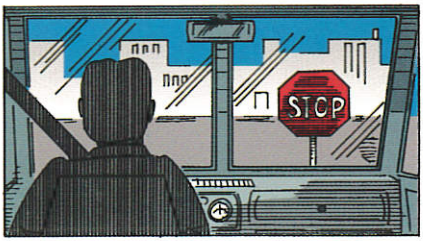
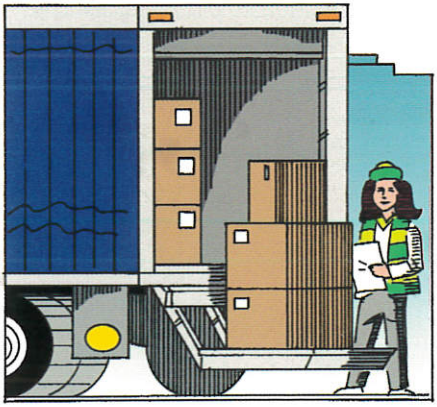
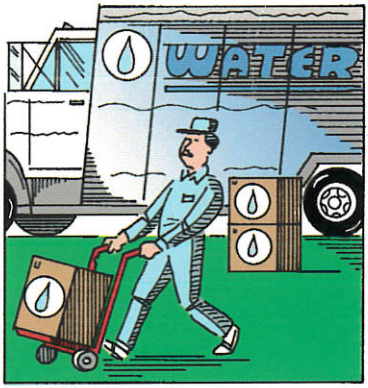
Keller's
Route and Delivery Driver's Safety Handbook







BRIGHTSTONE
INSURANCE SERVICES, LLC

J. J. Keller
& Associates, Inc.

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J. J. Keller & Associates, Inc.
3003 W. Breezewood Lane, P. O. Box 368
Neenah, Wisconsin 54957-0368
Phone: (800) 327-6868
Fax: (800) 727-7516
www.jjkeller.com

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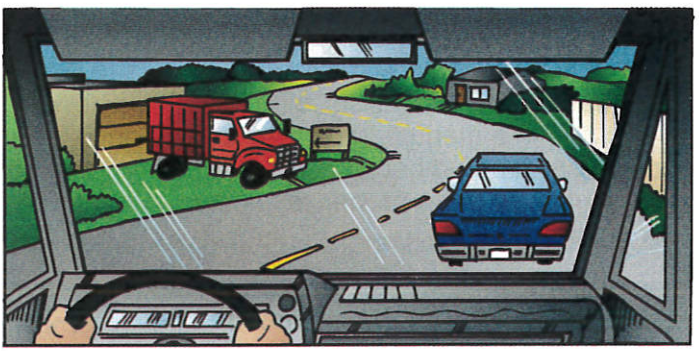
Safe Vehicle Operation

Being a delivery driver is a lot more than just delivering your product. You are also responsible for safely operating your vehicle at all times.

What is involved in safe vehicle operation? Safe vehicle operation includes:

- Knowing your vehicle and its controls.
- Making sure your vehicle is in good mechanical condition.
- Using good driving techniques.



- Being constantly aware of the other traffic around you.
- Adjusting your driving to changing conditions.
- Knowing how to manage an emergency situation if it occurs.

In this chapter, we'll talk about these elements of safe vehicle operation.

Operation of a Delivery Vehicle

Your delivery vehicle is a unique piece of equipment and more challenging to operate than your personal car. You need to familiarize yourself with all of its equipment, gauges, and unique features **before** you hit the road.

Equipment and Gauges

Your delivery truck has much of the same equipment and gauges as your personal vehicle, and probably some additional items as well.

Engine. The engine is, of course, the source of power for your vehicle. Gasoline and diesel engines are both used in delivery vehicles. Diesel engines are more common in larger vehicles because they provide more power relative to their size and get better fuel mileage. However, they can also be more costly to repair and difficult to start in cold weather. Talk with your supervisor or maintenance personnel about the proper operation of your vehicle's engine.

Transmission. The transmission is the system that transmits power from the engine to the wheels. Your vehicle may contain a manual or automatic transmission.

A manual transmission consists of a gear shift lever and a clutch. If you have a manual transmission, you should familiarize yourself with the number of gears, the shifting pattern, the feel of the clutch, and the proper revolutions per minute (rpm) range for shifting gears.

An automatic transmission simply has a gear selector lever much like an automobile. Like a manual transmission, with an automatic you may have a tachometer in your cab to help you determine if your transmission is operating properly. Consult your supervisor or maintenance personnel for more information on your vehicle's transmission.

Brakes. Your vehicle may have a hydraulic braking system or air brakes. Understanding your brakes and using them properly is one of the most critical tasks for safe vehicle operation.

If your delivery truck has air brakes, you will need to become familiar with their operation and the air pressure gauge. You should know the proper psi (usually 95 to 125) for your air brake system. For all brake systems, there will probably be a warning gauge to let you know if the brakes are malfunctioning. However, don't rely on this alone. As the driver, you should always take note of how the brakes "feel" and be alert to any changes that may indicate problems.

Many newer vehicles have anti-lock braking systems (ABS). ABS can help you retain control of your vehicle if you are in a sudden stopping situation on slippery roads.

When stopping an ABS-equipped truck, you should apply steady, firm pressure to the brake pedal. The ABS system will "pump" the brakes for you — rapidly engaging and disengaging the brakes so that your wheels do not lock up and slide. Do not pump the brakes yourself if your vehicle has ABS. Doing so would keep the anti-lock brakes from working properly.

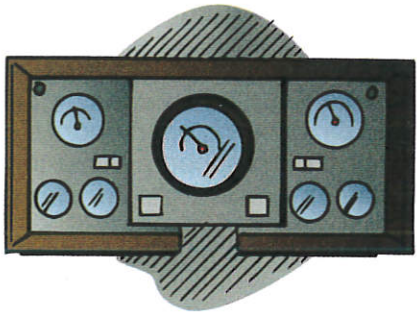
In addition to the regular brakes, your vehicle should be equipped with a parking brake. It is always good practice to engage the parking brake whenever you leave your vehicle.

Gauges. Your delivery vehicle will have several gauges that you should become familiar with. Consult the vehicle operator's manual or your maintenance department to learn what the standard gauge readings should be.

As the driver, it is your responsibility to continually monitor the vehicle gauges. These instruments will let you know how your vehicle is performing and should help you spot mechanical problems — hopefully before a breakdown.

Different vehicles will have different sets of gauges. However, typical items include:

- **Speedometer.** Lets you know how fast the vehicle is traveling.
- **Odometer.** Shows how many miles the vehicle has traveled.
- **Fuel gauge.** Shows the level of fuel in the vehicle.
- **Tachometer.** Displays the vehicle's engine speed in hundreds of rpm. The tachometer can serve as a guide for shifting gears. Learn what the proper operating and shifting rpms are for your vehicle.



- **Voltmeter.** Measures the battery charging voltage. Consult the vehicle operator's manual or your maintenance department for the proper range.
- **Oil Gauge.** Indicates the oil pressure. Learn what a normal reading is for your vehicle. If the oil gauge ever shows a sudden loss in oil pressure, get your vehicle off the road as soon as possible and investigate the problem.
- **Coolant Gauge.** Shows the temperature of the engine coolant. Find out what a normal operating range is for your vehicle. If the engine overheats, try to shut down the vehicle as soon as possible to avoid damage.

Doors, Ramps and Lift Gates

As a delivery driver, you need to be familiar with more than just the equipment and systems that move your vehicle. The doors, ramps, and lift gates you use to make your deliveries should also be operated carefully to ensure your personal safety and damage-free deliveries.

Doors. A variety of different door styles are used on delivery vehicles.

