

Chapter 9

Planning and Maintenance

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9.1 - Preventative Maintenance

Background

Personal and commercial vehicles can and do have an impact on the environment we live in. Whether you drive the latest model, or older vehicle it's been designed to receive regular maintenance. Look to the owner's manual to find out exactly what maintenance is required in the owner's manual. A few minutes digesting these requirements will help you avoid common problems. Discarding worn-out vehicles and tires fills limited landfill space. Improperly disposed motor oil and decomposing parts contaminate ground water. Piles of old vehicles and tires make a visual blot on the countryside.

Proper Tire Inflation and Rotation

Tires leak naturally and need an occasional check. Underinflated tires burn more fuel. Improperly inflated tires wear out sooner, and seriously compromise emergency maneuverability. The owner's manual will have a recommendation on both pressure and rotation periods.

It is best practice to keep a tire pressure gauge in your vehicle at all times. They're available at tire dealerships, auto supply stores, or other retail outlets. Because tires may naturally lose air over time, it's important to check tire pressure on all tires, including your spare, **at least once a month**.

The vehicle manufacturer determines the correct pressure for your vehicle's tires. This information is listed as **pounds per square inch (psi)** and can be found on the vehicle's tire information label and in your owner's manual. The label is typically located on the inside of the driver's side doorframe or doorpost. It can also be on the inside of the glove box door or trunk lid.

TIRE INFORMATION		VEHICLE CAPACITY WEIGHT 850lbs	
SEATING CAPACITY		TOTAL 5	FRONT 2 REAR 3
RECOMMENDED TIRE SIZE	COLD TIRE INFLATION PRESSURE	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION	
P185/70R14 87S	FRONT	210kPa, 30psi	
	REAR	210kPa, 30psi	
COMPACT SPARE TIRE	UP TO VEHICLE CAPACITY WEIGHT INFORMATION		
T115/70D14 88M	420kPa, 60psi		

Take a minute and look at this label next time you get in your vehicle. Underinflated tires and overloaded vehicles are the leading causes of tire failure. Always inflate your tires to the recommended tire pressure on the vehicle's tire information label. Some vehicle manufacturers may also provide a lower recommended tire pressure for lightly loaded vehicle conditions (e.g., if there are only 1-3 occupants in the vehicle). However, lowering tire pressure to give a more comfortable ride without following the loading guidelines is an unsafe practice. **Always follow the tire pressure and loading guidelines on your vehicle's tire information label or in your owner's manual.**

Wipers

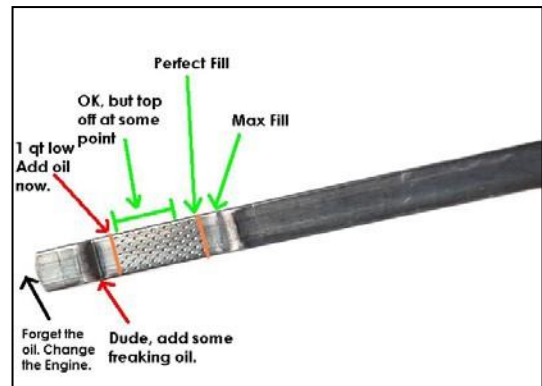
Late summer is the ideal wiper replacement time before the fall and winter rains return. It's much easier to avoid hitting things when you can see them.

Oil

Oil and filters are typically changed after a specific number of miles or months, usually every 3000 miles or 3 months (see your vehicle owner's manual).

Cooling System

Overheating can damage your engine. Check coolant at least once a month. Add a mixture of 50% water and 50% coolant only to the prescribed level. Check the radiator hoses when you change your oil. Never add coolant when the engine is hot. Check the owner's manual for the proper location to add coolant.



Brake System

Keep the brake fluid in the master cylinder at the proper level. Use the brake fluid specified for your vehicle.

