



ACC

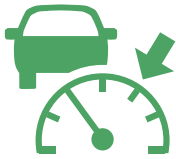
ADAPTIVE CRUISE CONTROL

A SMARTER CRUISE CONTROL

Rear-end collisions are the most common type of crash

How should you use ACC?

Accelerate to desired speed.
Turn ACC on.

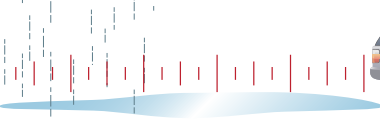


Tell ACC how close you want to be to the vehicle ahead of you.



Set a bigger gap in poor weather or bad driving conditions.

Visibility issues • Weather • Road conditions • Traffic mix



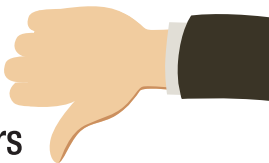
Should work well

Clear day driving
Clear night driving
Light weather conditions



May not work well... or at all

Noisy open-air conditions
Heavy rain, fog or snow
Ice, snow or dirt on sensors



Will not work

Ice, snow or dirt covered sensors



ACC system error

How does it work?

ACC automatically speeds up and slows down your vehicle to keep a set distance between you and the vehicle ahead. Advanced versions work in heavy traffic. When traffic stops, you stop. When traffic goes, you go.



If ACC malfunctions or speeds up unexpectedly:

- Turn off or override ACC by gently braking
- If vehicle continues speeding up, steer to safety and apply brakes

Always turn off ACC when not in use

Common types of ACC sensors:

Radar • Ultrasonic • Camera • Laser

For more information about your safety systems, check your owner's manual or visit

MyCar DoesWhat.org
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FORWARD COLLISION PREVENTION

STAYING ONE STEP AHEAD

There were approximately
1.8 million rear-end crashes in 2013¹

What are they?

Safety features like **Forward Collision Warning** and **Automatic Emergency Braking** can help prevent rear-end collisions and other types of crashes.

Why use?

THE PRIMARY BENEFIT...

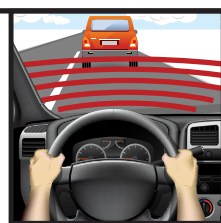
Alerts you if an object in your path has suddenly stopped or slowed down, so you can react.

SAFETY FIRST:

These features may reduce your crash risk and severity.

How do they work?

Both features scan the road and detect how far and fast the vehicle in front of you may be moving. Then...



FORWARD COLLISION WARNING (FCW)...

Alerts you if your vehicle is about to collide with another vehicle.

Warning alerts may vary between vehicles.

AUTOMATIC EMERGENCY BRAKING (AEB)...

Automatically applies the brakes if you don't respond to the warning.



How are they different?

FORWARD COLLISION WARNING

- ONLY WARNS the driver

AUTOMATIC EMERGENCY BRAKING

- WARNS the driver
- AND APPLIES THE BRAKES to slow or stop the vehicle if the driver does not

It is not working... Now what?

Because these features could be camera- or radar-based, they can be ...

- OBSTRUCTED by build-ups of ice or snow
- "BLINDED" by sunrise and sunset glare

Saving Lives....

The Insurance Institute for Highway Safety estimates that Forward Collision Mitigation systems such as **Automatic Emergency Braking** may help **reduce crashes by up to 20%** and, **prevent 66,000 serious crashes and eliminate 879 fatal crashes per year²**. **Forward Collision Warning** systems may help **reduce rear-end collisions by about 10%³**

¹NSC Analysis of NHTSA's General Estimate System—Data from 2013

²www.aaafoundation.org/forward-collision-mitigation-auto-braking-systems

³www.aaafoundation.org/forward-collision-warning-systems

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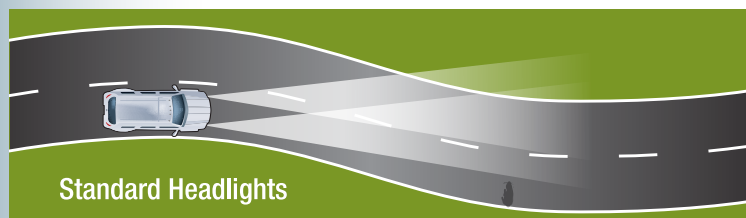
ADAPTIVE HEADLIGHTS

HEADLIGHTS THAT FOLLOW THE ROAD WITH YOU

Drivers using adaptive headlights around curves are able to see objects sooner than drivers with fixed headlights*

What are Adaptive Headlights?

