



GET A GRIP

**A Guide to
Wet-Weather
Driving
Techniques**



Preparation

Learning the art of safe driving in adverse weather requires preparation and training. Start with a vehicle that's ready for the rigors of the rainy season: good tire tread, firm brakes and streak-free wipers. Add wet-weather driving techniques: dealing with reduced visibility and traction, steering, braking and skid control. When vehicle and driver are ready, practice in a safe, secluded area. The driver who knows what to do in an emergency is more likely to stay in control.

Preparing to drive in wet weather

Emergencies by definition happen suddenly with little time for evaluation and decision-making. You have to be prepared to act quickly to avoid a crash. A review of nearly 12,000 collisions found that more than 37 percent of drivers involved took no action to prevent or avoid the incident.

Think caution

Get in the right frame of mind before you get behind the wheel. Never drive when you're emotionally upset or rushed. According to traffic safety authorities, lack of attention is a major contributing factor to auto crashes.

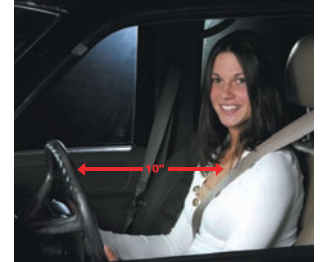
Additionally, your alertness level normally drops around your regular bedtime. Nightfall only magnifies your risk by limiting your field of visibility. If you must drive during your regular sleep cycle, stop each hour and freshen up. A best practice is to travel with another person so that the responsibility of driving can be shared to ensure a rested driver is behind the wheel.



In the driver's seat

Correct seat adjustment puts you in position to perform the gentle smooth, precise movements necessary for safe motoring in inclement weather.

Adjust your seat so you sit no closer than 10 inches to the steering wheel and so that you can see the road ahead. You should sit close enough to the steering wheel to maintain a bend in your elbows. This action will reduce the chance of injury to your fingers, hands, and forearms if the airbag deploys.



Shorter drivers may need a wedge cushion or pedal extensions to be able to sit this distance from the steering wheel. Confirm the position of mirrors and environmental controls before you start the vehicle. Don't forget to buckle up, and have all your passengers buckle up, too.

Suit up

Select clothing that provides comfort and freedom of movement behind the wheel. While heavy garments may be necessary outside the vehicle, they can restrict movement behind the wheel. Always come to a complete stop in a safe spot before removing a coat or gloves.

Driving when visibility is poor

Regardless of your driving experience, the odds are greater that you'll have a collision in wet weather. A hard rain can limit visibility so that you can't see the edges of the road, traffic signs or other vehicles on the road. If you must drive under such conditions, it's helpful to have the knowledge and skills to cope with this challenge.



A clear view

Keep your windshield and windows clean. It's important to clean the inside of your windows at least once a week – more often if you smoke. Use your defroster to keep front and rear windshields clear. On a cold day, move the heat control to "hot" and let the engine warm up before you turn on the defrosters and blowers. This will prevent moisture from collecting on the inside of the glass.

If the glass gets foggy, open a window slightly and turn the defroster fan to a higher speed. Use your air conditioner to reduce humidity.

While tinted windows have been promoted to reduce glare from the sun and make air conditioning more efficient, tinting also reduces visibility in inclement weather. Consider alternatives to tinted windows, such as sunglasses or sun visors.

A bright idea

When you drive on wet streets, mud and dirt splash on your headlights, reducing illumination by up to 90 percent. Stop periodically during a long trip to clean your headlights. If your vehicle is not equipped with daytime running lights, drive with your low-beam headlights on at all times – especially on dark or overcast days. Use low beams and fog lights in fog.



Recognize a crisis

When visibility is so limited that you can't see the edges of the road or other vehicles at a safe distance, it's time to pull off and wait for the rain to ease up. It's best to stop at a rest area or exit the freeway and go to a protected area. If the roadside is your only option, pull off the road as far as you can, preferably past the end of a guardrail. Vehicles parked at the side of the road are frequently stuck by other drivers. Respect the limitations of reduced visibility and turn headlights off and emergency flashes on to alert other drivers.

Skills for reduced-traction driving

Wet roads mean poor traction. Conditions are most dangerous during the first 10 minutes of a heavy downpour as oil and debris first rise up, then wash away. Knowing how to handle poor traction reduces the potential for hydroplaning, skidding or getting stuck in the mud.

Getting out of a tough spot

You need steady pulling and moderate power when traction is poor. The best remedy when wheels are stuck in the mud or a soft shoulder is to apply power slowly.

