information 7-2
Customer Satisfaction Procedure 7-2
Online Owner Center 7-4
Customer Assistance for Text Telephone (TTY) Users 7-4
Customer Assistance Offices 7-4
GM Mobility Program for Persons with Disabilities 7-5
Roadside Assistance Program 7-6
Courtesy Transportation 7-8

Reporting Safety Defects 7-10
Reporting Safety Defects to the United States Government 7-10
Reporting Safety Defects to the Canadian Government 7-10
Reporting Safety Defects to General Motors 7-11
Service Publications Ordering Information 7-11

Customer Assistance Information

Customer Satisfaction Procedure

Your satisfaction and goodwill are important to your dealer and to GMC. 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 GMC Consumer Relations Manager by calling 1-800-GMC-8782 (1-800-462-8782, Customer Assistance prompt). In Canada, contact GM of Canada Customer Communication Centre in Oshawa 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 (This is available from the vehicle registration or title, or the plate at the top left of the instrument panel and visible through the windshield.)
- Dealership name and location
- Vehicle delivery date and present mileage

When contacting GMC, 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 GM/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 filling out 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 using the toll-free telephone number or write them at the following address:

BBB Auto Line
Council of Better Business Bureaus, Inc.
4200 Wilson Boulevard
Suite 800
Arlington, VA 22203-1804

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 at MyGMLink is a resource for your GM ownership needs. You can find your specific vehicle information all in one place.

The 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.
- 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 MyGMLink members.

Refer to the web for updated information.

To register your vehicle visit www.MyGMLink.com.

Customer Assistance for Text Telephone (TTY) Users

To assist customers who are deaf, hard of hearing, or speech-impaired and who use the Text Telephones (TTYs), GMC has TTY equipment available at its Customer Assistance Center. Any TTY user can communicate with GMC by dialing: 1-800-GMC-8583 (462-8583). (TTY users in Canada can dial 1-800-263-3830.)

Customer Assistance Offices

GMC encourages customers to call the toll-free number for assistance. If a U.S. customer wishes to write to GMC, the letter should be addressed to GMC's Customer Assistance Center.

United States

Pontiac-GMC Customer Assistance Center
P.O. Box 33172
Detroit, MI 48232-5172

1-800-GMC-8782 (462-8782)
1-800-GMC-8583 (462-8583) (For Text Telephone devices (TTYs))
Roadside Assistance: 1-800-GMC-8782 (462-8782)
Fax Number: 313-381-0022

From Puerto Rico
1-800-496-9992 (English)
1-800-496-9993 (Spanish)
Fax Number: 313-381-0022

U.S. Virgin Islands:
1-800-496-9994
Fax Number: 313-381-0022

Canada

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

All Overseas Locations

Please contact the local General Motors Business Unit.

Mexico, Central America and Caribbean Islands/Countries (Except Puerto Rico and U.S. Virgin Islands)

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 Program for Persons with Disabilities

This program, available to qualified applicants, can reimburse you up to $1,000 toward aftermarket driver or passenger adaptive equipment you may require for your vehicle (hand controls, wheelchair/scooter lifts, etc.).

This program can also provide you with free resource information, such as area driver assessment centers and mobility equipment installers. The program is available for a limited period of time from the date of vehicle purchase/lease. See your dealer for more details 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. All TTY users call 1-800-263-3830.

Roadside Assistance Program

GMC's Roadside Assistance Provides stranded owners with over-the-phone roadside repairs, location of the nearest GMC dealer or the following special services:

Flat Tire Change: Installation of spare tire will be covered at no charge (customer is responsible for repair or replacement of tire).

Fuel Delivery: Delivery of enough fuel for the customer to get to the nearest service station (up to $5.00) will be covered.

Jump Start: No-start situations which require a battery jump start will be covered at no charge.

Lock Out: 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 Towing Service: Towing to the nearest GMC dealer for warranty related disablements will be covered.

Trip Routing: Custom-made, computerized highlighted maps using the most direct or scenic route are provided free of charge. Maps include points of interest and a list of GMC dealers along the route. Also included is a list of hotels along the route that are discounted through affiliation with "Quest International." Trip Routing is available through Roadside Assistance by calling 1-800-GMC-8782 (462-8782). Please be prepared to provide your Vehicle Identification Number (VIN). Allow five working days for fulfillment.