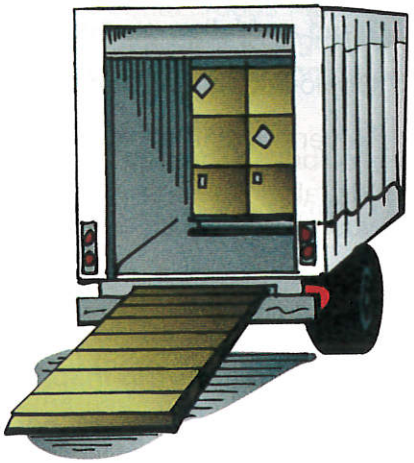
Rollup doors are popular because they are easy to use. However, injuries can occur if the doors roll up too fast and hands or fingers are in the way. Open the doors with care and always make sure they are secure before moving the vehicle.

Swing doors are another popular door style. When opening these doors, be cautious of wind gusts that can cause the doors to swing out of your control and cause injuries or damage. While backing or making the delivery, use the door tiebacks to secure the doors from moving.

With all vehicles, open doors slowly. Cargo can shift in the vehicle and be propped against the door. Many drivers have been injured by falling freight when they opened a door. For this same reason, never allow someone else (a store employee, etc.) to open your vehicle's doors.

Ramps. Ramps are simple devices that can be a great aid to a delivery driver. Rather than unstacking cargo, lifting it down from the truck, and restacking it on a hand dolly, a ramp allows you to wheel your cargo right off the vehicle.

However, you do need to use ramps carefully. Follow these safety precautions:



- Make sure the ramp is secure before moving cargo across it.
- Travel up and down the ramp slowly so you don't injure yourself or the load.
- Never allow unauthorized people on the ramp.
- Keep the ramp free from moisture or debris that could cause you to slip or trip.
- Always secure the ramp before moving the vehicle.
- Follow the manufacturer's recommendations on load capacity, inspection and maintenance.

Lift gates. Lift gates can be another great aid to the delivery driver. These mechanical devices allow you to load and unload heavy cargo from your vehicle relatively quickly and easily.

Like any mechanical device, though, there are safety precautions for utilizing a lift gate. Follow these guidelines:

- Make sure your vehicle is properly parked with the parking brake set before using the lift.
- Make sure the area where the gate will open is clear before removing the safety chain or opening the platform.
- Do not allow unauthorized people on the lift gate.
- Do not allow unauthorized people to operate the lift gate.

- Operate the gate with the control handle only.
- Follow the manufacturer's recommendations for load capacity. This capacity is usually based on an evenly distributed load and the flat surface of the lift gate. Never overload the gate.
- Always load as close to the center of the platform and as close to the truck sill as possible.
- Read and follow warning and operating decals.
- Do not stop the platform abruptly when loaded.
- Never allow lift trucks on or over any part of the platform.
- Visually inspect the gate frequently. Report any problems to your maintenance department.
- Always secure the platform with the safety chain when it's not in use.

Pre-trip and Post-trip Inspections

While you are a driver and not a mechanic, you do have a certain level of responsibility for the mechanical condition of your vehicle. Every day, you must make sure your vehicle is in sound operating condition.

Proper pre-trip and post-trip inspections serve several purposes:

- Most importantly, you may catch an unsafe condition *before* it causes an accident.
- You can spot mechanical problems before they lead to breakdowns on the road.
- By avoiding breakdowns, you can avoid costly on-the-road repair service.
- By avoiding breakdowns, you will have fewer delivery delays and better customer service.
- Enforcement agents will not put your vehicle out of service or write you a ticket.

- Catching mechanical problems early will help your maintenance department control costs.
- Pre-trip inspections and post-trip inspection reports are required on commercial vehicles by federal and state regulations.

Pre-trip inspection. If your vehicle weighs 10,001 pounds or more or carries a placardable amount of hazardous materials, Section 396.13 of the Federal Motor Carrier Safety Regulations (FMCSRs) requires you to perform a pre-trip inspection before driving your vehicle. You must:

- Be satisfied that the vehicle is in safe operating condition;
- Review the last driver vehicle inspection report (DVIR) (see post-trip inspection); and
- Sign the report, only if defects or deficiencies were noted by the driver who prepared the DVIR, to acknowledge that the DVIR has been reviewed and that there is certification that any necessary repairs were performed.

No matter what type of vehicle you drive, a careful and thorough pretrip should become a part of your daily routine. Do your pretrip the same way each day so it becomes a habit and you are less likely to miss something. The following seven-step routine is recommended:

- **Vehicle overview.** Walk around the vehicle and note its overall condition. Look for body damage or any fluids leaking from the vehicle. Also review the last vehicle inspection report.
- **Engine compartment.** Open the vehicle hood and check all the fluid levels (oil, coolant, power steering, transmission, windshield washer); inspect hoses and belts for wear or looseness; check the alternator, water pump, and air compressor (if applicable).
- **Inside the cab.** Start your vehicle and check all of your gauges for normal readings; check the steering wheel, clutch, brakes, and windshield wipers; clean and adjust mirrors if necessary; make sure you have all your safety equipment (fire extinguisher, spare fuses, emergency triangles, etc.).

- **Lights.** Turn off the engine and turn on your lights and emergency flashers. Go to the front of the vehicle and check the lights.
- **Walkaround.** Turn off the headlights and four-ways, but leave the rest of your lights on. Walk around your vehicle, starting on the driver's side. Check each wheel and axle, the steering system, the fuel tank area, suspension components, and each light and reflector.
- **Signal lights.** Get in the vehicle and turn on the left signal light. Get out of the cab and check to make sure the signal is working. Repeat with the right signal. Check the brake lights with a helper.
- **Brake system.** Start the engine, drive forward, and then test your brakes. If you have air brakes, you should make sure that the air pressure is building at the specified rate and that your emergency brakes activate when there is a loss of pressure.

Hopefully your vehicle will check out fine and you will be able to start your day after completing the pretrip. If there are any problems, however, report them to your company immediately. Never take an unsafe vehicle on the road.

Post-trip inspection report. When you are done operating your vehicle for the day, do another inspection.

If your vehicle weighs 10,001 pounds or more or carries a placardable amount of hazardous materials, you are required to complete a DVIR when you finish your day's work on the vehicle. Section 396.11 of the FMCSRs requires a written report covering the following parts and accessories:

- Service brakes including trailer brake connections;
- Parking (hand) brake;
- Steering mechanism;
- Lighting devices and reflectors;
- Tires;

- Horn;
- Windshield wipers;
- Rear vision mirror;
- Coupling devices;
- Wheels and rims; and
- Emergency equipment.

On the report, you must identify the vehicle and list any defect which could affect its safe operation or cause a breakdown. If there are no defects or deficiencies, you must also report that. After completing the inspection you must sign the report.

Any defect or deficiency that you report must be corrected or your company must certify that correction is not necessary to safely operate the vehicle. This must be done before you drive the vehicle again.

Your company must keep the original copy of each DVIR and certification of repairs for at least 3 months.

Preventive Maintenance

You might not realize it, but you are an important part of your company's maintenance team! As the driver, you are your company's first line of defense in noticing small problems before they become major repairs.

You can help your company's maintenance efforts in three ways:

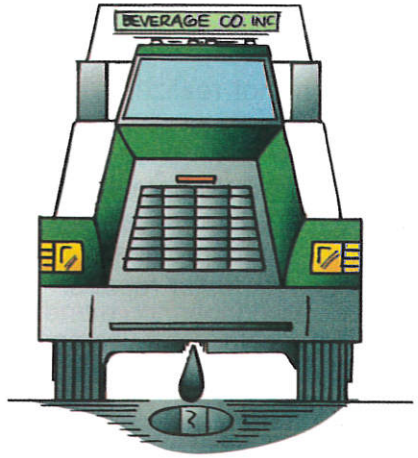
- Inspect your truck thoroughly;
- Be observant when you operate the vehicle; and
- Drive in a way that minimizes wear and tear on the vehicle.

Inspection. Make thorough pre-trip and post-trip inspections part of your daily routine and report potential problems promptly. In particular, you can help your maintenance department by:

- Checking your tires with a tire gauge. You may be able to detect a flat tire by "thumping" it, but an accurate psi measurement is important. Even slight (10 psi) over- or under-inflation can cause serious performance and safety issues. You can only detect these slight variances by using a gauge.
- Learning to check your brakes, including slack adjusters. More vehicles are put out of service by inspectors for brake problems than for any other reason. If your brakes need adjustment, report it to your maintenance department right away.
- Noting oil usage. If your vehicle starts using more oil than normal, there is probably a problem. Increased oil consumption is often accompanied by a loss of power and increased fuel consumption.