Adaptive headlights are designed to light up the roadway around curves and over hills when driving in low-light conditions, making driving safer.



vs



How do they work?

Electronic sensors measure:

- speed
- steering angle
- yaw (degree of rotation around the vertical axis)

Small electric motors then turn the light source left or right lighting the road ahead

Did you know...

Self-Adjusting Headlights will turn on the high beams when there are no oncoming cars and then dim with oncoming traffic

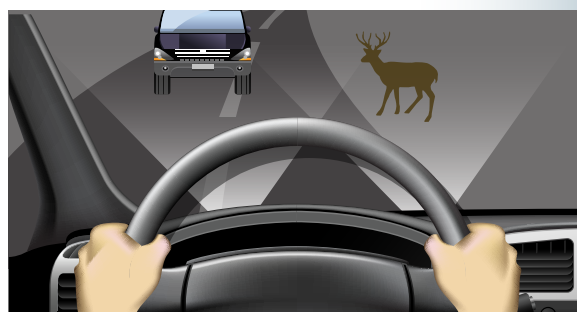


Adaptive headlights are most useful when...

- Driving on winding roads at night, during twilight, or in other low-light conditions, even in slow speed areas and parking lots.

They can address potentially dangerous situations, including:

- An animal on the road just around a poorly lit curve
- An oncoming vehicle negotiating a turn drifts into your lane
- Cresting a hill on a narrow road and you are unable to see whether another motorist is coming
- As you round a curve, your headlights temporarily blind oncoming traffic



Be Cautious

When approaching a curve, reduce your speed

Be Alert

Scan the road ahead... look for potential obstacles or road hazards

Take Action

If you spot a hazard, react by braking or steering - don't oversteer or you may lose control. Always stay focused and alert...

*IIHS Report Vol. 49, No.7-October 9, 2014

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BACKING ASSIST

AN EXTRA SET OF EYES

Back-up cameras will be standard in new cars sold in the United States by 2018

What should you do?

1 Check around the vehicle before getting in



2 Look over both shoulders before backing

3 Check mirrors



4 Shift into reverse to activate rear-view camera and/or rear sensors



5 Turn and check to be sure it is safe before backing



6 Be aware that the system may beep, vibrate or light up if there are objects in the way or if a vehicle approaches from the rear sides

BEEP

VIBRATE

BRAKE

It is not working... Now what?

Grime, weather and time of day can affect how well the camera and sensors function:

- **CLEAN** the sensors and the camera lens
- Cameras **MAY NOT WORK** when sunlight shines directly into the lens
- **CHECK** if the rear bumper is damaged
- **DO NOT** attach items to the bumper

Saving Lives...

Back-up cameras help **prevent unintentional back-over crashes** which account for approximately 292 fatalities and 18,000 injuries each year, according to NHTSA.

How does it work?

BACK-UP CAMERA

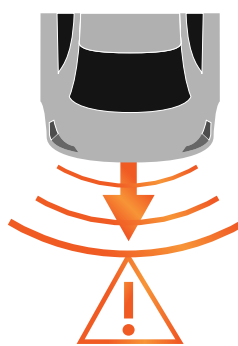
The back-up camera shows what is happening behind you

A display screen can be found on the center console or rear-view mirror



BACK-UP WARNING

When the vehicle is in reverse, sensors mounted on the rear bumper detect objects in its path



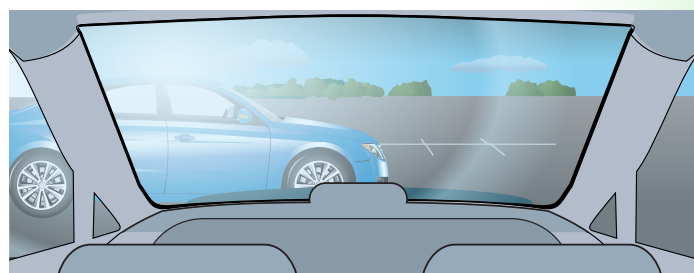
If an object is in the way, the system may beep, vibrate or instruct the driver to brake

REAR CROSS TRAFFIC ALERT

Radar sensors on the rear bumper detect vehicles approaching from the left and right



A warning tone and flashing light on the mirrors or dashboard alert the driver to stop.