Trip Interruption Assistance: GMC will reimburse any reasonable trip interruption expenses (up to $500.00) when directly associated with warranty disablement. Trip interruption service covers expenses such as meals and overnight lodging if vehicle disablement occurs at least 150 miles (240 km) from your home or rental property. You will be required to obtain prior approval from GMC Roadside Assistance and pay for expenses at the time of disablement. Original receipts should be submitted to GMC Roadside Assistance for reimbursement. A service representative will provide assistance when you call.

The Roadside Assistance services listed are available to retail lease customers operating 2003 GMC light duty trucks for a period of 3 years/36,000 miles (60,000 km). All services must be pre-arranged by GMC Roadside Assistance.

Over-the-phone assistance, such as providing the name of the closest dealer or minor technical advice, etc., is available to all owner/operators of GMC trucks, regardless of vehicle or mileage.

Just dial GMC Roadside Assistance at 1-800-GMC-8782 (1-800-462-8782, Roadside Assistance prompt) to reach a qualified representative who can assist you. Text telephone (TTY) users, call 1-888-889-2438.

Your Roadside Assistance representative will ask for the following information when your call is received:

- Vehicle Identification Number (VIN)
- Name and home address
- Telephone number and location from which you are calling
- Location, license plate number and color of your GMC truck
- Mileage of vehicle and description of problem

Roadside Assistance is available 24 hours a day, 7 days a week, 365 days a year, including weekends and holidays. Should you have any questions about roadside assistance, call the GMC Roadside Assistance Center or contact your dealer.

Roadside Assistance is not part of or included in the coverage provided by the New Vehicle Limited Warranty. GMC reserves the right to make any changes or discontinue the Roadside Assistance program at anytime 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

GMC 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.

Plan Ahead When Possible

When your vehicle requires warranty service, you should contact your dealer and request an appointment. By scheduling a service appointment and advising your service consultant of your transportation needs, your dealer can help minimize your inconvenience.

If your vehicle cannot be scheduled into the service department immediately, keep driving it until it can be scheduled for service, unless, of course, the problem is safety-related. If it is, please call your dealership, let them know this, and ask for instructions.

If the dealer requests that you simply drop the vehicle off for service, you are urged to do so as early in the work day as possible to allow for the same day repair.

Transportation Options

Warranty service can generally be completed while you wait. However, if you are unable to wait, GMC 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 shuttle ride to a destination up to 10 miles from the dealership.

Public Transportation or Fuel Reimbursement

If your vehicle requires overnight warranty repairs, reimbursement up to $30 per day (five days maximum) may be available for the use of public transportation such as taxi or bus. In addition, should you arrange transportation through a friend or relative, reimbursement for reasonable fuel expenses up to $10 per day (five day maximum) may be available. Claim amounts should reflect actual costs and be supported by original receipts.

Courtesy Rental Vehicle

When your vehicle is unavailable due to overnight warranty repairs, your dealer may arrange to provide you with a courtesy rental vehicle or reimburse you for a rental vehicle you obtained, at an actual cost, up to a maximum of $30.00 per day supported by receipts. This requires that you sign and complete a rental agreement and meet state, local and rental vehicle provider requirements. Requirements vary and may include minimum age requirements, insurance coverage, credit card, etc. You are responsible for fuel usage charges and may also be responsible for taxes, levies, usage fees, excessive mileage or rental usage beyond the completion of the repair.

Generally it is not possible to provide a like-vehicle as a courtesy rental.

Additional Program Information

Courtesy Transportation is available during the Bumper-to-Bumper warranty coverage period, but it *is not* part of the New Vehicle Limited Warranty. A separate booklet entitled *Warranty and Owner Assistance Information* furnished with each new vehicle provides detailed warranty coverage information.

Courtesy Transportation is available only at participating dealers and all program options, such as shuttle service, may not be available at every dealer. Please contact your dealer for specific information about availability. All Courtesy Transportation arrangements will be administered by appropriate dealer personnel.

Canadian Vehicles: For warranty repairs during the Complete Vehicle Coverage period of the General Motors of Canada New Vehicle Limited Warranty, alternative transportation may be available under the Courtesy Transportation Program. Please consult your dealer for details.

General Motors reserves the right to unilaterally modify, change or discontinue Courtesy Transportation at any time and to resolve all questions of claim eligibility pursuant to the terms and conditions described herein at its sole discretion.

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'll notify us. Please call us at 1-800-GMC-8782 (1-800-462-8782), or write:

Pontiac-GMC Customer Assistance Center
P.O. Box 33172
Detroit, MI 48232-5172

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.

RETAIL SELL PRICE: $120.00

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.