Observation. While you drive, use your senses to observe how the vehicle is operating. Changes may indicate potential problems. Specifically:

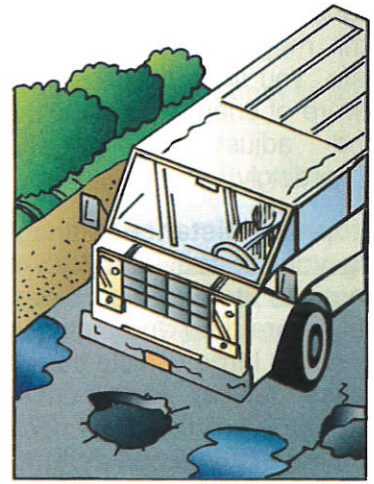
- *Listen* for unusual or abnormal equipment noises, including thumps, squeaks, rattles, and hisses.
- *Smell* for unusual odors, such as burning rubber, insulation, or hot fluids.
- *Feel* for any changes in the vehicle's responses. The steering, braking, and shifting systems all have their own unique "feel" in each vehicle.



- *Look* at all your equipment carefully during inspections, noting anything that begins showing signs of wear. Watch your gauges on the road for early warning signs of trouble.

Driving. Your driving habits, good or bad, will have an effect on the life of your vehicle's equipment. You can minimize wear and tear on your vehicle by:

- **Avoiding fast starts.** Sudden starts are hard on your clutch, transmission, and tires. With a manual transmission, select a starting gear that allows you to get the vehicle moving at an idle.
- **Avoiding fast stops**. Obviously you will encounter emergency stopping situations. But under normal conditions, try to stop your vehicle slowly and smoothly. Leaving plenty of following distance between you and other vehicles will help you do this. Routine sudden stops cause excessive wear on tires and brakes.
- **Avoiding road hazards.** Hitting pot holes and road debris can damage your tires, knock off hubcaps, and throw the wheels and front end out of alignment. Also, make your turns carefully to avoid scraping your tires against curbs or other obstacles.



- **Gearing down on hills.** Using a lower gear when driving downhill will keep you from using your brakes excessively.
- **Not riding the clutch.** Keep your foot off the clutch pedal as much as possible. Riding the clutch causes excessive wear.
- **Warming up the engine.** Allow your engine to warm up for the recommended time (it will depend on your engine, 2 to 5 minutes is usually adequate) before starting your trip. This ensures that oil has reached all parts of the engine.

Remember, you should think of yourself as part of the company's maintenance team. Treat your vehicle like it is your own and report all suspected problems promptly.

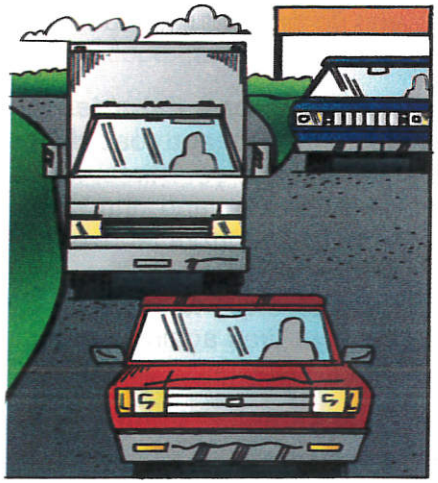
Driving and Maneuvering

Driving a delivery vehicle well requires attention, skill, and practice. Safety must always be your top priority as you drive from delivery to delivery.

In the next section, we'll talk about the importance of managing your speed, safely operating in the flow of traffic, handling intersections, and — a particular concern to delivery drivers — how to operate safely in suburban areas.

Managing Speed

Managing your speed means more than just obeying speed limits. Under certain circumstances, the posted speed limit may be too fast to be safe. You must be constantly aware of changing conditions and adjust your speed accordingly.



Stopping distance. Managing your speed is important because it takes considerably more time and distance to stop a large vehicle than a passenger car. As the driver of a larger vehicle, you need to account for this extra stopping time so that you can determine a safe speed.

Stopping distance is made up of three components:

- Perception distance;
- Reaction distance; and
- Braking distance.

Perception distance is the distance your vehicle travels from the time your eyes see a hazard until your brain recognizes it. For the average driver, perception time is about $^3/_4$ of a second. At 55 mph, you will travel 60 feet before you perceive the hazard.

Reaction distance is the distance your vehicle travels from the time you recognize the hazard until your foot actually pushes the brake pedal. Again, the average driver has a reaction time of about $^3/_4$ of a second. Your vehicle will travel another 60 feet while you react to the hazard.

Braking distance is the distance it takes to stop once the brakes are applied. The braking distance will vary by vehicle, load, speed, the condition of the brakes, and the road surface. In ideal conditions (on dry pavement with good brakes) it will take a heavy vehicle traveling at 55 mph about 4 $^1/_2$ seconds to stop. During that time, the vehicle will travel another 170 feet.

60 + 60 + 170 = 290 feet.

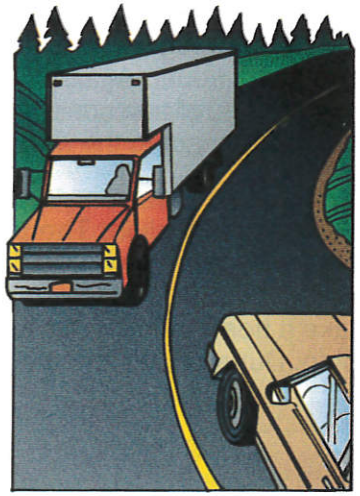
The overall stopping distance, in this instance, is nearly the length of a football field. However, be aware that as vehicle speed increases, so does stopping distance.

By slowing down a little, you will have much more time to stop your vehicle if a hazard presents itself.

In particular, you will want to slow your vehicle in the following situations:

- **Reduced visibility.** If your visibility is reduced by fog, rain, snow, etc., your perception time — and therefore your overall stopping time — will be much longer. Slow your vehicle down.
- **Reduced traction.** Your braking distance will be much longer on a road that is wet or covered with snow or ice. You will also have less control over your vehicle when you brake. Slow down.

- **Around curves.** Typically, delivery vehicles are taller than a passenger car and, therefore, have a higher center of gravity. If you are driving too fast, you may not be able to steer the vehicle around the curve (and drive straight off the roadway) or the vehicle may roll over. If a curve has a warning sign and speed limit, remember that speed limit was intended for *cars*, not large vehicles. You must drive even slower to negotiate the curve safely.



- **Downgrades.** It's important to slow down when going down hills with a large vehicle. If you don't go slowly enough, you will have to overuse your brakes, possibly causing them to overheat and fail. Choose a lower gear on downgrades to help slow your vehicle.

Traffic Flow

Operating in heavy traffic can be one of the more stressful situations for a delivery driver. When traffic is heavy, it is generally safest to drive the same speed as the traffic around you, as long as that speed is safe and legal. Keep an ample following distance from the vehicles in front of you in case of sudden stops.

In bumper-to-bumper traffic, you may have to drive slightly slower than the surrounding traffic in order to maintain your following distance. Trying to pass other vehicles or drive faster than the traffic is counterproductive. You will not get to your destination any faster and you will probably become stressed and fatigued in the process. Going with the flow of traffic is safer and easier.

Entering traffic. When you enter highway traffic from a ramp, try to blend in smoothly with the flowing traffic. Follow these guidelines:

- Time your entrance so you can take advantage of gaps in the traffic.
- Signal your intentions early so other drivers know you will be merging.
- Try to be up to a safe highway speed when you enter the traffic.
- Check your mirrors continually as you merge.

