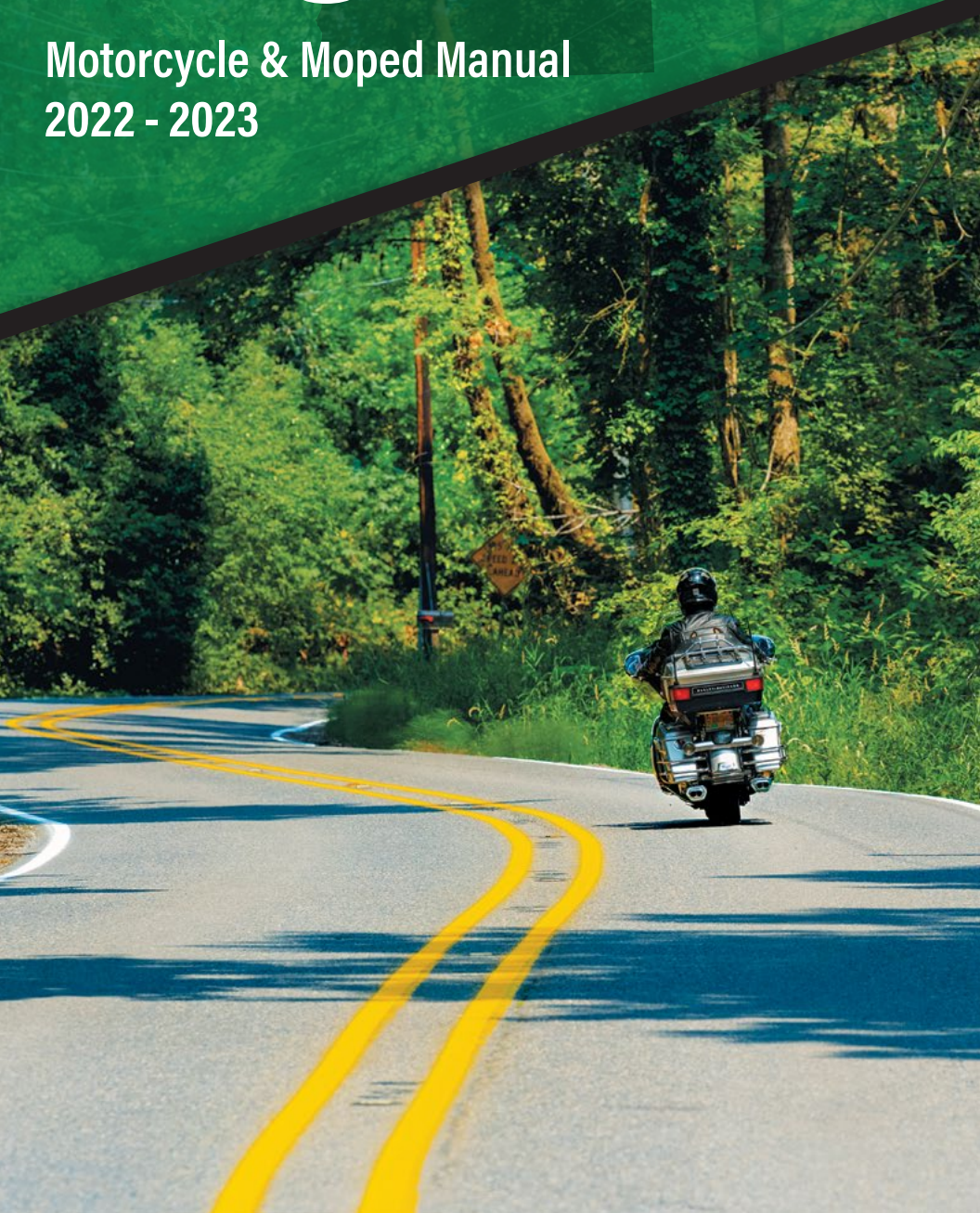
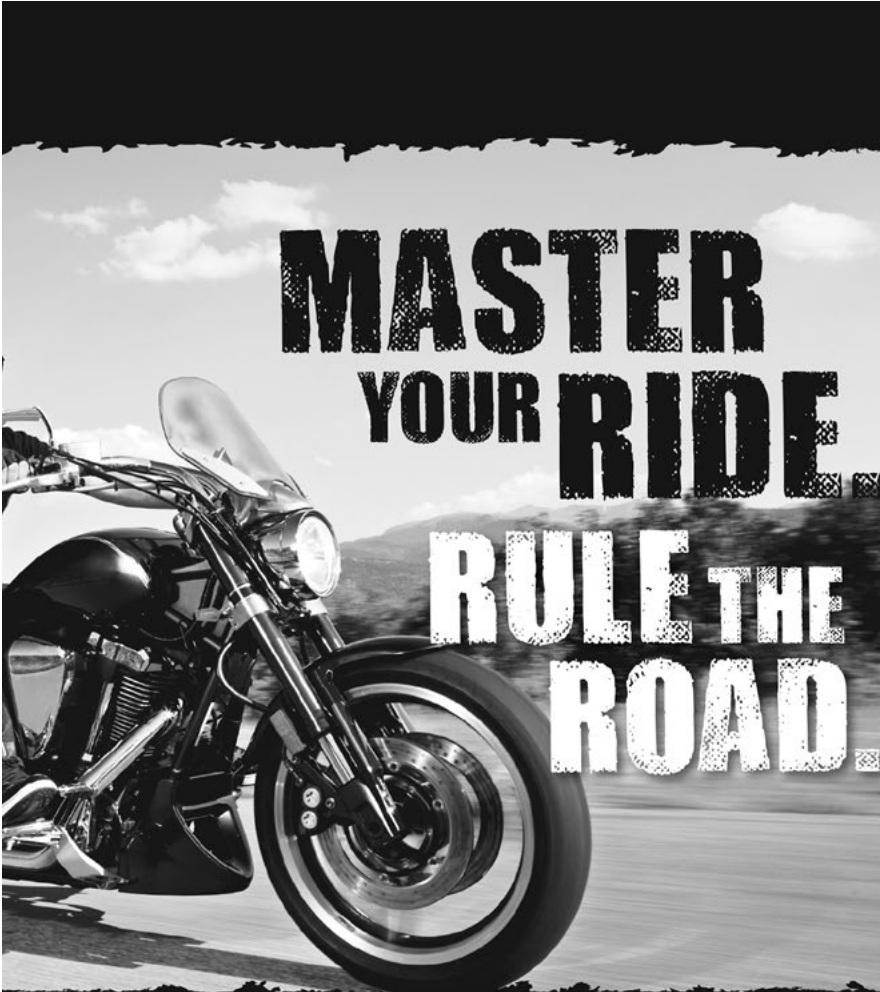