RETAIL SELL PRICE: $50.00

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.

A

Accessory Power Outlets 3-17
Adding Equipment to Your Air Bag-Equipped Vehicle 1-74
Adding Washer Fluid 5-39
Additional Program Information 7-9
Additives, Fuel 5-6
Add-On Electrical Equipment 5-97
Add-On Equipment 4-31
Adjusting the Speakers (Balance/Fade) 3-44, 3-46, 3-51, 3-62
Air Bag
  Off Light 3-29
  Readiness Light 3-28
Air Bag System 1-63
  Adding Equipment to Your Air Bag-Equipped Vehicle 1-74
  Air Bag Off Switch 1-70
  How Does an Air Bag Restrain? 1-69
  Servicing Your Air Bag-Equipped Vehicle 1-73
  What Makes an Air Bag Inflate? 1-68
  What Will You See After an Air Bag Inflates? 1-69
  When Should an Air Bag Inflate? 1-67
  Where Are the Air Bags? 1-66
Air Bag Systems 1-68
Air Cleaner/Filter, Engine 5-19
All Overseas Locations 7-5
All-Wheel Drive 5-49
All-Wheel Drive (AWD) System 2-26
Aluminum Wheels 5-92
AM 3-74
AM-FM Radio 3-42
Antenna, Fixed Mast 3-76
Anti-lock Brake System 4-7
Anti-Lock Brake, System Warning Light 3-33
Appearance Care 5-86
  Care of Safety Belts 5-89
  Chemical Paint Spotting 5-93
  Cleaning the Inside of Your Vehicle 5-86
  Cleaning the Outside of Your Vehicle 5-90
  Finish Damage 5-93
  GM Vehicle Care/Appearance Materials 5-94
  Sheet Metal Damage 5-92
  Underbody Maintenance 5-93
  Weatherstrips 5-89
Ashtrays 3-17
Audio System(s) 3-41
  AM-FM Radio 3-42
  Care of Your Cassette Tape Player 3-74
  Care of Your CD Player 3-76
  Care of Your CDs 3-75
  Chime Level Adjustment 3-76
  Fixed Mast Antenna 3-76
  Radio with Cassette and CD 3-49
  Radio with CD 3-45
  Radio with Six-Disc CD 3-60
  Rear Seat Audio (RSA) 3-71

Audio System(s) (cont.)
Setting the Time for Radios with Radio Data Systems (RDS) 3-42
Setting the Time for Radios without Radio Data Systems (RDS) 3-41
Theft-Deterrent Feature 3-73
Understanding Radio Reception 3-74
Automatic Transmission
Fluid 5-21
Operation 2-24
Automatic Transmission Check 6-11
Automatic Transmission Shift Lock Control System Check 6-13

B

Backing Up 4-43
Battery 5-43
Battery Replacement 2-6
Battery Run-Down Protection 3-16
Before Leaving on a Long Trip 4-20
Body Lubrication Service 6-12
Brake
Parking 2-26
System Inspection 6-16
System Warning Light 3-32
Brake Adjustment 5-42
Brake Fluid 5-40
Brake Pedal Travel 5-42
Brake Wear 5-42
Brakes 5-40
Braking 4-6
Braking in Emergencies 4-8
Break-In, New Vehicle 2-20
Bulb Replacement 5-54
Front Turn Signal, Sidemarker and Parking Lamps 5-56
Halogen Bulbs 5-54
Headlamps 5-54
Replacement Bulbs 5-58
Taillamps 5-56
Buying New Tires 5-65

C

California Fuel 5-6
Canada 7-5
Canadian Owners ii
Canadian Roadside Assistance 7-7
Capacities 5-104
Capacities and Specifications 5-103
Carbon Monoxide 4-24, 4-32, 2-30
Care of
Safety Belts 5-89
Your Cassette Tape Player 3-74
Your CD Player 3-76
Your CDs 3-75
Cargo Vans and Cab and Chassis Models with an Air Bag Off Switch 1-47