Exiting traffic. Exiting highway traffic also requires care. Plan ahead to avoid last minute lane changes or sudden decelerations. Signal early so other drivers know your intentions and check your mirrors continually as you exit the highway.

Intersections

Negotiating intersections in a large vehicle has particular challenges.

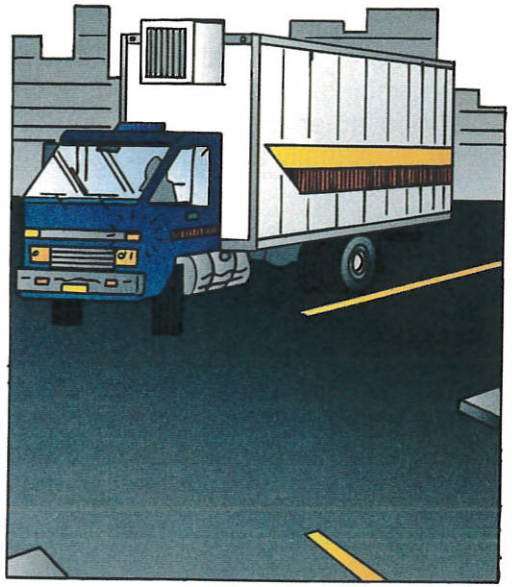
If you deliver in a lot of suburban areas, you may encounter a lot of *two-way stops* or *uncontrolled intersections*. Even when you do not have a stop sign, always slow down and watch for other vehicles, pedestrians, and people on mopeds, bicycles, etc. Expect other traffic and always assume you do *not* have the right of way.

At *stop signs* and *traffic lights*, stop twice. First stop at the sign or light and then ease forward to where you can clearly see oncoming traffic. Then stop a second time. When crossing an intersection, remember that your vehicle is larger and probably slower than a passenger car. If there is approaching cross traffic, you will need more time and space to make it safely through the intersection. Don't take chances: only cross if you are positive you have enough time.

When approaching *traffic lights*, begin watching the light as soon as possible. If the light has been green a long time, assume it will turn yellow (and then red) by the time you get to the intersection. Remember, a larger vehicle takes longer to stop, so be prepared. If the light turns yellow before you get to the intersection, always try to stop. Do not attempt to cross before the light turns red.

Turning. There are also special considerations when turning in a large vehicle. If you don't leave enough space, you could collide with a curb, sign, or another vehicle. Use these techniques to turn safely:

- Signal early so other drivers can react. This is especially important when traffic is congested or you are traveling at faster speeds.



- Be in the proper turning lane well in advance.
- Reduce your speed when approaching the turn.
- Turn slowly so you can stop if problems arise.
- Check you mirrors before, during, and after the turn.

When making a *right turn*, do not swing left before starting the turn. Following drivers may think you are not actually turning right and could try to pass you on the right side. Turn wide enough to avoid any obstacles but keep your rear wheels close to the curb. Watch your mirrors continuously until your turn is completed.

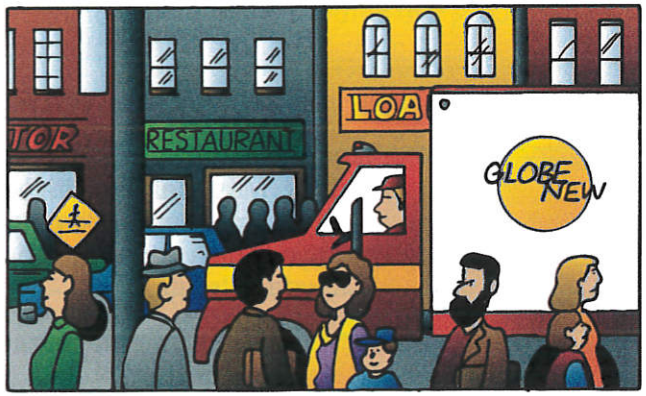
If you are making a *left turn* in a large truck, do not start your turn too soon. Make sure the end of your truck will clear any vehicles stopped at the opposing sign or light. Again, watch your mirrors until the turn is complete.

Operating in Suburban Areas

Unlike over-the-road tractor-trailer drivers, delivery drivers don't do a lot of highway driving and don't usually deliver goods to isolated warehouses or large industrial parks. As you travel from delivery to delivery — probably going to stores, shopping centers, businesses, or customer homes — you will likely spend a lot of time in suburban areas.

Suburban areas present their own challenges, mostly in the way of other people. As you drive in suburban areas, stay particularly alert for:

- **Pedestrians.** Many people walk in suburban areas, either for exercise or to get to work, school, the store, etc.



- **Bikes, rollerblades, scooters, and skateboards.** Adults and children on these "recreational wheels" may not be paying attention to traffic or may have difficulty stopping.
- **Children.** Always be alert for children who may wander or run into the street. They are not as cautious as adults.
- **School zones.** Slow down in these areas and watch for children.

- **Uncontrolled intersections.** Uncontrolled intersections are more common in suburban areas. At every intersection, be alert for traffic coming from the other direction — and expect them not to expect you.
- **Driveways.** Scan driveways to spot motorists who may pull out in front of you. Be prepared for drivers who suddenly slow down and turn into driveways without signaling.
- **Animals.** Watch for unleashed pets and the various forms of "wildlife" that inhabit these areas between the city and the country.
- **Tree branches.** Be alert for untrimmed tree branches hanging into the road. Scraping these branches could damage your vehicle.

It's critical to stay alert in suburban areas and to always expect the unexpected. If you drive the same route or area every day, remain vigilant against overconfidence. The route or area may be the same, but the potential hazards — the people, vehicles, and conditions — are constantly changing.

Parking/Backing

When a truckload driver makes deliveries, he or she may typically unload at a warehouse dock. Most delivery drivers, however, don't often have the luxury of an actual loading dock. You will more typically be unloading your deliveries while parked in alleyways, parking lots, and crowded streets.

As you face the challenge of trying to find an appropriate parking spot, you want to look for a place that:

- Is close to where you will be loading or unloading.
- Doesn't require you to back up, if at all possible.
- Gives you space to maneuver.
- Is in a location where your vehicle won't present a hazard or obstacle to other drivers.

Always survey the area carefully before parking. Think ahead. Know how you will get out of the spot as well as how you will get into it. When parking in an alleyway or parking lot, be on the look out for other drivers that are thinking about their destination and not expecting to encounter a large delivery vehicle.

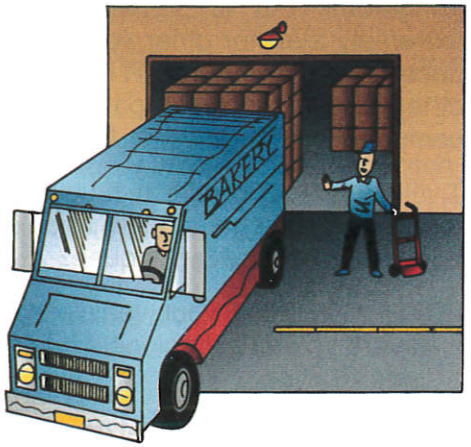
Try to park where your vehicle will be of the least inconvenience to shoppers or motorists. If you must park in an alley or on the side of a busy street, leave as much room for passing traffic as possible and turn on your four-way flashers. Put out reflective triangles or other warning devices if you'll be stopped for more than 10 minutes.

If you must maneuver to get into a tight parking spot, get out of the vehicle first and check for hazards. Make sure you have enough clearance on all sides and overhead.

Backing

The first rule of backing is: Never back unless you have to. Backing is always a dangerous maneuver because you cannot see everything behind you. Unfortunately, sometimes backing will be unavoidable.

If you have to back, follow these rules:



- Always survey your path before you back. Check for obstacles or hazards.
- Use a helper whenever you can. Agree on a set of hand signals before you start backing. If you ever can't see your helper in your mirrors, stop immediately! (However, remember that even when you use a helper, you are ultimately responsible for backing safely.)
- Back up on a straight path whenever possible.