- Keep the wheels pointed straight ahead so the vehicle can move in a straight line. If you can't go forward, try backing out, steering in the vehicle's tracks.
- With a manual transmission, start in second gear to prevent wheel spin. Accelerate carefully, giving enough fuel to keep the engine from stalling and ease along gradually until traction improves.
- Rock your way out by using second gear in a manual transmission and low gear in automatic transmissions. Check your owner's manual for recommended procedures. Move forward until the vehicle stops, then shift into reverse and move backwards until momentum stops. Repeat this process, moving ahead a little more each time. Use minimum power to keep the wheels from spinning and digging in deeper.



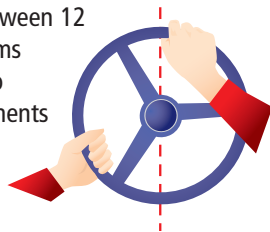
- If rocking doesn't work and wheels simply spin, find a way to create traction. Traction mats, gravel or kitty litter work best, but you can also use salt, burlap, branches or even the vehicle's floor mats. Shovel a space in front of the drive wheels and spread your materials there. Apply power slowly, using second or low gear.

Steering clear of collisions

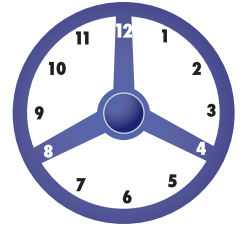
You may need to take evasive action in poor weather to avoid a collision. Steering around an obstacle is preferred to braking at speeds above 25 mph because less distance is required to steer around an object than to brake to a stop. In wet weather, sudden braking often leads to skids.

There are two acceptable methods of emergency steering:

1. The push-pull method of steering is performed by shuffling your hands, so that neither hand crosses over the imaginary line between 12 and 6 o'clock. Since the arms never cross, you are able to provide continuous adjustments in either direction.



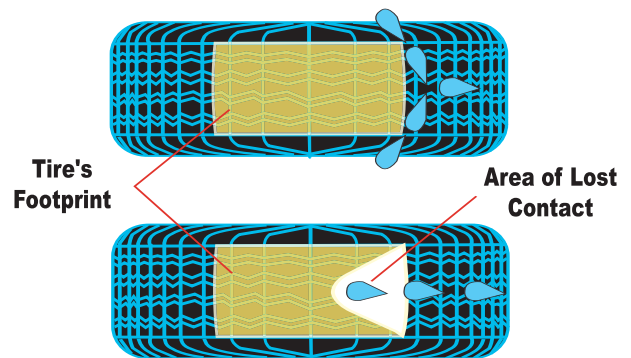
2. The fixed-hand steering method allows rapid 180-degree steering to either direction, but it has one shortcoming. This method is confining in that your arms may get locked together as you attempt to steer past 180 degrees, leaving you in an awkward position to make further fine adjustments.



Recognize a water hazard

Your vehicle's grip on the road depends upon a small area of contact where the tires meet the road surface, called the tire's footprint. The amount of water on the road, your speed and the condition of your tires affect footprint traction.

- With only one-twelfth of an inch of water between your tires and the road, each of your tires has to displace one gallon of water per second. Adequate, full tread allows water to escape from under the tires. Proper inflation also improves traction. Low tire pressure allows the tread to squeeze together, narrowing the tread channels, and reduces the tire's ability to wipe or channel away water. Tires specifically designed for wet-weather traction allow even more water to escape, keeping the footprint in contact with the road surface.



- Identify the signs of hydroplaning: a rise of the front of the car and a loss of steering.
- Choose a speed consistent with the amount of water on the road. At 30 mph or less, properly inflated tires with good tread will maintain contact. Even a brand-new tire will lose some footprint contact at speeds as low as 35 mph. At 60 mph, water may completely separate the tire from the road and cause hydroplaning.
- To reduce chances of hydroplaning, slow down, avoid hard braking or turning sharply and drive in the tracks of the vehicle ahead of you.

Avoid using cruise control in wet-weather driving conditions

Many cars feature cruise control to help drivers maintain intended speeds and reduce fatigue. This feature works great in dry scenarios, but when used in wet conditions, the chance of losing control of your vehicle increases. If you're using cruise control and you begin to experience a skid, the system may interpret the skid-induced reduction in forward speed as a need to apply more engine power, making it harder to recover from a skid. Full loss of control could occur, resulting in a collision. To maximize safety, avoid using cruise control in wet driving conditions.