Cargo Vans and Cab and Chassis Models without an Air Bag Off Switch 1-46
Cargo Vans with a Passenger Air Bag and an Air Bag Off Switch, Passenger Vans and Cab and Chassis Models 1-35
Cargo Vans with a Passenger Air Bag and without an Air Bag Off Switch 1-38
Cassette Tape Messages 3-57
Cassette Tape Player Service 6-10
CD Adapter Kits 3-57
Center High Mounted Stoplamp (CHMSL) 5-58
Center High-Mounted Stoplamp 3-14
Center Passenger Position, Safety Belts 1-23, 1-24
Chains, Tires 5-69
Charging System Light 3-30
Check
  Engine Light 3-34
  Gages Warning Light 3-39
Check Engine Light 3-34
Checking Brake Fluid 5-41
Checking Coolant 5-26
Checking Engine Oil 5-14
Checking Things Under the Hood 5-9
Checking Your Restraint Systems 1-75
Chemical Paint Spotting 5-93
Child Restraints
  Child Restraint Systems 1-41
  Infants and Young Children 1-34
  Lower Anchorages and Top Tethers for Children (LATCH System) 1-51
Child Restraints (cont.)
  Older Children 1-32
  Securing a Child Restraint Designed for the LATCH System 1-53
  Securing a Child Restraint in a Center Seat Position 1-56
  Securing a Child Restraint in a Rear Outside Seat Position 1-53
  Securing a Child Restraint in the Right Front Seat Position 1-58
  Top Strap 1-48
  Top Strap Anchor Location 1-50
  Where to Put the Restraint 1-44
Chime Level Adjustment 3-76
Cigarette Lighter 3-17
Cleaning
  Inside of Your Vehicle 5-86
  Outside of Your Vehicle 5-90
  Underbody Maintenance 5-93
  Weatherstrips 5-89
Cleaning Exterior Lamps/Lenses 5-90
Climate Control System 3-18
  Rear Air Conditioning and Heating System 3-20
  Rear Heating System 3-19
Compact Disc Messages 3-48, 3-59, 3-70
Control of a Vehicle 4-5
Coolant
  Engine Temperature Gage 3-33
  Heater, Engine 2-23
  Low Warning Light 3-34

Cooling System 5-30
Cruise Control 3-9
Cruise Control Light 3-39
Current and Past Model Order Forms 7-12
Customer Assistance Information
  Courtesy Transportation 7-8
  Customer Assistance for Text Telephone (TTY) Users 7-4
  Customer Assistance Offices 7-4
  Customer Satisfaction Procedure 7-2
  GM Mobility Program for Persons with Disabilities 7-5
  Reporting Safety Defects to General Motors 7-11
  Reporting Safety Defects to the Canadian Government 7-10
  Reporting Safety Defects to the United States Government 7-10
  Roadside Assistance Program 7-6
  Service Publications Ordering Information 7-11

D

Daytime Running Lamps 3-13
Daytime Running Lamps Indicator Light 3-39
Defensive Driving 4-2
Defogging and Defrosting 3-22
Directing the Airflow 3-21
Doing Your Own Service Work 5-3
Dome Lamp Override 3-15
Dome Lamps 3-16
Door
  60/40 Swing-Out Side Door 2-13
  Last Door Closed Locking 2-8
  Locks 2-7
  Power Door Locks 2-8
  Rear Door Security Locks 2-9
  Rear Doors 2-14
  Sliding Side Door 2-11
Driver
  Position, Safety Belt 1-14
Driving
  At Night 4-14
  City 4-18
  Defensive 4-2
  Drunken 4-2
  Freeway 4-19
  Hill and Mountain Roads 4-22
  In Rain and on Wet Roads 4-15
  Winter 4-24
Driving On Grades 4-44
Driving on Snow or Ice 4-24
Driving Through Deep Standing Water 4-17
Driving Through Flowing Water 4-17
Driving with a Trailer 4-42
Dual Stage Air Bags 1-68
Dual Tire Operation 5-62

E

Electrical System
- Add-On Equipment 5-97
- Fuses and Circuit Breakers 5-98
- Headlamp Wiring 5-97
- Windshield Wiper Fuses 5-97

Electronic Road-Speed Governor 3-27
Emissions Inspection and Maintenance Programs 3-36
Engine
- Air Cleaner/Filter 5-19
- Battery 5-43
- Change Engine Oil Light 3-38
- Check and Service Engine Soon Light 3-34
- Coolant 5-24
- Coolant Heater 2-23
- Coolant Temperature Gage 3-33
- Cooling System Inspection 6-15
- Engine Compartment Overview 5-12
- Exhaust 2-30
- Fan Noise 5-37
- Oil 5-14
- Overheating 5-28
- Starting 2-21

Engine Air Cleaner Filter Restriction Indicator Check 6-11
Engine Compartment Fuse Block 5-100
Engine Coolant Level Check 6-10
Engine Oil Additives 5-17
Engine Oil and Chassis Lubrication Scheduled Maintenance 6-5
Engine Oil Level Check 6-10
Entry Lighting 3-16
Exit Lighting 3-15
Extender, Safety Belt 1-31
Exterior Lamps 3-12