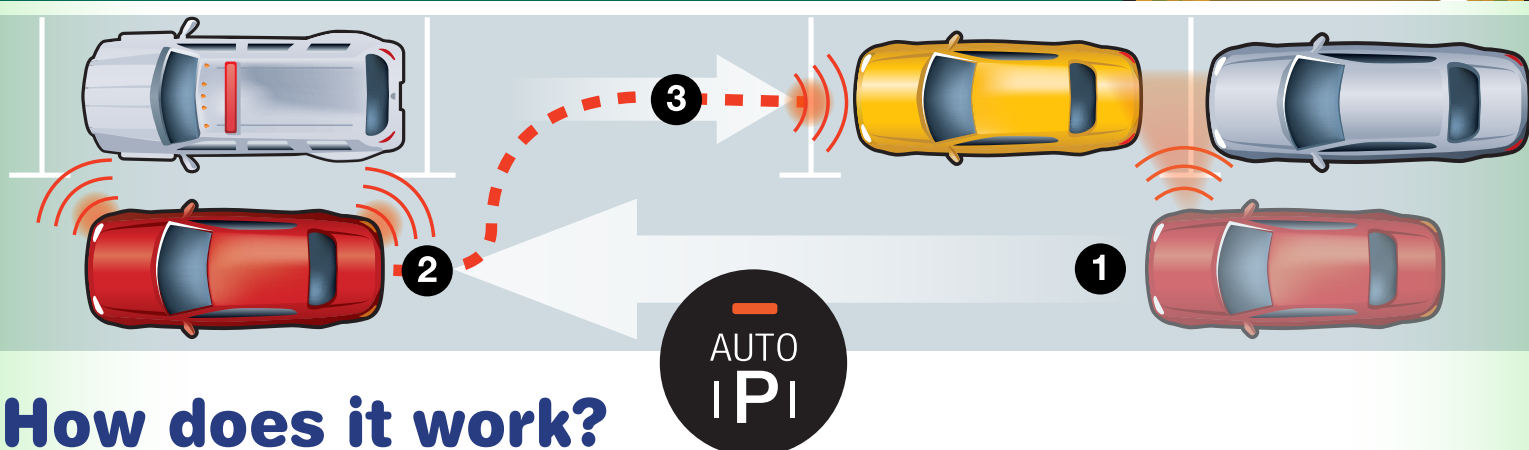
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AUTOMATIC PARALLEL PARKING & PARKING SENSORS

When used properly, vehicle parking assist technologies could potentially reduce driver stress.*



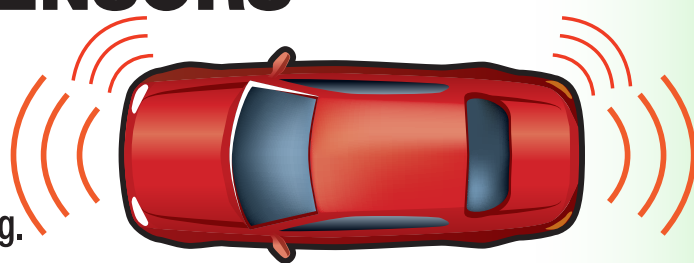
1 When looking to park, push the Auto Park button to activate. Sensors will measure and identify a parallel parking space and will alert you with audible tones when a spot is found. Some features prompt you to accept assistance to park.

- 2** The driver pulls up in front of the space, shifts into reverse and takes hands off the steering wheel.
- 3** The steering system takes over and the car steers itself in the parking space.

Although hands-free... You control shifting the gears and braking.
To override automatic steering, grab the steering wheel.

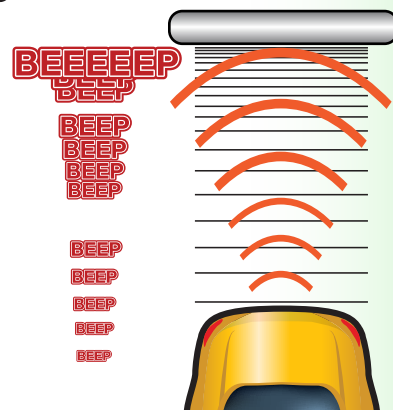
What do they do?