Battery

Caution students that battery acid is dangerous. It can cause burns to skin and eyes and can ruin clothing and paint. When checking the condition of the battery, look for a build-up of acid on the battery terminals. The acid build-up will have a bluish-white cotton-like appearance. To clean the acid build-up from a terminal, pour a small amount of baking soda on it and rinse it off with clear water. A coating of grease can then be placed over the terminal connectors to help prevent further acid build-up. Explain that self-sealed/ contained batteries often have an eye, the color of which indicates whether the battery needs to be serviced or replaced. For vehicles that have an older battery with vent caps, you will need to check the fluid levels in the battery cells regularly. If fluid is needed, use distilled water. Check your battery's fluid level every month. Warn students that the voltage delivered to spark plugs is dangerously high and can cause injury.

Explain the importance of parking the vehicle inside in cold weather for easier start

Cold temperatures thicken oil; thicker oil does not flow well. Check your owner's manual for types of oil that can be used in your vehicle based on your local climate. It is suggested that you use the lowest weight oil that your owner's manual identifies for the climate conditions in which you drive. Whenever possible, park your vehicle in a garage to make starting easier in cold weather. If you live in a very cold climate and must park outdoors, you might have an engine block heater installed. The heater, plugged into an electrical outlet, keeps your engine's oil warm and makes starting your vehicle easier.

The Greenhouse Effect

How do vehicles' engines affect the problem? Learners may investigate how smog is formed, its impact on health, and locations where smog is especially prevalent.

Ways to Conserve Fuel

1. Make one trip rather than three - use a circular route to save miles and gas
2. Make smooth starts and stops - ~~gunning~~ revving the engine burns more fuel
3. Avoid driving too fast - speeds above 55 mph burn more fuel
4. Time traffic lights to arrive on green – less braking & less acceleration saves fuel
5. Limit your driving - unnecessary trips burn fuel
6. Use a public transportation system
7. Ride a bike
8. Carpool
9. Drive a hybrid vehicle
10. Don't let the engine idle
11. Use radial tires - they generally give the best fuel mileage
12. Don't store unnecessary cargo in your vehicle – extra weight means extra gas
13. Drive a smaller fuel-efficient vehicle rather than a gas-guzzling SUV



Eco Driving

Drive at a Steady and Slower Speed

Drive 55 miles per hour instead of 65 to save fuel. The Environmental Protection Agency (EPA) estimates a 10-15 percent improvement in fuel economy by following this tip. Also, use cruise control whenever possible on the highway to help maintain speeds and conserve fuel.

Avoid Quick Starts and Stops

Accelerating smoothly from a stop and braking softly conserves fuel. Fast starts, weaving in and out of traffic, and hard braking wastes fuel and wears out some of the car components, such as brakes and tires, more quickly. Maintain a safe distance between vehicles and anticipate traffic conditions to allow for more time to brake and accelerate gradually.

Reduce the Time Your Engine Idles

Today's engines don't need a warmup, so there is no need to leave your car idling – simply start the car immediately and gently drive away. Don't leave your car idling. Prolonged idling increases emissions and wastes fuel. Turn the engine off in non-traffic situations, such as at bank and fast food drive-up windows, when idling for more than 30 seconds.

Keep Your Tires Inflated

Keeping tires inflated to the recommended pressure can reduce average fuel consumption by 3-4 percent. Under-inflated tires increase rolling resistance and reduce fuel economy. They also wear more rapidly. Check the vehicle's door-post sticker for minimum cold tire inflation pressure.

Maintain Your Vehicle

Practice proper engine maintenance to keep vehicles running efficiently. Keep the wheels aligned - wheels that are fighting each other waste fuel. Replace air filters as recommended. Use fuel with good detergent additives to keep the vehicle engine clean and performing efficiently. Always consult the owner's manual for proper maintenance.

Travel Light

Remove unnecessary weight, such as unneeded items in the trunk. The extra weight makes the engine work harder and consumes more fuel. If you don't need the roof rack or cargo box every day – ditch it! They reduce your car's aerodynamics and fuel economy by as much as 5 percent.