DRIVER AND MOTOR VEHICLE SERVICES

Oregon

Motorcycle & Moped Manual
2022 - 2023





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YOUR RIDE.
RULE THE
ROAD.**



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Published by

**Oregon Department of Transportation
Driver and Motor Vehicle Services**

1905 Lana Avenue NE
Salem, Oregon 97314
Graphics/Layout

DMV Related Questions: (503) 945-5000

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1-877-336-6368 (EEO-ODOT).

This information can be made available in an alternative format by contacting a local DMV field office.

The majority of the content of this manual is directly from the American Association of Motor Vehicle Administrator's Motorcycle Operator Manual, with inserts from Motorcycle Safety Foundation, Team Oregon and particulars of Oregon law.



The purpose of the Oregon Motorcycle & Moped Manual is to help riders prepare for Oregon endorsement tests by providing a summary of the rules of the road and safe riding practices.

This manual condenses and paraphrases selected language in the Oregon Revised Statutes. It also provides safety recommendations not included in law. This manual is not a source of law and should not be relied upon or cited as legal precedent in a court of law or other administrative or legal proceeding. Local governments may have additional ordinances not covered in this manual.

Please check DMV's website *OregonDMV.com* for updates, office locations and hours, fees and additional information.

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Section One

Riding in Oregon

Motorcycles and Mopeds

Motorcycles and mopeds are defined as vehicles designed to travel with no more than three wheels in contact with the ground and with a seat or saddle for use by the rider.

A moped must have an independent power source that is a power drive system that functions directly or automatically and does not require clutching or shifting by the operator after the system is engaged. A moped cannot be capable of speeds of more than 30 mph on level ground AND, if the moped's power source is a combustion engine, it cannot be larger than 50 CCs. Mopeds also include cycles designed as bicycles, if they are equipped with a power source meeting the legal definition.