Front, rear and side parking sensors help you park your vehicle by indicating, with the help of ultrasonic sensors, how close you are to an obstacle while parking.



1. The sensors are on the front, side and rear bumpers to detect objects.
2. When the system detects an object it provides audible warnings.

- Tones of varying pitches or frequencies will sound as you get closer.
- In general, the interval between the beeps become shorter as objects get closer.



This feature WILL NOT detect objects located below bumper, or too close or too far from the car.

KEEP the sensors CLEAN AND FREE from snow, rain or dirt. Before moving **CHECK AROUND** the vehicle, **CHECK ALL MIRRORS** and **CHECK the BACK-UP CAMERA DISPLAY** screen (if you have one).



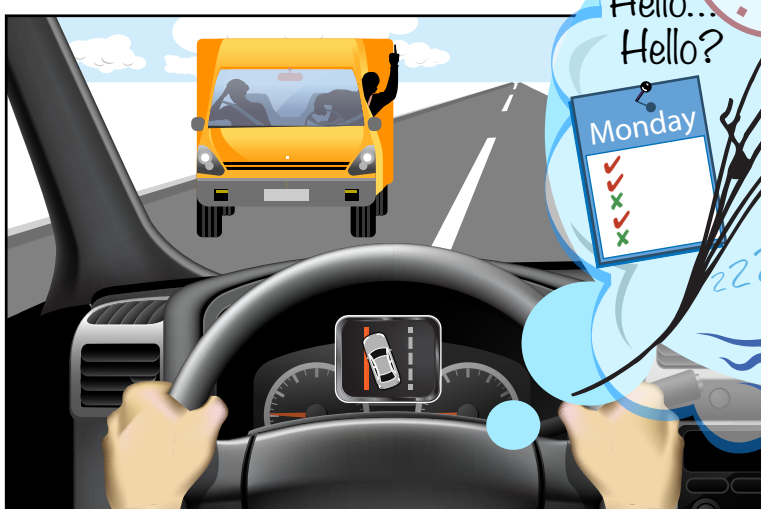
LANE DEPARTURE WARNING & LANE KEEPING KEEPING YOU IN LINE

Drifting out of the lane causes nearly 10% of all crashes¹

Drivers drift out of lanes for various reasons.

Lane Departure Warning and Lane Keeping Assist can...

- Alert us
- Guide us back into our lane
- And possibly prevent a crash!



How do they work?

Cameras read lane markings on the road.

'Depart' from your lane unintentionally and...

- A warning sounds
- Dash light flashes
- Steering wheel vibrates

...alerting you to get back in your lane!



What happens if you ignore the warnings?

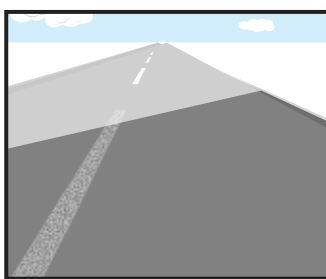
Lane Keeping Assist (if your car is equipped) will kick in and gently steer your car back toward the center of the lane



These features aren't perfect

They may not work if...

- Lane markers are blocked by snow, leaves, fog or other debris.
- Lane markers are faded, in disrepair or overly complicated



What happens if you want to change lanes?

Activating the turn signal cancels Lane Departure Warning and turning the wheel disables Lane Keeping Assist.



¹NTSB 2013

Keep in mind...

Lane Departure Warning and Lane Keeping Assist are designed more for highway driving. Always stay focused and alert.

For more information about your safety systems, check your owner's manual or visit

MyCar DoesWhat.org
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BLIND SPOT MONITOR & SIDEVIEW CAMERA HELPS YOU 'SEE' WHAT'S IN YOUR BLIND SPOT

Blind Spot Monitor and Lane/Side-view cameras could help prevent 395,000 crashes a year in the U.S.¹

Know what's in your blind spot

Blind Spot Monitor (BSM)

How does it work?

- Sensors alert the driver if another car or object is on the right or left side.
- The driver is alerted by: symbols on side mirrors, the dash or other areas.
- There may be a warning chime or the driver's seat may vibrate.