F

Fabric/Carpet 5-86
Filter
- Engine Air Cleaner 5-19

Finding a PTY Station 3-52, 3-63
Finding a Station 3-43, 3-45, 3-50, 3-61
Finish Care 5-90
Finish Damage 5-93
Fixed Mast Antenna 3-76
Flash-To-Pass Feature 3-7
Flat Tire 5-69
Flat Tire, Changing 5-70
Floor Console Fuse Block 5-98
Fluid
- Automatic Transmission 5-21
- Power Steering 5-37
- Windshield Washer 5-38

FM 3-74
Following Distance 4-43
Footnotes 6-5
Front Axle 5-51

Fuel 5-5
Additives 5-6
California Fuel 5-6
Filling a Portable Fuel Container 5-8
Filling Your Tank 5-7
Fuels in Foreign Countries 5-6
Gage 3-40
Gasoline Octane 5-5
Gasoline Specifications 5-5
System Inspection 6-15
Fuel Regulator 2-22
Fuses
Fuses and Circuit Breakers 5-98
Windshield Wiper 5-97

G

Gage
Check Gages Warning Light 3-39
Engine Coolant Temperature 3-33
Fuel 3-40
Oil Pressure 3-37
Speedometer 3-26
Voltmeter Gage 3-31
Gasoline
Octane 5-5
Specifications 5-5
Glass Surfaces 5-89
GM Mobility Program for Persons with
Disabilities 7-5

H

Hazard Warning Flashers 3-4
Headlamp High/Low Beam Changer 3-7
Headlamp Wiring 5-97
Headlamps 5-54
Bulb Replacement 5-54
Front Turn Signal, Sidemarker and
Parking Lamps 5-56
Halogen Bulbs 5-54
Highway Hypnosis 4-21
Hill and Mountain Roads 4-22
Hitches 4-41
Hood
Checking Things Under 5-9
Release 5-9
Horn 3-5
How to Add Coolant to the Coolant
Recovery Tank 5-31
How to Add Coolant to the Radiator 5-34
How to Add Fluid 5-23
How to Check 5-21, 5-61
How to Check Lubricant 5-50
How to Check Power Steering Fluid 5-38
How to Reset the CHANGE ENGINE OIL Light ... 5-18
How to Use This Manual ii
How to Wear Safety Belts Properly 1-14
Hydroplaning 4-17

I

If No Steam Is Coming From Your Engine 5-29
If Steam Is Coming From Your Engine 5-28
If the Light Is Flashing 3-35
If the Light Is On Steady 3-36
If You Are Stuck in Sand, Mud, Ice or Snow 4-28
If You Do Decide To Pull A Trailer 4-33
If You're Caught in a Blizzard 4-26
Ignition Positions 2-20
Ignition Transmission Lock Check 6-13
Infants and Young Children, Restraints 1-34
Inflation -- Tire Pressure 5-61
Inside Day/Night Rearview Mirror 2-32
Inspection
  Brake System 6-16
  Engine Cooling System 6-15
  Exhaust System 6-15
  Fuel System 6-15
  Part C - Periodic Maintenance 6-15
  Steering and Suspension 6-15
  Throttle System 6-16
  Transfer Case and Front Axle
    (All-Wheel Drive) 6-16
Instrument Panel
  Cluster 3-25
  Overview 3-2
Instrument Panel Brightness Control 3-14
Interior Lamps 3-14
Interior Plastic Components 5-88

J

Jump Starting 5-44

K

Key Lock Cylinders Service 6-12
Keyless Entry System 2-3
Keys 2-2

L

Lamps
  Exterior 3-12
  Interior 3-14
Lamps On Reminder 3-13
Lap Belt 1-24
Lap-Shoulder Belt 1-14
Last Door Closed Locking 2-8
LATCH System
  Child Restraints 1-51
  Securing a Child Restraint Designed for
    the LATCH System 1-53
Leather 5-88
Leaving Your Vehicle With the Engine Running ... 2-28
Light
  Air Bag Off 3-29
  Air Bag Readiness 3-28
  Anti-Lock Brake System Warning 3-33
  Brake System Warning 3-32