Mandatory Rider Education

If you need to obtain a motorcycle endorsement and you do not have a valid motorcycle endorsement or license from another state, the District of Columbia, a United States Territory or Canadian Province, you must complete an approved motorcycle rider education course.

Team Oregon is the only approved motorcycle rider education provider in Oregon. You can find information and sign up for courses at www.team-oregon.org.

Following are approved Team Oregon courses and the tests that a completion card waives at DMV:

- Basic Rider Training (BRT) is approved for riders 16 years of age and older and waives both the motorcycle knowledge and skills tests.
- Intermediate Rider Training (IRT) is approved for riders 21 and older and waives only the motorcycle skills test.
- eRider® Basic is approved for riders 16 years of age and older and waives only the motorcycle skills test.
- eRider® Intermediate is approved for riders 21 and older and waives only the motorcycle skills test.

Riders who complete an approved motorcycle rider education course may qualify for a discount on the insurance premium for their motorcycle.

Riding Unendorsed

Riding a motorcycle without a motorcycle endorsement is a Class A traffic violation.

Studies show that 30% of motorcycle riders involved in fatal crashes in 2019 were riding without a valid motorcycle endorsement.¹

Mandatory Insurance

Oregon's insurance law requires every driver to insure their vehicle, including a motorcycle or moped, if it is operated on any highway or on premises open to the public. The minimum amount of liability insurance required is:

- Bodily injury and property damage liability — \$25,000 per person; \$50,000 per crash for bodily injury to others; and \$20,000 per crash of damage to property of others.
- Uninsured motorist coverage — \$25,000 per person; \$50,000 per crash for bodily injury.

Instruction Permits

Moped – There is no instruction permit available for a moped.

Motorcycle – In order to be issued a Motorcycle Instruction Permit you must:

- Have a valid driver license from Oregon.
- Be at least 16 years of age.
- Have parental/guardian consent if under age 18.
- Pass the motorcycle knowledge and vision tests.

A motorcycle permit is valid for one year. The permit allows you to learn how to safely operate a motorcycle on public streets and highways. You should learn balance and control of the motorcycle off the street.

Restrictions on a Motorcycle Instruction Permit:

- Rider must be accompanied by, and under the supervision and visual observation of, a rider on a separate motorcycle who is at least 21 years of age and who has a valid motorcycle endorsement.
- Rider must operate during daylight hours only.
- Passengers are prohibited.
- Rider must wear a DOT compliant helmet.

Three-Wheel Motorcycles – There is no instruction permit available for a three-wheel motorcycle.

1 National Center for Statistics and Analysis (2021, April). Motorcycles: 2019 data (Traffic Safety Facts. Report No. DOT HS 813 112). Washington, DC: National Highway Traffic Safety Administration.

Endorsements

Moped – You may operate a moped with any class of driver license. No endorsement is required.

If you are riding a moped or cycle that has an independent power source and can go over 30 mph on level ground, unassisted, you must have a motorcycle endorsement.

If you are riding a moped or cycle equipped with a combustion engine power source of more than 50 CCs, you must have a motorcycle endorsement.

Motorcycle – In order to be issued a motorcycle endorsement:

- You must have a valid driver license from Oregon.
- You must be at least 16 years of age.
- You must have parental/guardian consent if under age 18.
- You must complete a Team Oregon motorcycle rider education course. Depending on the Team Oregon course completed, you may be required to take and pass the DMV motorcycle knowledge test.

If you have a valid out-of-state motorcycle license or endorsement, you must surrender your license or endorsement from another state, District of Columbia, a United States Territory or Canadian Province. You are not required to take a Team Oregon course or take the motorcycle knowledge test with DMV.

Three-Wheel Motorcycle – This restricted endorsement allows you to operate only three-wheel motorcycles.

In order to be issued a three-wheel restricted motorcycle endorsement you must:

- Have a valid driver license from Oregon.
- Be at least 16 years of age.
- Have parental/guardian consent if under age 18.
- Take and pass the DMV Motorcycle Knowledge test.