Regaining control in a skid

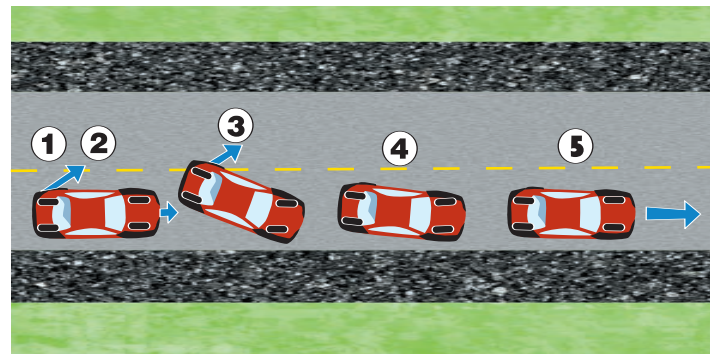
Even careful drivers experience skids. You lose traction and your wheels spin or lock, usually when braking, cornering or accelerating. Effective skid-control maneuvers — and a calm approach — will help you regain control. If the rear wheels lose traction, resulting in an oversteering situation, use these steps to regain control:

1. Continue to look at your path of travel down the road.
2. Steer in the direction you want the front of the vehicle to go.

3. Avoid slamming on the brakes. Although hitting the brakes is a typical response, slamming the brakes will only further upset the vehicle's balance and make it harder to regain control.
4. When the rear wheels stop skidding, continue to steer to avoid a rear-wheel skid in the opposite direction.

Front-wheel skids are caused by too much speed in a corner. When the front wheels lose traction, you lose steering ability. While this sounds dangerous, front-wheel skids are easier to correct, but drivers must be cautious not to transition into an oversteering situation.

1. Continue to look where you want to go.
2. Steer in the direction you want the front of the vehicle to go.
3. Avoid slamming on the brakes. Although hitting the brakes is a typical response, slamming the brakes will only further upset the vehicle's balance and make it harder to regain control.
4. Wait for the front wheels to grip the road again. As soon as traction returns, the vehicle will start to steer again.
5. When the front wheels have regained their grip, steer the wheels gently in the desired direction of travel.



Putting on the brakes

Stopping on a slippery surface requires more distance, so increase your following distance. Focus your attention as far ahead as possible – at least 20 to 30 seconds.

Anti-lock braking systems (ABS) are designed to prevent wheels from locking and to retain steering control during panic braking. Sensors located at wheels detect lock-up. The anti-lock system relieves pressure as needed, allowing all four wheels to continue to turn while maintaining steering control.

You should use the “plant and steer” method with antilock brake systems. Do not remove your foot from the brake or pump the pedal. If you apply pressure and the wheels lock momentarily, you might feel the brake pedal pulse back against your foot. This is normal. Just hold the brake pedal down and steer. Pumping the pedal actually works against the system.

The best way to stop on a slippery surface if your vehicle doesn't have antilock brakes is to use threshold braking. Keep the heel of your foot on the floor and use the ball of your foot to apply firm, steady pressure on the brake pedal to the “threshold” of locking your brakes.

If your heel leaves the floor, the wheels could lock because control of the brake pedal is transferred from your ankle muscles to your thigh muscles, which are not capable of the finer control required in this situation.

Under the stress of trying to stop quickly, drivers almost inevitably use too much pressure, resulting in locked wheels (on non-ABS-equipped vehicles). If this happens, release pressure on the brake pedal by one or two degrees, then immediately reapply slight pressure. Continue this technique as needed until the vehicle comes to a stop.

Summary

Driving risk increases in wet-weather conditions. To maximize your driving safety, be aware of the road conditions, reduce speed appropriately, and be prepared for challenging situations. You're on your way to safe motoring in wet conditions.

Pre-Season Checkup

Rain, slush and mud are hard on your vehicle. Be prepared for the rainy season by conducting a thorough checkup. Use the following checklist as a reference:



Battery

Wet weather places heavy demands on the battery and charging system. Recharge or replace weak batteries. Check fluid levels, battery posts, and charging system.



Ignition System

Damaged ignition wires, a cracked distributor cap or worn spark plugs can make it difficult to start your vehicle or may cause a sudden vehicle breakdown.



Lights

Check the headlights, side-marker lights, emergency flashers, parking lights, front and rear directional signals, taillights and brake lights. Make sure they work and are clean — a quick wipe can make a big difference.



Brake System

Check brakes for proper operation. Pulling, a taut pedal or an unusual squealing or grinding could indicate the need for brake repair. Don't delay!



Tires

Traction is the key to good movement, turning and stopping on wet surfaces. Good tire tread allows water to escape from under the tires, preventing loss of traction. Consider changing to tires designed for increased traction on wet surfaces. Make sure tires are properly inflated to the pressure shown in the owner's manual or on the door frame.



Heating and Cooling System

Check the radiator and hoses for leaks and cracks. Test defrosters and blowers for proper operation. Keep vents free of debris so air circulates properly. An air conditioning check ensures both heat and air are available to keep windows clear.