Light (cont.)
Change Engine Oil 3-38
Charging System 3-30
Check Gages Warning 3-39
Cruise Control 3-39
Daytime Running Lamps Indicator 3-39
Low Coolant Warning 3-34
Malfunction Indicator 3-34
Safety Belt Reminder 3-27
Security 3-38
Tow/Haul Mode 3-39
Loading Your Vehicle 4-30
Locking Rear Axle 4-8
Lockout Protection 2-10
Locks
Door 2-7
Last Door Closed Locking 2-8
Lockout Protection 2-10
Power Door 2-8
Rear Door Security Locks 2-9
Loss of Control 4-13
Low Coolant Warning Light 3-34

M

Maintenance, Normal Replacement Parts 5-106
Maintenance Schedule
At Each Fuel Fill 6-10
At Least Once a Month 6-10
At Least Once a Year 6-12
Maintenance Schedule (cont.)
At Least Twice a Year 6-11
At the First 100, 1,000 and 6,000 Miles (160, 1 600 and 10 000km) 6-10
Brake System Inspection 6-16
Engine Cooling System Inspection 6-15
Exhaust System Inspection 6-15
Fuel System Inspection 6-15
How This Section is Organized 6-3
Introduction 6-2
Maintenance Requirements 6-2
Part A - Scheduled Maintenance Services 6-4
Part B - Owner Checks and Services 6-10
Part C - Periodic Maintenance Inspections 6-15
Part D - Recommended Fluids and Lubricants 6-17
Part E - Maintenance Record 6-19
Rear Axle Service 6-16
Scheduled Maintenance 6-5
Steering and Suspension Inspection 6-15
Throttle System Inspection 6-16
Transfer Case and Front Axle (All-Wheel Drive) Inspection 6-16
Using Your 6-4
Your Vehicle and the Environment 6-2
Maintenance When Trailer Towing 4-46
Making Turns 4-44
Malfunction Indicator Light 3-34
Manual Seats 1-2
Manual Windows 2-16

Matching Transmitter(s) to Your Vehicle 2-5
Mexico, Central America and Caribbean
Islands/Countries (Except Puerto Rico
and U.S. Virgin Islands) 7-5
Mirrors
Manual Rearview Mirror 2-32
Outside Camper-Type Mirrors 2-33
Outside Convex Mirror 2-35
Outside Heated Mirrors 2-35
Outside Manual Mirror 2-32
Outside Power Mirrors 2-34
Outside Remote Control Mirror 2-32
Model Reference vi
MyGMLink.com 7-4

N

New Vehicle Break-In 2-20
Noise Control System, Tampering 5-52
Normal Maintenance Replacement Parts 5-106

O

Off-Road Recovery 4-11
Oil
Change Engine Oil Light 3-38
Engine 5-14
Pressure Gage 3-37
Older Children, Restraints 1-32
Online Owner Center 7-4
OnStar® Personal Calling 2-37
OnStar® Services 2-36
OnStar® System 2-36
OnStar® Virtual Advisor 2-37
Operation Tips 3-23
Other Warning Devices 3-5
Outlet Adjustment 3-23
Outside
Camper-Type Mirrors 2-33
Convex Mirror 2-35
Heated Mirrors 2-35
Manual Mirror 2-32
Power Mirrors 2-34
Remote Control Mirror 2-32
Owners, Canadian ii
Owner's Information 7-12

P

Park (P)
Shifting Out of 2-29
Parking
Brake 2-26
Over Things That Burn 2-30
Parking Brake and Automatic Transmission
Park (P) Mechanism Check 6-14
Parking on Hills 4-45
Park (P)
Shifting Into 2-27
Part A - Scheduled Maintenance Services 6-4

Part B - Owner Checks and Services 6-10
Part C - Periodic Maintenance Inspections 6-15
Part D - Recommended Fluids and Lubricants 6-17
Part E - Maintenance Record 6-19
Passenger Vans with an Air Bag Off Switch 1-45
Passenger Vans without an Air Bag Off Switch ... 1-44
Passing 4-11, 4-43
Passlock® 2-19
Payload 4-31
Plan Ahead When Possible 7-8
Playing a Cassette Tape 3-55
Playing a Compact Disc 3-47, 3-58, 3-66
Playing a Specific Loaded Compact Disc 3-67
Playing the Radio 3-42, 3-45, 3-49, 3-60
Power
  Accessory Outlets 3-17
  Door Locks 2-8
  Seat 1-3
  Steering Fluid 5-37
  Windows 2-17
Power Steering 4-9
Pretensioners, Safety Belt 1-31
Primary Radio Controls 3-71