If you have a valid out-of-state three-wheel restricted motorcycle license or endorsement, you must surrender your license or endorsement from another state, District of Columbia, a United States Territory or Canadian Province. You are not required to take a Team Oregon course or take the motorcycle knowledge test with DMV.

Motorcycle endorsement fees and issuance requirements may vary. Please visit our website at OregonDMV.com for more information.

Testing at DMV

Vision – You must take and successfully pass a vision screening to add a motorcycle endorsement to your Oregon Driver License.

Knowledge – The knowledge test is based on information in this manual and the questions are multiple choice. The test is \$5.00 and you must answer 20 questions correctly to pass.

You cannot use a DMV manual or any notes to help you answer test questions. Talking, writing, note taking, cell phone use, operation of any electronic devices or allowing someone else to take a test for you is considered cheating.

Skills – DMV does NOT administer motorcycle skills tests. The motorcycle skills test is waived when you take and successfully pass an approved Team Oregon course.

If you have a valid motorcycle endorsement from another state, you are not required to take the motorcycle knowledge or skills tests.

Riding Mopeds, Autocycles, Mini-Motorcycles, Pocket Bikes, ATVs and Off-Road Motorcycles

Riding Mopeds

Moped operators in Oregon generally obey the same rules of the road as motorcycle operators.

Motorcycles and mopeds, while similar in appearance, differ in the way they operate. Motorcycles are heavier and more powerful. Mopeds may have a top speed, unassisted, of no more than 30 miles per hour while on a level surface.

Since they are not built the same, mopeds and motorcycles should not be used for some of the same purposes. Mopeds are designed for traveling short distances at low speeds. Oregon law allows a moped to use bicycle lanes or paths if the moped is being pedaled. When under its own power, a moped must use regular traffic lanes. It is against the law to carry passengers when operating a moped.

Autocycles

Autocycles handle much differently than motorcycles or mopeds. These vehicles operate more like a car because they are equipped with three wheels, a non-straddle seat and a manufacturer-installed three-point safety belt or safety harness.

An autocycle may be operated with any class of driver license. A motorcycle endorsement is not required. Operators and their passengers must wear a DOT compliant helmet if the autocycle is NOT enclosed. An enclosed cab is defined as having a structural upper frame and roof certified by the vehicle manufacturer, meeting the §49 CFR 571.216a standards. Autocycles may not ride more than one abreast in a lane.

Mini-Motorcycles, Pocket Bikes, ATVs and Off-Road Motorcycles

A mini-motorcycle, pocket bike, go-kart or all-terrain vehicle (ATV) is not legal for use on public roads in Oregon. To be legal on public roads, motorized vehicles, including motorcycles, need to meet the U.S. Department of Transportation's vehicle design safety and equipment requirements and U.S. Environmental Protection Agency (EPA) emission standards. For a quick reference guide, visit our website at: www.oregon.gov/odot/Forms/DMV/6619.pdf.

Motorcycles originally manufactured for off-road use generally do not meet the emission standards for on-road use and cannot be registered for highway use in Oregon. For information about converting an off-road motorcycle to street use, visit the Transportation Safety Office's website at: www.oregon.gov/ODOT/TSP/Pages/Vehicle-Equipment.aspx.

Out of state? Call 503-945-5000

If you are temporarily living out of state, you may complete an approved motorcycle rider education course in that state. You must apply for a motorcycle endorsement within two years from when you complete the course, unless the course completion card expires sooner.

These courses are approved by DMV:

- Motorcycle Safety Foundation (MSF) Basic Rider Course;
- Idaho Skills Training Advantage for Riders (STAR);
- California Motorcyclist Safety Program (CMSP) Motorcyclist Training Course;
- Total Control Riding Clinic; and
- Motorcycle Ohio Rider Enhancement (MORE).

Section Two

Factors Affecting Rider Performance

Riding a motorcycle demands your full attention. Responsible riders pay attention to the riding environment, identify potential hazards, look for escape routes and make good decisions.

Your ability to trust your judgment and to be aware of changing conditions or potential hazards is influenced by how mentally fit and alert you are.

Alcohol is a major contributor to motorcycle crashes, particularly fatal crashes. Studies show that, in Oregon, 43% of all riders killed in motorcycle crashes during 2019 had been drinking.² Riding “under the influence” of alcohol or other drugs poses physical and legal hazards for every rider.