Use Heating and Air Conditioning Sparingly

Selective use of your car's heating and air conditioning systems reduces engine load and saves fuel. When temperatures are above 80 degrees, decreasing use of the air conditioner can save 10-15 percent more fuel. Use the vent setting as much as possible. Park in the shade to keep the car cool and reduce the need for air conditioning.

Choose the Right Oil

Use good quality, energy-conserving oils with the viscosity grade recommended in your car's owner's manual. Look for cans marked with the symbol ECII, which is the American Society of Testing Materials logo for fuel-efficient oils.

Plan Ahead (Trip Chaining)

Plan ahead to consolidate your trips. Whenever feasible, share a ride and/or carpool; congested routes lead to less idling, fewer start-ups, and less stop-and-go traffic.

9.2 - Emergencies & Malfunctions

You will probably experience a vehicle malfunction or emergency situation sometime in your driving career. Each requires automatic and correct actions.

See with Your Mind

In every emergency, habits take over. There is no time to think "What should I do?" You just do it, right or wrong. The risk prevention habits you are developing in this course are necessary to prevent, detect, and deal with everyday problems and emergency situations that will inevitably develop.

In order to use any emergency technique effectively, you must see the situation occur while there is time to take action. For that reason, it is vital that you habitually see line-of-sight and path-of-travel restrictions develop and check the related zones for alternate escape routes. It is also necessary to look to the target area beyond your open escape path. It is critical that you aim through the open path prior to any evasive action steering maneuver. Often in an emergency, perhaps because the situation develops surprisingly fast, or more likely because one has not developed the best risk prevention habits, drivers visually fixate on the obstacle, often with devastating results.

Threshold Braking

The technique of stopping as quickly as possible in an emergency without skidding is vital and known as threshold braking. This technique is useful in situations where something is directly in front of your vehicle. This comes up most often because the driver is not alert to line-of-sight or path-of-travel problems, is following too closely, and/or is distracted by some other factor.

To effectively utilize this technique, you must be able to pivot the ball of your right foot from the accelerator to the brake as rapidly as possible and push on the brakes as hard as possible without locking up the wheels. A slight release of brake pressure or Trail Brake (the same technique you have practiced to make smooth stops and balanced turns) is used to balance the vehicle during the last second or two of the stop and as part of the sequence used when making an emergency turn. Braking

too hard and locking the wheels results in a front-wheel skid, increases your stopping distance, and reduces or eliminates steering control.

The threshold braking technique increases your chances of being hit from the rear. Since there is more of a chance of being hit from behind when using this technique, you need to adjust how quickly you stop considering the danger ahead if there is also a risk of collision with the vehicle behind you. Threshold braking also increases the possibility of skidding, especially on slippery surfaces. If skidding occurs, the Trail Brake technique will release the skidding action.

Hood Flies Up:

1. Look through the space at the bottom of your windshield to maintain an open line-of-sight
2. Steer to the side of the road
3. Secure the hood

Engine Failure:

1. Stay off the brake – you may need the momentum to pull off the road
2. Keep eyes on open target area
3. Shift to Neutral and attempt to restart; if that fails...
4. Pull off the roadway
5. Turn off the ignition

Accelerator Sticks:

This could be caused by a broken spring, or the pedal being stuck in the down position. In either case:

1. Shift to Neutral
2. Search for an escape path
3. Steer smoothly
4. Brake gently
5. Pull off the roadway
6. Turn off the ignition

Brakes Fail:

A brake failure can be a complete loss of brakes or only the power brakes. If the brakes quit working:

1. Keep eyes on target area
2. Control steering
3. Rapidly pump the brakes
4. Shift to a lower gear
5. Use the parking brake method to slow or stop
6. Find a soft crash area if necessary

A Tire Blows Out:

Blowouts can cause serious damage to vehicles and injury or death to occupants.