Q

Questions and Answers About Safety Belts 1-13

R

Radiator Pressure Cap 5-27
Radio Messages 3-44, 3-47, 3-55
Radios 3-41
  AM-FM Radio 3-42
  Care of Your Cassette Tape Player 3-74
  Care of Your CD Player 3-76
  Care of Your CDs 3-75
  Radio with Cassette and CD 3-49
  Radio with CD 3-45
  Radio with Six-Disc CD 3-60
  Rear Seat Audio 3-71
  Setting the Time for Radios with Radio
    Data Systems (RDS) 3-42
  Setting the Time for Radios without Radio
    Data Systems (RDS) 3-41
  Theft-Deterrent 3-73
  Understanding Reception 3-74
RDS Messages 3-54, 3-65
Reading Lamps 3-16
Rear Air Conditioning and Heating System 3-20
Rear Axle 5-50
  Locking 4-8
  Service 6-16
Rear Door Security Locks 2-9
Rear Doors 2-14
Rear Heating System 3-19
Rear Safety Belt Comfort Guides 1-28
Rear Seat Audio (RSA) 3-71
Rear Seat Operation 1-5
Rear Seat Outside Passenger Positions 1-25
Rear Seat Passengers, Safety Belts 1-25

Rear Seat Radio Controls 3-72
Rear Window Defogger 3-22
Rearview Mirrors 2-32
Reclining Seatbacks 1-3
Recreational Vehicle Towing 4-29
Remote Keyless Entry System 2-3
Remote Keyless Entry System, Operation 2-4
Removing the Flat Tire and Installing the
  Spare Tire 5-77
Removing the Rear Seat 1-5
Removing the Spare Tire and Tools 5-71
Removing the Wheel Covers 5-77
Replacement Bulbs 5-58
Replacing Brake System Parts 5-43
Replacing Restraint System Parts After
  a Crash 1-76
Replacing the Rear Seats 1-7
Reporting Safety Defects
  Canadian Government 7-10
  General Motors 7-11
  United States Government 7-10
Restraint System Check 6-11
  Checking Your Restraint Systems 1-75
  Replacing Restraint System Parts After
    a Crash 1-76
Restraint Systems
  Checking 1-75
  Replacing Parts 1-76
Resynchronization 2-5
Retained Accessory Power (RAP) 2-21
Right Front Passenger Position, Safety Belts 1-23
Roadside
  Assistance Program 7-6
Rocking Your Vehicle To Get It Out 4-28
Running Your Engine While You Are Parked 2-31

S

Safety Belt
  Pretensioners 1-31
  Reminder Light 3-27
Safety Belts
  Care of 5-89
  Center Passenger Position 1-23, 1-24
  Driver Position 1-14
  How to Wear Safety Belts Properly 1-14
  Questions and Answers About Safety Belts 1-13
  Rear Safety Belt Comfort Guides for Children
    and Small Adults 1-28
  Rear Seat Passengers 1-25
  Right Front Passenger Position 1-23
  Safety Belt Extender 1-31
  Safety Belt Use During Pregnancy 1-22
  Safety Belts Are for Everyone 1-9
Safety Chains 4-41
Safety Warnings and Symbols iii
Scheduled Maintenance 6-5

Seats
Manual 1-2
Power Seat 1-3
Rear Seat Operation 1-5
Reclining Seatbacks 1-3
Secondary Latch System 5-74
Securing a Child Restraint
Center Seat Position 1-56
Designed for the LATCH System 1-53
Rear Outside Seat Position 1-53
Right Front Seat Position 1-58
Security Light 3-38
Selecting the Fan Speed 3-21
Service 5-3
Adding Equipment to the Outside of Your Vehicle 5-4
Doing Your Own Work 5-3
Engine Soon Light 3-34
Publications Ordering Information 7-11
Service Bulletins 7-12
Service Manuals 7-11
Servicing Your Air Bag-Equipped Vehicle 1-73
Setting Preset PTYs 3-53, 3-64
Setting Preset Stations 3-43, 3-46, 3-50, 3-61
Setting the Temperature 3-21
Setting the Time
Radios with Radio Data Systems (RDS) 3-42
Radios without Radio Data Systems (RDS) 3-41
Setting the Tone
(Bass/Treble) 3-44, 3-46, 3-51, 3-62
Sheet Metal Damage 5-92
Shifting Into Park (P) 2-27
Shifting Out of Park (P) 2-29
Shoulder Belt Height Adjuster 1-16
Single Stage Air Bags 1-67
Skidding 4-13
Sliding Side Door 2-11
Some Other Rainy Weather Tips 4-17
Spare Tire Check 6-11
Special Fabric Cleaning Problems 5-87
Specifications, Capacities 5-103
Speedometer 3-26
Starter Switch Check 6-12
Starting Your Engine 2-21
Steering 4-9
Steering and Suspension Inspection 6-15
Steering in Emergencies 4-10
Steering Tips 4-9
Storage Areas 2-38
Storing a Flat or Spare Tire and Tools 5-84
Stuck in Sand, Mud, Ice or Snow 4-28
Sun Visors 2-18
Swing-Out Side Door, 60/40 2-13
Swing-Out Windows 2-18