CHIME

VIBRATE



When would you use BSM?

When you are passing, being passed or preparing to make a lane change.

Does BSM always work?

No. Exterior sensors can be obscured by moisture, snow, dirt, darkness, and other elements.

Can I turn it off?

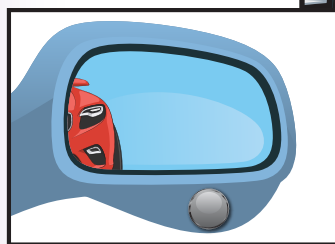
Yes. Although, most systems turn ON automatically when the car is started.

Sideview Camera

Shows you an image on a monitor of what is coming up alongside your car

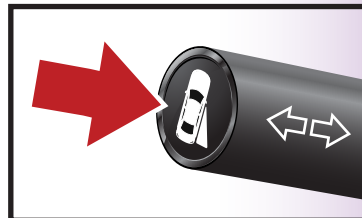
The Benefit...

Improves passenger-side visibility and in some cases offers the driver a 360° view of the surrounding area of the car. Protects bumpers, trim and wheel rims from damage at slow speeds.



When do you use a sideview camera?

- Backing down complicated driveways
- Pulling into parking spaces
- Will usually turn on when backing at 3-7 mph.
- You can opt to have the camera on at all times by pressing a button on the turn signal lever.



¹ May 24, 2011 50 Years of Progress - Adrian K. Lund, Ph.D. Insurance Institute for Highway Safety

Safety Check...

While these two safety features will help you SEE your blind spots... **You should still check your mirrors and always look over both shoulders before changing lanes, parallel parking, making right turns, etc.**

For more information about your safety systems, check your owner's manual or visit

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DROWSINESS ALERT DON'T DRIVE DROWSY

**More than 100,000 crashes each year
are caused primarily by drowsy driving***

Drowsiness Alert features can detect if you are driving drowsy
and send you a warning ...

How it works

Drowsiness alert detects when you weave in your lane.

A system reads the lane markings and monitors your lane position
and if it senses that you're drifting out of the lane frequently...

A coffee cup and message appear on the dashboard

DROWSINESS ALERT FEATURES MAY ONE DAY...

Use a voice alarm... *"I am talking to you... Wake up"*

If a driver is nodding off, the car announces:

"You are tired"

"You are dangerously tired! STOP as soon as it is safe to do so!"

The driver's seat may also vibrate.



Learned Behavior...

A more advanced version uses software to "learn" what
your normal driving patterns are when you're fully alert.
If it senses that your driving reactions are slower or erratic,
a drowsy alert is activated.

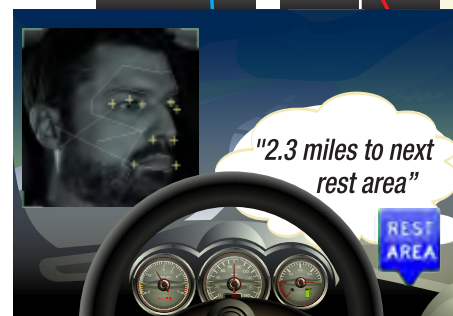
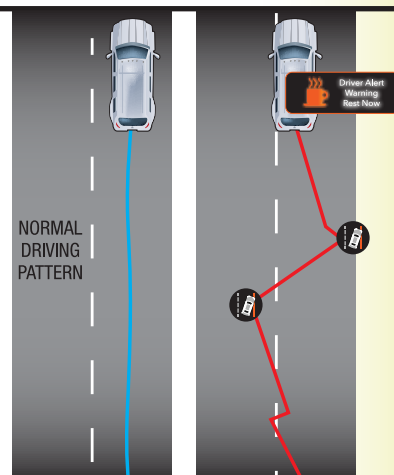
Facial Recognition

Another uses an onboard computer with facial recognition
software to determine if you're drowsy...

- tiny sensors or night vision cameras are trained on the driver's face.
- measures eyelid droop, blinking patterns and head bobs to tell if you are starting to fall asleep.

Directions Please...

Some cars use GPS to help drivers find the nearest rest stop.



KEEP IN MIND: The drowsiness alert features should make you more aware of your
state of mind... But if you are tired, REST and DON'T DRIVE DROWSY.