1. Aim to the target area, where you want the car to go
2. Off the pedals
3. Control steering
4. Find a safe place to pull off the road

Engine is on Fire:

If the car catches on fire,

1. Steer the vehicle out of traffic and away from buildings and people
2. Have all occupants leave the vehicle immediately and move away!
3. Do not open the hood

Head-on Evasion:

As stated earlier, it is critical that one habitually sees problems develop, checks related zones for an escape path, and aims through the open path to the target area prior to any evasive action steering maneuver.

Evasive steering requires at least 3 steering actions: The first moves only the front of your vehicle. This initial steering action inputs only the minimum amount of steering required to avoid an obstacle. The second action moves the rear of the vehicle away from the obstacle and requires twice the steering input as the first action. (For example, if your initial input is a $\frac{1}{8}$ turn of the wheel, your second must be $\frac{1}{4}$ turn of the wheel.) The third action straightens the vehicle as you move around the obstacle. It requires steering input in the amount equal to the first input ($\frac{1}{8}$ turn – front end, $\frac{1}{4}$ turn – rear end, $\frac{1}{8}$ turn – straighten). Those three steering actions are accomplished in as little time as $\frac{1}{2}$ second. That is one reason it is best to stay off the brake and gas pedal, thus separating the speed and steering forces, prior to using evasive steering.

Some situations, an emergency turn for example, call for a combination of two or more techniques performed in the correct sequence, one thing at a time.

Dangers involved in evasive action steering:

If you don't see a problem develop, you won't take an action.

If you see a problem but don't have the habit of finding an open escape path and aiming through it to the target area, your steering inputs will be too large or too small. Too much steering input can result in an out-of-control skid or worse. Too little input can result in an unsuccessful attempt to evade a potentially serious problem or collision.

Steering into the path of other vehicles (aiming at an obstacle)

Steering into roadside hazards (aiming at an obstacle)

At high speeds, evasive action steering increases the likelihood of a sideways skid or turning over, if done improperly.

To evade a head-on collision, you must:

1. Aim through open escape path to the target area
2. Come off the pedals
3. Take 3 steering actions
4. Use controlled braking (or threshold braking) after steering is controlled

9.3 - Traffic Stops

Traffic stops are the most common reason that people have contact with the police. If you're pulled over, things will go smoothly if you do the right things.

What to Do When You Get Pulled Over by the Police Don't Panic

Let the officer know that you've seen his lights and that you plan to pull over by turning on your emergency flashers. It's recommended you do this if you think you'll need to drive a distance before you can find a safe place to pull over. If you need to travel a short distance to pull over, do so at a slower pace than you normally drive. You don't want the officer to think you're trying to make a getaway. If you need to cross multiple lanes to pull over to the right side of the road, do so safely.

Pull Over in a Safe Area

Typically, you want to pull over to the right side of the road. Look for a spot to pull over and think "safety first" for both you and the officer. Look for an area with a wide shoulder so passing traffic isn't a hazard. If it's nighttime, look for a place that's well lit, if possible. That will help put the officer at ease. Parking lots and well-lit side streets are other safe places to pull over.

Stay in the Car

If you get out of the car as soon as you stop, it may give the impression to the officer that you're going to be aggressive, or you have something to hide in the car. Just stay in your seat.

Roll Down the Window, Turn Off the Engine, and Turn on the Dome Light

As soon as you come to a stop, roll down your window and turn off your engine. If it's dark out, turn on your dome light so the officer can see what's going on inside the vehicle as he/she approaches.

Stay Calm

It's common to get amped up whenever you get pulled over. Take some deep breaths and relax. Unless you've done something outright criminal (e.g., driving intoxicated, possessing illegal drugs, etc.), there's nothing to be nervous about. The worst that can happen during a routine traffic stop is that you'll have to pay a fine. Oh, and your insurance will probably go up if you're convicted, but it's not the end of the world.