T

Taillamps 5-56
Tampering With Noise Control System
Prohibited 5-52

Theft-Deterrent, Radio 3-73
Theft-Deterrent Systems 2-19
  Passlock® 2-19
Throttle System Inspection 6-16
Tilt Wheel 3-5
Tire Inflation Check 6-10
Tires 5-60, 5-92
  Buying New Tires 5-65
  Chains 5-69
  Changing a Flat Tire 5-70
  Dual Tire Operation 5-62
  If a Tire Goes Flat 5-69
  Inflation -- Tire Pressure 5-61
  Inspection and Rotation 5-62
  Uniform Tire Quality Grading 5-66
  Wheel Alignment and Tire Balance 5-67
  Wheel Replacement 5-68
  When It Is Time for New Tires 5-64
To Use the Engine Coolant Heater 2-23
Top of the Instrument Panel 5-88
Top Strap 1-48
Top Strap Anchor Location 1-50
Torque Lock 2-29
Total Weight on Your Vehicle's Tires 4-40
Tow/Haul Mode 4-33
Tow/Haul Mode Light 3-39
Towing
  Recreational Vehicle 4-29
  Towing a Trailer 4-32
  Your Vehicle 4-29
Trailer Brakes 4-42
Trailer Wiring Harness 4-46
Transfer Case 5-49
Transmission
  Fluid, Automatic 5-21
Transmission Operation, Automatic 2-24
Transmission, Transaxle, Transfer Case Unit
  Repair Manual 7-11
Transportation Options 7-8
Trip Odometer 3-27
Turn and Lane Change Signals 3-6
Turn Signal/Multifunction Lever 3-6
Turn Signals When Towing a Trailer 4-44

U

Underbody Flushing Service 6-14
Understanding Radio Reception 3-74
Uniform Tire Quality Grading 5-66
United States 7-4
Using Cleaner on Fabric 5-87
Using RDS 3-52, 3-63
Using Song List Mode 3-69

V

Vehicle
  Control 4-5
  Damage Warnings iv
  Loading 4-30

Vehicle (cont.)
Symbols iv
Vehicle Identification
Number (VIN) 5-96
Service Parts Identification Label 5-96
Vehicle Storage 5-43
Vinyl 5-88
Visor Vanity Mirror 2-18
Visors 2-18
Voltmeter Gage 3-31

W

Warning Lights, Gages and Indicators 3-24
Warnings
Hazard Warning Flashers 3-4
Other Warning Devices 3-5
Safety and Symbols iii
Vehicle Damage iv
Washing Your Vehicle 5-90
Weatherstrip Lubrication 6-11
Weight of the Trailer 4-35
Weight of the Trailer Tongue 4-40
What Kind of Engine Oil to Use 5-16
What to Do with Used Oil 5-18
What to Use 5-25, 5-38, 5-50
Wheels
Alignment and Tire Balance 5-67
Replacement 5-68
When to Add Engine Oil 5-15
When to Change Engine Oil 5-17
When to Check 5-61
When to Check and Change 5-21
When to Check Lubricant 5-50
When to Check Power Steering Fluid 5-38
When You Are Ready to Leave After Parking
on a Hill 4-45
Where to Put the Restraint 1-44
Why Safety Belts Work 1-10
Windows 2-16
Manual 2-16
Power 2-17
Swing-Out Windows 2-18
Windshield and Wiper Blades 5-91
Windshield Washer 3-8
Fluid 5-38
Windshield Washer Fluid Level Check 6-10
Windshield Wiper
Blade Replacement 5-59
Fuses 5-97
Windshield Wipers 3-8
Winter Driving 4-24
Wiper Blade Check 6-11

Y

Your Vehicle and the Environment 6-2

✍ NOTES

✍ NOTES

✍ NOTES

✍ NOTES