* <http://drowsydriving.org/about/facts-and-stats/>

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your safety systems, check
your owner's manual or visit

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PUSH BUTTON START

YOUR FINGER IS THE KEY

How does it work?

TO START ENGINE...

- 1 Make sure the key fob is inside the vehicle and the gear shift is in park
- 2 Apply the brake. Push and hold the engine start/stop button until the engine turns on



TO SHUT OFF ENGINE...

- 1 Apply the brake and shift to park
- 2 Press the engine start/stop button until the engine shuts off completely



It's also a good idea to set the parking brake

Always remember...

Turn engine completely off before you get out of the car. Reduce the risk of **carbon monoxide poisoning** in an enclosed area

Shift into park to prevent vehicle rollaway.



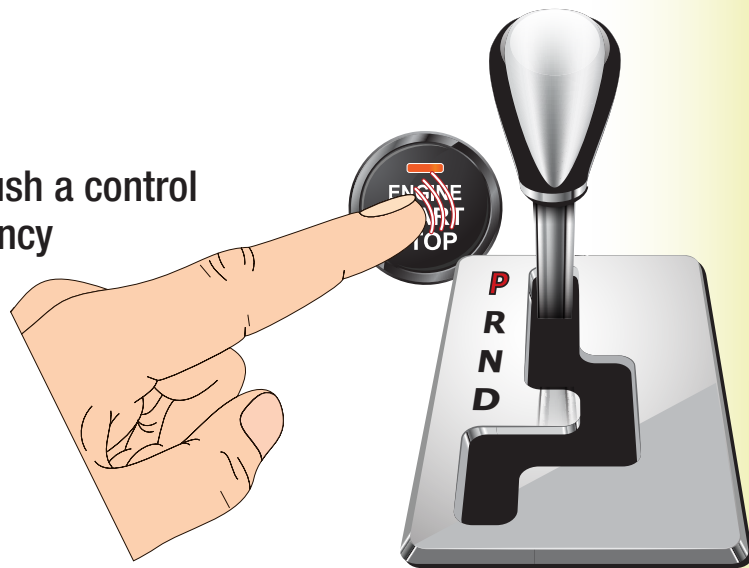
Setting standards...

NHTSA* PROPOSES ...

Standardizing the length of time needed to push a control button to stop the vehicle engine in an emergency

Requiring audible warnings if a driver tries to shut off the engine or exit the vehicle **without first shifting into "Park"**

*National Highway Traffic Safety Administration



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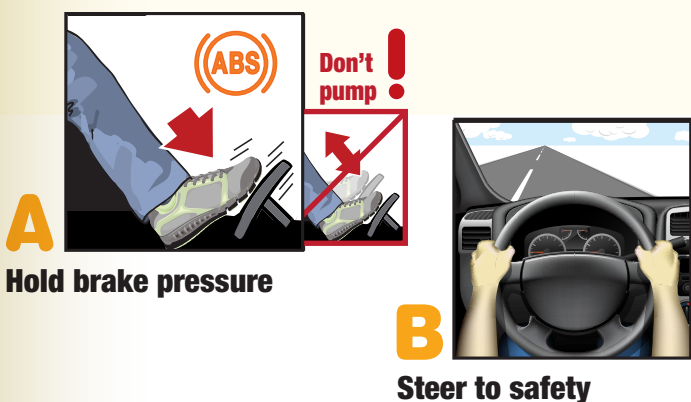




4-WHEEL ANTI-LOCK BRAKING SYSTEM BRAKES THAT HELP YOU STEER

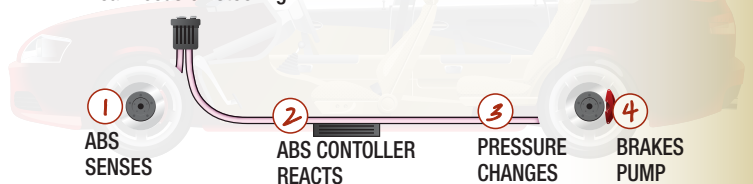
You travel 88' in one second when driving 60 mph – that's more than one football field in four seconds

What should you do?