Windshield Wipers and Washer Fluid

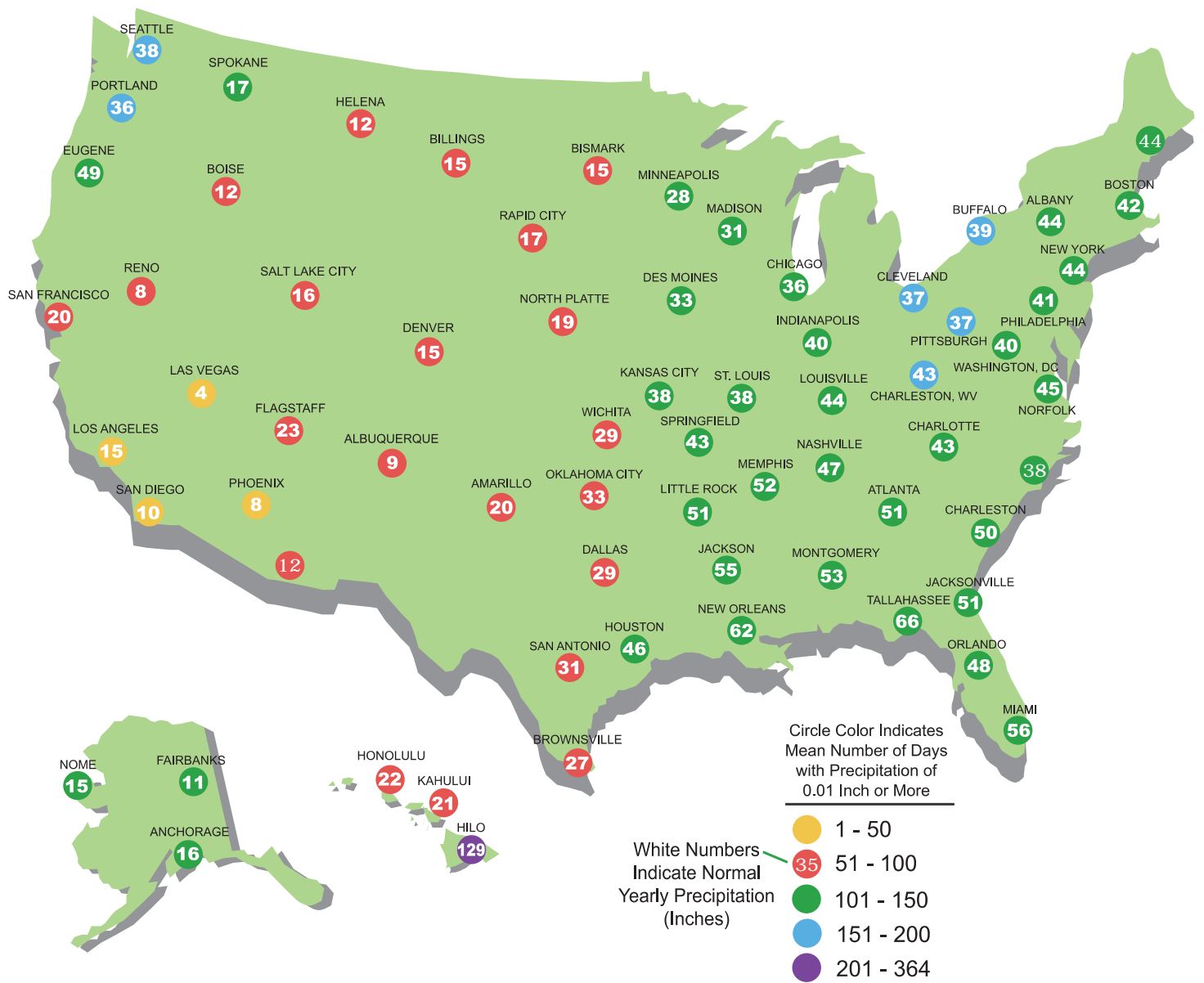
Are wipers functioning properly? Blades that streak should be replaced. Fill the washer reservoir bottle with a washer solvent.



Emergency Kit

Keep these items in your vehicle in case of emergency:

- Flashlight
- Mats that can be placed under tires to increase traction
- Small bag of sand, salt, or kitty litter to spread around tires to increase traction
- Shovel
- Cloth or roll of paper towels
- Blanket
- Booster cables
- Window-washing solvent to keep the reservoir filled and windshields clean
- Warning devices – flares or triangles
- Cellular phone



National Rainfall Characteristics

Source

Comparative Climatic Data for the United States through 1995
 U.S. Department of Commerce National Oceanic and Atmospheric Administration
 National Environmental Satellite, Data and Information Service

Quick Tips

- Keep tires properly inflated.
- Drive at a speed appropriate for the weather conditions.
- Always use your safety belt.
- Never use cruise control in wet-weather driving conditions.
- Always look and steer where you want to go.



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