Keep your Hands Visible- No Reaching for Things

Keep your hands resting on the wheel and remain still as the officer approaches your vehicle. Police have a very dangerous job, and you don't want to give him or her any reason to believe you're a threat.

Wait For the Officer to Ask for Your Documents

Don't try to expedite the process by getting your license and registration ready while the officer approaches your car. For all they know, you could be reaching for a gun or trying to hide some sort of incriminating evidence. Wait until he or she gets to the window and asks for your documents. Do not engage the officer in any unnecessary conversation! They know why they pulled you over, and anything you say may be used against you. You have a right to remain silent and not incriminate yourself. Don't talk unless responding to a question from the officer. This goes for your passengers as well. Do not name drop if you know an officer, he/she works with or not. Chances are that the officer who stopped you assumes you know the other officer because of a prior violation and/or arrest.

Move Deliberately

When you do reach to get your license and registration, do so deliberately. A quick reach into the glove compartment for your insurance paperwork looks the same as a quick reach into your glove compartment for a weapon. If your wallet is in a gym bag in your backseat, let the officer know before you turn around and rummage for it. Keep your glove compartment relatively organized, and your documents together, so that when you pull the box open, you don't have to frantically sort through wads of paper to find your registration and insurance information.

Be Civil

Be polite and respectful in your communications with the officer. No one likes to get a ticket, but calling the officer names, threatening him, and being rude won't get you anywhere. In fact, it could make things worse. If the officer happens to be a woman, refer to her as "officer" or "ma'am." She's an officer of the law, show some respect.

Don't Argue

The side of the road is not the place to argue. If you want to contest the ticket, you can do so in court and in front of a judge.

Accept the Citation

If the officer decides to issue a citation, accept it. It's not an admission of guilt. Read the back of the citation and be prepared to follow its directions - pay the fine, show up in court, etc. - failing to do so will have consequences.

Be Safe when Merging Back into Traffic

Take your time to store your belongings before you re-enter traffic. If you're upset, calm yourself before driving away. When you're ready, search for a clear path, signal, and merge back into traffic when it is safe.

9.4 - Automobile Insurance

The learner will be able to list Oregon insurance requirements. The learner will be able to list six basic types of insurance coverage and give a definition for each.

Most states require drivers to have some kind of insurance. As a driver, you also have a legal responsibility if you are involved in a crash.

Types of Insurance Coverage:

Uninsured Motorists - Covers damage done to you by a driver who does not have insurance. It also covers you in case you are injured by a hit-and-run driver.

Comprehensive – Protects your car against damage caused by theft, fire, earthquake, vandalism, flood, etc.

Collision – Pays for the cost of repairing your vehicle or replacing your car when you or another driver are at fault.

Personal Injury Protection (PIP) – Covers medical expenses and loss of income for you and your passengers, regardless of who was at fault or what type of collision it is. Covers any pedestrian or cyclist harmed by the insured's vehicle.

Liability Bodily Injury – Pays for injuries to others for which you are partially or entirely responsible. Covers your legal fees whether or not you were at fault.

Liability Property Damage – Pays for damage to the property of others if you are partially or entirely responsible. Covers your legal fees whether or not you were at fault.

Oregon's Mandatory Insurance Law - Requires every driver to insure their vehicles with liability insurance. The minimum insurance a driver must have in Oregon is:

- **Bodily Injury and Property Damage Liability** \$25,000 per person; \$50,000 per accident for bodily injury to others; and \$20,000 per accident for damage to the property of others
- **Personal Injury Protection** \$15,000 per person for reasonable and necessary expenses one year after an accident for medical, dental, and other services needed due to the accident
- **Uninsured Motorist Coverage** \$25,000 per person; \$50,000 per accident for bodily injury

You must provide the name of your insurance and policy number each time you register a motor vehicle.

Each month, DMV randomly selects vehicles and asks the owner(s) to provide the name of their insurance company and policy number. They verify the information you provide with the insurance company you list. If you do not comply or are denied coverage, your driving privileges will be suspended.