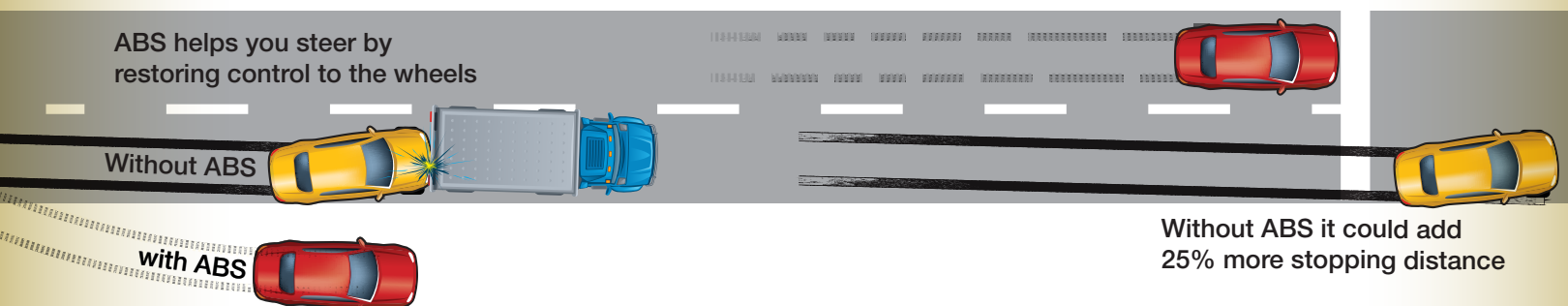


How does it work?

- 1 ABS sensors on wheels detect impending skid
- 2 ABS controller reacts to prevent wheel lock-up
- 3 Brake fluid pressure changes to each wheel
- 4 ABS pumps brakes so driver can focus on steering



4-wheel ABS can stop quicker on dry and wet roads



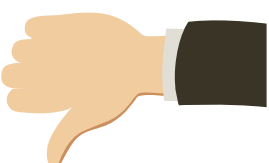
Should brake well

Dry or wet pavement
Ice, black ice or snow
Dirt or packed gravel



May not brake well... or at all

Loose gravel or sand
Lightly packed snow



ABS is speed-sensitive
and may only activate above 10 mph

! In lightly packed snow, loose gravel
or sand, ABS may **INCREASE** stopping
distance by 25% or more – but will still
help you steer to safety

Does your vehicle have ABS?

Read your vehicle's owners manual, or ask
a service technician or rental car agent if unsure.
ABS has been common for decades and all new
U.S. cars and minivans made in 2012 and after
must have 4-wheel ABS

Look for this light when
you start your vehicle.

**Pump the brake if
your vehicle isn't
equipped with ABS
or your ABS fails**



If you feel the brakes thumping, your ABS is working. That's when you steer to safety.

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your safety systems, check
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ESC ELECTRONIC STABILITY CONTROL

HELPS KEEP YOU ON YOUR DESIRED PATH

More than 10,000 people a year are killed in rollover crashes*

What is it?

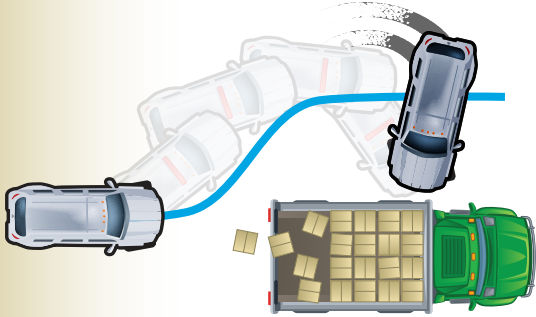
Electronic Stability Control (ESC) is designed to automatically stabilize your vehicle when it senses you may be slipping. ESC controls each wheel to maintain stability.

Getting a handle on extreme maneuvers

ESC will help you steer if:

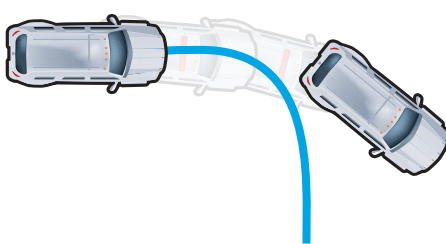
- You turn too fast and the front or rear wheels begin skidding
- Your vehicle loses traction on a slippery roadway, and other emergency situations