- When you must back on a curved path, position your vehicle so you can back from your sight (left) side. This way, you will be able to watch the rear of your vehicle by looking out the side window. (If you have to drive around the block so you can back from the sight side, do it. The added safety is worth it.)
- Shut off your radio and open your windows so you can hear what is happening outside your vehicle.
- Turn on your four-way flashers to communicate to others that you are backing up. Use the back-up alarm if your vehicle has one. If your vehicle doesn't have an alarm, periodically sound your horn.
- Back slowly. If you have a manual transmission, use the lowest reverse gear.
- Check you mirrors continuously.
- When in doubt, get out and look! If you are not 100 percent certain you are clearing an obstacle, get out and look. It's cheaper and easier to check your path than to explain damage to your company or customer.

Backing in a parking lot or from a crowded street is especially dangerous, but is sometimes unavoidable. You must be extremely alert for other vehicles. Have a helper stop traffic if necessary. However, don't rush your backing maneuver, even if other drivers become impatient. The most important thing is to complete the maneuver safely.

Trailers. Backing with a trailer is an even more challenging task than backing a straight truck or van. If you must back with a trailer, use these techniques:

- Try to position your vehicle so you can back in a straight line. If you must back on a curved path, back to your driver's side.
- Turn the steering wheel opposite from the direction you want to go. Once the trailer starts to turn, turn the wheel the other way to follow the trailer.

- Back slowly and use your mirrors to watch for trailer drift. If the trailer is drifting off course, correct it by turning the top of your steering wheel in the direction of the drift.
- If necessary, pull forward and reposition your vehicle. Select a path that will align your vehicle properly to its target.

Vehicle Accidents and Emergencies

Accidents and emergencies are unfortunate possibilities for which professional drivers have to be prepared. Of course, the best course of action is to avoid accidents and emergencies in the first place. One of the best ways to avoid these occurrences is by practicing defensive driving.

Defensive Driving

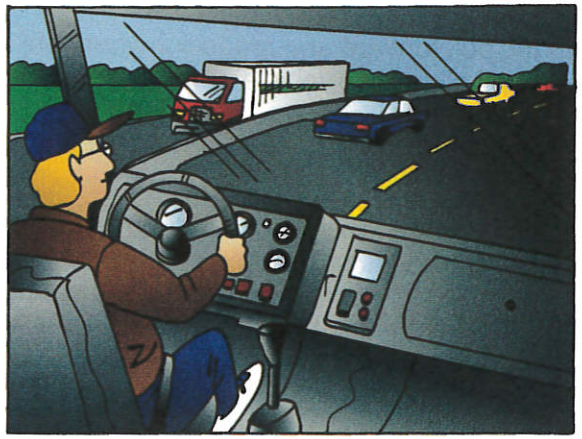
What is defensive driving? Defensive driving is anticipating hazards *before* they occur and acting to avoid them. Driving defensively has several elements:

- Staying alert to changes by looking well ahead.
- Observing the situation.
- Recognizing potential hazards.
- Deciding on an appropriate response.
- Carrying out your plan.

Staying alert and looking ahead. One key element of defensive driving is staying alert and looking well ahead. Many drivers do not look far enough ahead to observe potential hazards in time to avoid them. Here are some guidelines:

- Scan the area ahead of you for one block on city streets and at least a quarter of a mile on highways.
- Periodically scan to the sides while on an open road.
- Always look both ways at intersections, crosswalks, construction sites, school zones, parking lots, and other areas where people may appear with little or no warning.

- Check your mirrors every 4 seconds and before changing your speed or position in traffic.



Observing the situation. While looking is important, you need to go to the next level of observing the overall situation. Know where you are in relation to other vehicles. Identify escape routes — empty adjacent lanes, a shoulder, or median — you can use if an emergency presents itself.

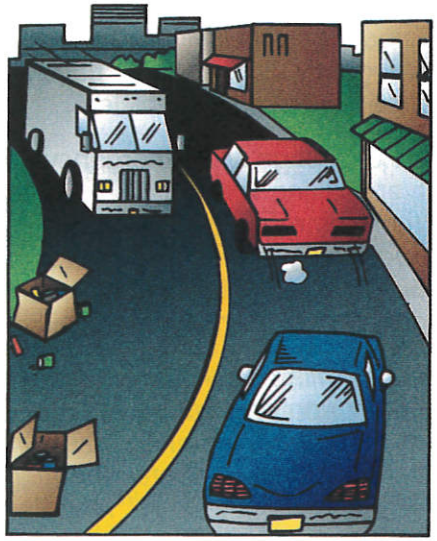
Recognizing potential hazards. As you observe the overall traffic situation, you should recognize potential hazards — situations that could require you to take evasive maneuvers to avoid a collision. Potential hazards could be an inattentive driver weaving between lanes, a construction zone, an aggressive driver passing vehicles unsafely, a sharp turn ahead, or a child on a bicycle.

Deciding on an appropriate response. Once you recognize a potential hazard, you need to decide on a response. Some responses will be executed immediately, such as increasing your following distance behind an erratic driver. Others you will execute only if the situation develops into a full-blown hazard: if the driver you are following slams on his brakes, you should be prepared to stop or to take an evasive maneuver by steering into another lane.

Carrying out your plan. Once you decide on a plan, carry out any responses that can immediately make your situation safer, such as slowing down or increasing following distance. Be prepared to act on the rest of your plan if the need occurs.

Evasive Maneuvers

A good driver is prepared to take evasive maneuvers if a hazard develops. Evasive maneuvers include evasive steering, emergency braking, and skid control. While you will probably have few or no opportunities to practice these maneuvers in advance, you should be familiar with the techniques in case you need them in an emergency.



Evasive steering. When an emergency situation presents itself, your best option is to try to find an escape route. Many drivers don't realize it, but it's usually easier to steer around a hazard than to stop before a collision.

The most important step in evasive steering must be performed the as soon as a hazard is recognized: identification of an escape route. Depending on the circumstances, this could be another lane, the shoulder, the median, or in some cases, the ditch. Once you identify an escape route, begin your evasive steering maneuver. Use the following technique:

- Don't slam on the brakes, but, if distance permits, brake before you turn to reduce your speed. Don't brake during the turn because it could cause you to lose control.
- Swerve only as much as necessary to clear the hazard. Turning too sharply could cause a skid or rollover.

- Turn as quickly as possible, using hand-over-hand steering. Each turn of the wheel should be about 180 degrees.
- Be prepared to countersteer as soon as you've passed whatever was in your path.

Emergency braking. In some situations, evasive steering may not be an option, and you will have to use emergency braking. Remember, you will be more likely to avoid a collision using emergency braking if you have maintained a safe following distance behind other vehicles.

The challenge with emergency braking is to avoid over-braking. Over-braking will cause you to lose control and go into a skid. When emergency braking with traditional brakes, you may choose to use a *controlled braking* or *stab braking* technique. If you drive a vehicles with an *anti-lock braking system (ABS)*, you will use a technique specific for ABS.

In *controlled braking,* you maintain steady pressure on the brakes, applying them just short of lock-up. When control braking, keep your steering wheel movements very small. If you must make a larger steering adjustment, or if the wheels lock, release the brakes and reapply them as soon as you are in control again.

Controlled braking is the best technique only if you are very knowledgeable of your vehicle. You must know how hard you can brake before losing control. If you are less familiar with the vehicle, *stab braking* is the better option.

In *stab braking*, you fully apply the brakes until the wheels lock. Once the wheels lock, release the brakes partially, until the wheels begin to roll again. Then reapply the brakes. Continue this sequence until the vehicle has come to a safe stop.

On a vehicle with *ABS*, apply firm and continuous pressure on the brake pedal until you no longer need to brake. The ABS will automatically "pump" the brakes. Do not pump the brakes yourself — this will only turn the ABS on and off and make it ineffective. ABS will reduce the chances of wheel lock-up and give you greater control during braking, but only if you use it properly.