Oregon Future Financial Responsibility Law – means drivers have to maintain proof of future financial responsibility with DMV for three years. There are several reasons why one might be subject to this law:

- You do not have the insurance you claim to have on your vehicle registration or random survey
- You do not have insurance at the time of an accident
- A judge convicts you of driving uninsured or DUII

Crash Scene

If a collision with another vehicle, pedestrian, or someone’s property occurs, a person IS LEGALLY REQUIRED TO FOLLOW SPECIFIC PROCEDURES. These 5 steps should be taken:

- Stop immediately
- Aid the injured
- Prevent further damage
- Send for police
- Exchange information

Take these additional steps after a collision:

- Record the names and addresses of witnesses
- Make a sketch of the collision scene or take a photograph
- Record such facts as time, date, location, weather, and driving conditions
- Note the name of the hospital to which any injured persons were taken
- Note the name and the identification number of the police officer reporting to the scene of the collision.

Give the police the facts. Provide honest, accurate facts and never argue about who was to blame. Do not admit fault. Stay at the scene until all information has been recorded. Produce proof of financial responsibility by showing a card that lists current insurance or a bond card. Also, notify the appropriate insurance agent promptly.

Filing “Accident” Reports

Oregon law requires you to file an accident report with DMV if any of the following apply:

1. There is more than \$2,500 damage to your vehicle
2. There is more than \$2,500 damage to property other than a vehicle U

3. Someone is injured (no matter how minor)
4. Someone is killed
5. Any vehicle is towed due to damages from the crash

You must make the report within **72 hours**. If you do not report when required to do so, your driving privileges will be suspended.

The Good Samaritan Law

The Good Samaritan Law is an Oregon Statute that provides for the legal protection of an individual providing care to a person in an emergency situation.

Insurance Fraud

Insurance fraud is more common in some states than others, but no one is immune. There are several ways to prevent fraud: keep 4 or more seconds of following time, yield when others don't, and never give away your yielding responsibilities to another driver - even the nice wave-on can cause trouble. Never admit fault at the scene of a collision, accept a cash payoff, or sign away your rights at a scene. Call 911 if you suspect fraud or even if you don't.

9.5 - Organ Donation

When you receive your permit or license, you'll be asked if you want to be an organ donor.

Donation and Transplantation

Transplantation is one of the most remarkable success stories in the history of medicine. But despite continuing advances in medicine and technology, the need for organs and tissue is vastly greater than the number available for transplantation.

What Donate Life NW Does

Donate Life NW and other organizations across the country are working to lessen this need by educating people about the field of organ, eye, and tissue donation. We invite you to learn more at donatelifenw.org Donate Life NW has assorted videos available through their website about lives saved because someone was willing to be a living donor to give skin, a kidney, or other organ. The goal of all Donate Life NW programs is to educate residents of Oregon and Washington about organ, eye, and tissue donation and facilitate their registration in the Oregon or Washington Donor Registry.

Facts about Recycling Life

You have the power to save and enhance other people's lives through organ, cornea, and tissue donation. All it takes is registering by [signing up](#) online or by going to your local DMV. Be sure to tell your family and friends about your decision to be a registered donor and save lives! Check out these astounding facts about organ, eye, and tissue donation:

- Over 106,000 men, women, and children in the US are waiting for an internal organ transplant.
- 17 people die every day waiting for a transplant.
- 63% of the waiting list is made up of African, Hispanic, Asian, and Native Americans.
- A single organ donor can save the lives of up to eight people.
- Organ donation is very rare - less than .03% of deaths result in organ donation.
- A single tissue donor can enhance the lives of more than 75 people – yes, 75!
- Over 46,000 corneal transplants occur in the US every year – it's the most common type of transplant.

Most people think they know about donation due to sensational stories in TV, movies, and the news. Unfortunately, many people confuse fiction with fact, and sadly choose not to register because of these myths and misconceptions.