Making sharp emergency turns



Helps prevent: Oversteering

Turning on slippery roads



— INTENDED PATH
Understeering

Driving with heavy loads

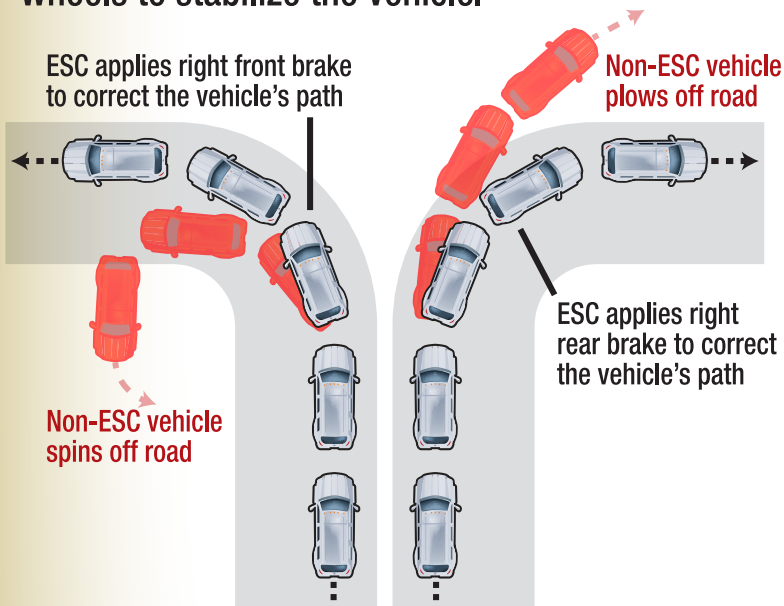


Rollovers

According to the National Highway Traffic Safety Administration, ESC is one of the most effective active safety systems for preventing certain types of rollovers as well as reducing the risk of injury or death in the event of a rollover.

How does it work?

ESC technology senses when a driver may lose control and applies braking to individual wheels to stabilize the vehicle.



Helpful Tips...

- ESC can be less effective on loose gravel and lightly packed snow
- If your vehicle does not have ESC, practice safe driving techniques by taking turns slowly and increasing your following distance in bad weather
- Your vehicle is required to have ESC if model year 2012 or newer

MANDATORY

*www.safercar.gov/Rollover

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TPMS

TIRE PRESSURE MONITORING SYSTEM

HELPS YOU PREVENT A BLOW OUT

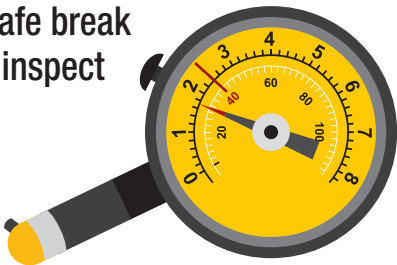
What should you do?

If your TPMS dashboard light comes on:



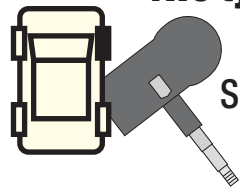
Do not pullover immediately.

Wait for a safe break in traffic to inspect your tires.



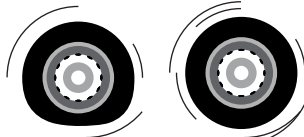
How does it work?

Two types of TPMS



Direct Sensor

Small wireless device inside each tire reports to your dashboard.



Indirect Sensor

Measures wheel spin and can tell if tire is low. Only effective when car is moving.

50%

Hard to see if a tire is low on air until it reaches half empty.

under inflation



25%

TPMS light comes on when tire is a quarter low.

under inflation

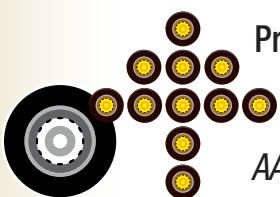


Can save you



Properly inflated tires can **save** as much as **11¢ per gallon** on fuel.

AAA, May 2014



Proper tire maintenance can extend the life of tires by **up to 4700 miles.**

AAA & Safercar.gov, May 2014

Helps prevent crashes and save lives

11,000 tire-related crashes every year

200 tire-related deaths every year



1-in-4 vehicles on the road have at least **one** under-inflated tire.



Federal mandate: TPMS required on all vehicle models year 2008+

For more information about your safety systems, check your owner's manual or visit

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