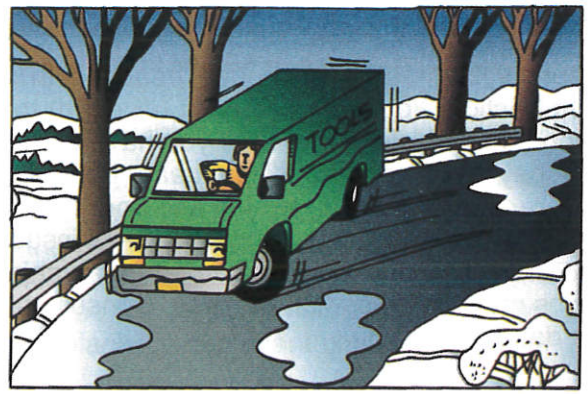
Skid control. Skids happen when the tires lose their grip on the road. This can happen because of over-accelerating, over-braking, or over-steering. Skids can affect your front wheels, rear wheels, or all your wheels at once.

Skids caused by *acceleration* usually happen in snow, ice, or rain. Stop the skid by taking your foot off the accelerator. If you have a manual transmission, push in the clutch: this disengages the wheels from the power of the engine, allowing them to roll freely again and, hopefully, to regain traction.

Rear-wheel *braking skids* happen when the rear drive wheels lock. Since sliding wheels move faster than wheels with traction, the vehicle will begin to slide sideways and go into a spin as the rear end tries to "overtake" the front end of the vehicle.

To correct this type of skid:

- **Stop braking.** This will let the rear wheels roll again and keep them from sliding any further. If you're on ice and have a manual transmission, push in the clutch to let the wheels turn freely.
- **Turn quickly.** When your vehicle begins to slide sideways, quickly steer in the direction you want to go.
- **Countersteer if needed.** As the vehicle turns back on course, it has a tendency to keep right on turning. Unless you turn your steering wheel quickly the other way, you may find yourself sliding in the opposite direction.



In a *front wheel skid*, the front end tends to go in a straight line, regardless of how you steer. The only way to stop this skid is to allow your vehicle to slow down.

Extreme Driving Conditions

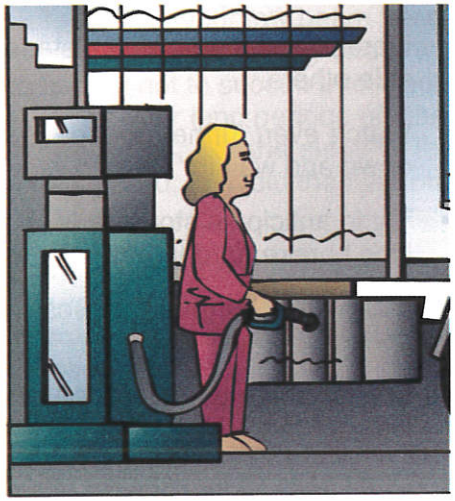
Weather and terrain will create some driving situations that are more challenging than others. To avoid accidents and emergencies, these extreme driving conditions will require you to be more alert, exercise good judgement, and employ proper driving techniques. In the next section, we'll talk about winter driving, rain, fog, wind, uphill and downhill driving, and night driving.

Winter driving. Winter driving can be some of the most challenging driving you will face. Snow and ice can reduce your traction, increasing your stopping distance and decreasing your control of the vehicle. Falling snow may inhibit your vision. On top of this, accidents in winter conditions are more dangerous because you could end up stranded in extreme cold.

When preparing to drive in winter, start by spending extra attention on your pre-trip inspection and preparing yourself and your vehicle for a cold weather emergency. In particular:

- Make sure there is enough antifreeze in the cooling system to protect it from freezing.
- Check the defroster, heater, and windshield wipers to make sure they are working properly.
- Check the fluid in the washer reservoir. Add windshield washer antifreeze.
- Make sure your tires have enough tread depth to ensure sufficient traction. You may also want (or need) to carry tire chains on your vehicle. Make sure you have enough chains and that they are in good condition. Learn how to chain your tires before you have to do it in ice and snow. (Some states have specific chain laws covering a range of issues — from the time of year chains must be carried on a vehicle to how the chains must be placed on the tires. Consult state law for specific details.)

- Clean all your lights, mirrors, reflectors, and windows. It is especially important that you can see other vehicles and they can see you.
- Clear hand holds, steps, and deck plates of accumulated snow and ice to prevent slips or falls.
- Check the exhaust system for loose parts or signs of leaks. Loose connections could allow potentially fatal carbon monoxide gas into your truck cab.
- Examine the brake linings to make sure they are free of ice. Ice can reduce braking power or cause the shoes to freeze to the drums when the vehicle is stopped.



- Top off the fuel tank to keep water from freezing in the fuel lines and filters.
- Pack appropriate winter gear. At minimum, you should have a scraper, snow brush, shovel, sand or cat litter, a source of fire or heat, extra clothing, water, and emergency food.

The biggest challenge of winter driving is the reduced traction caused by *snow and ice*. As a general rule, you can drive about half your normal speed on packed snow. On ice, you will be lucky if you can travel at even one-third your normal speed.

A particularly treacherous road condition to be aware of is *black ice*. Black ice tends to form on bridges, beneath underpasses, in dips in the road where water collects, in shaded areas, and on the lower side of banked curves. This type of ice is so hazardous because it is nearly invisible on the roadway. You often do not know black ice is present until you are driving on it.

How do you know if ice (including black ice) is forming? When it's wet and the temperature is hovering around the freezing point, watch the tires of other vehicles. If there is no spray from the tires, you know you are driving on ice. Another tip is to feel the front of your outside mirror. If there's ice on the mirror, there either is, or soon will be, ice on the road.

Whenever you're driving in slippery conditions caused by ice or snow, take the following precautions:

- Start out slowly to get the feel of the road.
- Increase your following distance and avoid travelling alongside others.
- Watch even further ahead. If you see traffic problems, slow down and wait for them to clear.
- Try to anticipate stops early so you can slow down gradually. Don't brake harder than necessary.
- Make turns as gently as possible. Take curves at a reduced speed.
- Do not brake going around a curve as it may cause you to lose control.
- Don't pass other vehicles unless absolutely necessary.
- Take extra caution when crossing bridges or overpasses. These surfaces freeze earlier than the regular road surfaces because they are cooled by freezing air on both the top and bottom.
- When there are no other vehicles around, occasionally check your traction by applying your brakes lightly.

Though slippery conditions while driving are a definite hazard, a lack of traction when at a stop is a problem too. If you become *stuck on snow or ice*, follow these tips:

- Dig out from in front of your tires. Then scatter sand, gravel, or cat litter in front of the wheels for traction.
- Start out with your steering wheels facing straight ahead when you pull out. Don't turn the wheels until the vehicle is moving. If your vehicle has a manual transmission, starting out in second or third gear instead of first will keep the wheels from spinning and give a smoother application of force.
- Accelerate smoothly and gently and ease off at the first sign of spinning or slipping. Spinning your wheels will dig your vehicle deeper into the snow or further cut your traction on ice. Spinning your wheels may also damage your vehicle.

Another hazard of winter driving is decreased visibility from *falling or blowing snow*. If this occurs, turn on your low beam headlights. Avoid using your high beams, as the falling snow will reflect the light back at you. Be careful not to succumb to "snow hypnosis" if you must drive in the snow for long periods of time. Shift your eyes around to different things, like the sides of the road, the center line, and your dashboard, to avoid the hypnotic effect of falling snow.

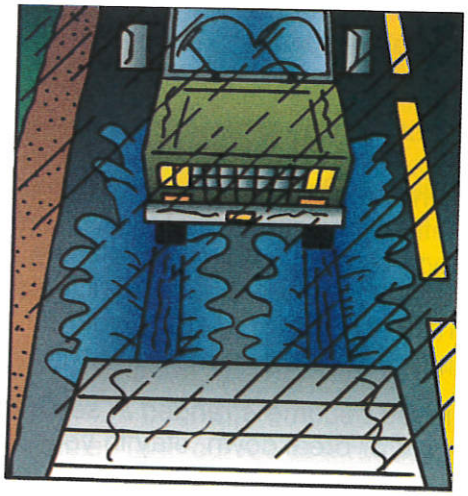
If you become *stranded in severe weather* because of an accident or breakdown, stay in your vehicle and put on extra clothing to conserve body heat. Try to contact help with a CB radio or cellular phone if you have those items. Don't try to walk for help unless absolutely necessary. If you leave the vehicle, leave a note on the steering wheel stating your destination and the direction your traveled.

Rain. While rain is not as dangerous as snow or ice, it can still reduce your traction and visibility. Highways are extremely slippery during the first 15 to 20 minutes of a rainfall when the rain can mix with oil on the road, creating a slick film. This film washes away as the rain continues to fall, but your traction will still not be as good as on a dry surface.

Heavy rain or standing water can also cause your vehicle to *hydroplane*. Hydroplaning occurs when your tires are actually riding on a layer of water instead of on the road surface. If you are hydroplaning, you do not have the traction to stop or steer. Since the chances of hydroplaning increase with speed, your best course of action is to slow down.

To drive safely in rain:

- Slow down to account for increased stopping distances.
- Follow the tire tracks of other vehicles whenever possible. This path will be drier than the rest of the road surface.
- Use your low beams to increase your visibility.
- Signal your intentions well in advance.



Driving in heavy rain or deep *standing water* may cause your brakes to weaken, apply unevenly, or fail to grab. Avoid driving through deep puddles and flowing water if you can. If it is unavoidable:

- Slow down and put the vehicle in low gear if you have a manual transmission. Gently apply the brakes. This will press the linings against the drums or discs and keep out mud, sand, silt, and water.
- Increase the engine rpm and cross the water while keeping light pressure on the brakes.
- Once out of the water, lightly ride the brakes for a short distance to heat them and dry them out.
- When no one is following, make a test stop to make sure the brakes are working properly. If they are not, ride them again lightly for a short time to dry the brakes out.

Fog. Fog is dangerous because it reduces your ability to see and the ability of others to see you. Slowing down is a must. A safe speed in fog may be 20 mph if you can see six car lengths ahead of you, or 10 mph if you can see only two car lengths ahead. However, you must use your best judgement as to what is safe.

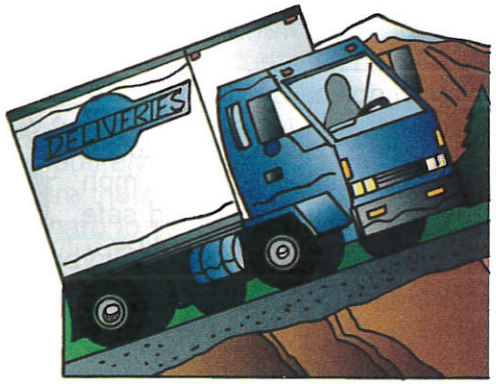
Put on your lowbeams to help you see and to be more visible to other motorists. Don't use your high beams as they shine straight into the fog, causing water particles to reflect the light back at you. Using your wipers to reduce built-up mist on your windshield will also help you see better.

If the fog becomes so bad you must pull off the road, get your vehicle completely off the roadway and turn on your four-way flashers.

Wind. Wind is more of an issue for large vehicles (such as your delivery vehicle) than it is for passenger cars. The tall and/or long side of your vehicle presents a large surface for the wind to push against, making it act almost like a sail.

Windy conditions will make it difficult for you to stay in your lane. Slow down and avoid traveling alongside other vehicles.

Uphill/downhill driving. Uphill/downhill driving is an extreme driving condition caused by terrain instead of weather. In this type of driving, gravity is the potentially dangerous force that you will have to account for.



On upgrades, you must accelerate or shift to a lower gear to climb the hill. Your vehicle will probably not be able to go very fast. However, coming down a hill is where the real danger comes in, as gravity will cause your vehicle to speed up. You must keep your vehicle going slow enough that you can control it with your available brake power. However, you mustn't overuse your brakes or they may get hot and "fade." Fading means you will have to apply the brakes harder and harder to get the same braking force. Eventually, you may lose braking power altogether.

You have two methods for slowing your vehicle on a downgrade: the *engine* and the *brakes.*

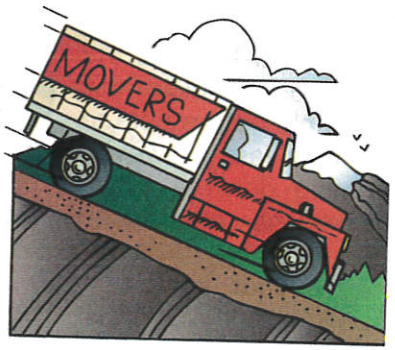
You can use your *engine* to slow your vehicle on a downgrade by selecting a lower gear. A lower gear will allow the engine's compression and friction to help slow your vehicle. This is true whether the transmission is a manual or automatic.

Always shift to a lower gear before starting down the hill. If you wait until after your speed has built up, you won't be able to downshift. The best gear will depend on your vehicle. Find out what the best gear is before you do any uphill/downhill driving.

When driving downhill, you want to use your *brakes* in such a way that they will not overheat and fade. To keep the brakes from fading, you want to use them only as a supplement to the braking effect of your engine.

On a downgrade:

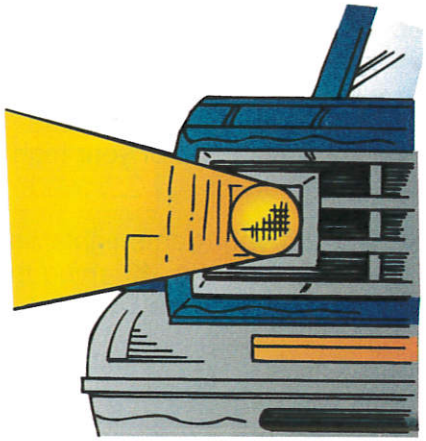
- Before starting down the hill, decide what a proper gear and speed is for the hill. Shift to the proper gear before going downhill.
- Apply the brakes just hard enough to feel a definite slow down.
- When your speed is reduced approximately five mph below your determined safe speed, release the brakes.
- When the speed increases back to your determined safe speed, apply the brakes again and repeat these steps. Continue to the end of the grade.



In some areas, escape ramps have been built to stop runaway vehicles. They use a long bed of soft, loose material, sometimes in combination with an upgrade, to slow vehicles with failed brakes. Watch for signs telling you where escape ramps are located so you will know your options if you find yourself losing control.

Night driving. While nightfall is a predictable and routine event, driving at night has challenges that are not present during the daytime. Darkness reduces your visibility, creating more hazardous driving conditions. Among the factors that affect nighttime driving:

- **People don't see as well at night or in dim light.** This problem increases as people get older. Take care of your eyes by not intentionally exposing them to strong light. Wear sunglasses on bright days to reduce eye strain.
- **Glare can temporarily blind drivers.** Don't look directly at bright lights when driving. If an oncoming driver has bright headlights, watch the side of the road until the vehicle passes. Dirt and grime on your windshield or mirrors will increase glare, so make sure these items are clean before driving at night.



- **Lighting is poor or confusing.** On most highways there are no lights, leaving you entirely dependent on your headlights. In urban areas where there is illumination, traffic signals and hazards can be hard to see against a background of signs, shop windows, and other lights. Because you can't spot hazards as soon, you need to slow down.
- **Headlights do not allow you to see as far as you can in daylight.** Your low beams will allow you to see about 250 feet and your high beams will provide about 350 to 500 feet of visibility in good weather. To be safe, you must adjust your speed to keep your stopping distance within your sight distance.

- **Fatigue and lack of alertness increase at night.** Our natural body clocks say we should be sleeping at night. If you are tired, get off the road and get some rest. Be aware of other drivers that may be fatigued.
- **Drunken drivers are more prevalent.** Be especially alert for drivers under the influence just after bar closing time. Watch for vehicles that are traveling erratically. Increase your following distance if you suspect a driver may be impaired.

Here are some other practices you can use to improve driving safety at night:

- To avoid blinding other drivers, dim your lights when you are within 500 feet of an oncoming vehicle.
- Take advantage of your high beams whenever it is safe and legal to do so.
- Turn off your dome lights and adjust the brightness of your instrument lights. Keeping these lights dimmer will help you see better outside.
- If you drive for an extended period at night, take frequent, short breaks before you feel tired. Walking around a little or doing a few quick exercises can also be helpful. A quick cat nap can also reenergize you and make you a safer driver.
- Signal all stops, slow-downs, and turns a little earlier than you would during daylight to give others more time to react.
- Increase your following distance by at least one second.

Accident Procedures

Despite all your best precautions, you still may be involved in an accident while on the road. Or you may come across an accident involving other drivers. In either case, there are some standard procedures you should follow at an accident scene.

- **Stop immediately.** Failure to stop when you are in an accident is a criminal offense. Stay calm and move your vehicle as far off the road as possible.

- **Prevent other accidents.** Turn on your four-way flashers as an immediate warning to other drivers. Set out emergency warning devices. (If you are covered by federal safety regulations, there is a specified way these devices must be set. This will be covered later in the chapter.)
- **Help the injured.** Phone or radio for medical help or get someone else to make the call. Provide first aid if you are able. Even if you are untrained, remember that your efforts could mean the difference between life and death. (Also, most states have laws protecting "good Samaritans" from legal liability.) At minimum, keep the victims warm and do not move them unless they are in immediate danger.
- **Call law enforcement.** If you are unable to make the call, have another person do so. However, do not leave the scene unless absolutely necessary.

- **Document the accident.** Write down the names, license numbers, and other information regarding the accident. Take photos or draw some simple diagrams while the scene is fresh in your mind.
- **Call your company.** Report the full details of the accident to your company as soon as possible.
- **Complete a preliminary accident form.** Your company may send a representative to the scene to complete this form. If that is not possible, and you have previously been given this form, fill it out yourself.

Emergency Devices

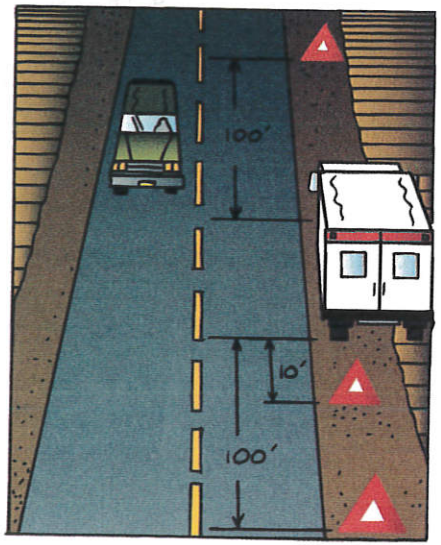
As said before, one of your responsibilities at the scene of an accident is to prevent another accident from happening.

If your vehicle weighs 10,001 pounds or more or carries a placardable amount of hazardous materials, Section 392.20 of the Federal Motor Carrier Safety Regulations (FMCSRs) requires you to put out warning devices within 10 minutes of the accident.

The FMCSRs require drivers to carry three reflective triangles, three flares capable of burning for at least 1 hour, or six fusees capable of burning for at least 30 minutes on their vehicles. These devices must be placed in a specified way depending on the situation.

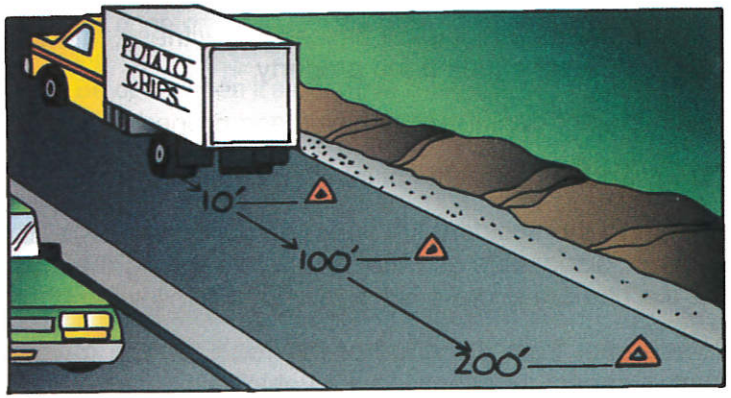
Accidents on two-lane roads. Place the devices as follows:

- One 10 feet from the vehicle, facing oncoming traffic. This device can be placed at the front or rear of the vehicle, depending on traffic direction.
- One 100 feet from the vehicle, in the center of the lane or shoulder where you are stopped, facing oncoming traffic.
- One 100 feet from the vehicle in the direction opposite oncoming traffic.



Accidents on divided highways or one-way roads. Place the devices as follows:

- Place all devices on the traffic side of the vehicle, facing oncoming traffic.
- Place the devices at 10 feet, 100 feet, and 200 feet from the rear of the vehicle.



Accidents on a curve or hill. If you are in an accident occurring within 500 feet of a curve or crest of a hill, place the devices as follows:

- Place the first two devices according to the rules for two-lane or divided highways.
- Place the third device 100 to 500 feet from the vehicle in the direction of the visual obstruction. This will give drivers time to react.

Use these same procedures to place warning devices if your vehicle breaks down or any time you need to stop along the roadside for an extended period (10 minutes or more) of time.

At-The-Scene Accident Report Kits

Many companies provide their drivers with at-the-scene accident report kits. If you have been provided such a kit, use it if you are involved in an accident. The kit should outline the procedures you are to follow and will include forms for recording the details of the accident. On the forms you will typically record:

- Date, time, and location of the accident.
- A description of what happened.
- Identification information for each vehicle (make, model, type, year, and license.)
- Name, address, phone number, driver's license, and insurance company of each driver.
- Name and address of each passenger, witness, injured person, and owner of damaged property.
- Description of damage to vehicles and property.
- Names and departments of investigating officers.

In addition to the accident kit, your company may also provide a regular or disposable camera for photographing the accident scene. If a camera is provided, try to get the following photos:

- A wide shot from the edge of the road looking toward the point of impact and showing the vehicles' final locations.
- Shots from several angles around the vehicles. Circle the vehicles taking photos at 12 o'clock, 3 o'clock, 6 o'clock, and 9 o'clock.
- Wide shots from the center line of the road showing the road in both directions and the final location of the vehicles.
- Close-ups of any damage.
- Close-ups of any skid marks, gouges in the road, or debris.

If you use the camera at night, use a flash and get close to the scene. Remember, the photos and the details you provide will be critical to your company for investigating the accident and handling any insurance or legal issues that come later.

Driver _____
Instructor_____
Date _____
Location _____

Safe Vehicle Operation Review

1. Pre-trip inspections should:
   a. Be done every day
   b. Be done differently every time to make them more interesting
   c. Be done when it's convenient
   d. Only cover the engine components

2. The driver is an important part of the company's maintenance team.
   a. True
   b. False

3. Which is *not* an element of stopping distance?
   a. Perception distance
   b. Reaction distance
   c. Braking distance
   d. Traction distance

4. In bumper-to-bumper traffic you should:
   a. Speed up and try to get ahead of the crowd
   b. Slow down and try to maintain a proper following distance
   c. Never signal so people don't try to pass you before you make a lane change
   d. Turn up the radio to drown out any distracting noise

5. What types of potential hazards should you be watching for in a suburban area?
   a. Pedestrians
   a. Children on bikes
   b. Untrimmed tree branches
   c. All of the above

6. Backing is a completely safe and easy maneuver.
   a. True
   b. False

7. Which of the following is *not* an element of defensive driving?
   a. Becoming angry when drivers cut you off
   b. Looking ahead
   c. Identifying hazards
   d. Planning an appropriate response

8. When you encounter a road hazard, your best response is always to brake as hard as possible.
   a. True
   b. False

9. Which of these extreme driving conditions is almost impossible to see?
   a. Snow
   b. Rain
   c. Black ice
   d. Hills

10. If you are in an accident, you should put out warning devices to prevent additional accidents and then go help anyone who is hurt.
    a. True
    b. False