Effects of Alcohol and other Impairing Drugs

It is important to understand the effect of alcohol, marijuana and other drugs to see that they don't mix with riding. Alcohol and other drugs impair your:

Judgment – Alcohol and other impairing drugs affect those areas of your brain that control judgment. You may not be able to make good decisions about traffic conditions or how you can protect yourself.

Vision – Alcohol and certain types of drugs can blur your vision, slow your ability to focus and cause double vision.

Reaction Time – Alcohol and other impairing drugs slow your ability to process information and impact your ability to react quickly to a situation.

Riding under the influence of alcohol or other drugs poses physical and legal hazards for every rider.

2 National Center for Statistics and Analysis (2021, April). Motorcycles: 2019 data (Traffic Safety Facts. Report No. DOT HS 813 112). Washington, DC: National Highway Traffic Safety Administration.



Don't Drink and Ride

The safest and most responsible choice is to not drink and ride. Your ability to think clearly and ride safely is affected by as little as one drink. Once you start, your judgment is affected and your ability to say “no” gets weaker.

If you plan on drinking, leave your motorcycle at home and find other transportation so you won't be tempted to ride impaired. Or, call ahead to where you plan on drinking and ask if there is a secure place for you to store your motorcycle overnight so you can find an alternative way home – such as a taxi or designated driver.

There are no shortcuts to removing alcohol from your body. None of the “remedies” you may have heard about – cold showers, hot coffee, or physical exercise – will remove alcohol faster. The only proven remedy to removing alcohol is time. Remember – your body can process about one drink an hour.

Other Impairing Drugs and Riding

Marijuana and other cannabis products slow your reaction time, interfere with your concentration, impact your perception of time and distance and affect your ability to ride safely. Its negative effects are most evident when individuals handling multiple tasks are confronted with something unexpected. Your response and performance at these times need to be quick and accurate.

Many prescription, over-the-counter and illegal drugs may also affect your ability to ride safely. If you are not sure if it is safe to take a drug and ride, ask your doctor or pharmacist about any side effects.

Never drink alcohol while you are taking other drugs. These drugs could multiply the effects of alcohol or have additional effects of their own. These effects not only reduce your ability to operate your motorcycle, but could cause serious health problems, even death.

Combining drinking and drug use with the operation of a motor vehicle can have fatal consequences. Motorcyclists are more likely than automobile drivers to be killed or severely injured in crashes.

Other Factors Affecting Rider Performance

Distracted Riding

A distraction is anything that takes your attention away from riding. Rider distractions may occur anytime and anywhere. Distracted riding can cause collisions, resulting in injury, death or property damage. Taking your eyes off the road or hands off the motorcycle presents obvious riding risks. Mental activities that take your mind away from riding are just as dangerous. You must maintain your attention on the riding task. You are completely and solely responsible for operating your motorcycle in a safe manner.

Health

There are many health conditions, even minor issues, that can affect your riding. Check with your doctor if a health condition could interfere with you operating a motorcycle.

Emotions

Emotions can interfere with your ability to think, create mental distractions, increase risk-taking, create a lack of attention and interrupt your ability to process information. You may not be able to give all your attention to operating a motorcycle if you are overly worried, excited, afraid, angry or depressed.

Fatigue

Fatigue can affect your control of the motorcycle. To minimize potential for fatigue, be sure to be properly rested and take frequent rest breaks when riding long distances. Experienced riders seldom try to ride more than about six hours a day.

Weather

Riding a motorcycle requires a great amount of mental alertness and physical skill. Sometimes changes in your environment can affect your visibility. Physical changes may occur as well, such as rain or wind, which may affect your riding performance. Responsible riders know how to adjust or compensate for factors that affect rider performance.

Cold Weather

In cold weather riding, protect yourself by wearing proper protective gear like a windproof jacket and insulated layers of clothing. An additional windproof outer layer can prevent cold air from reaching the skin.

Cold weather can significantly impact your reaction time. To compensate for the slower reaction time, reduce your speed and increase your following distance and space on your sides.

Hypothermia

Riding for long periods in cold weather may lower your body temperature and cause hypothermia.

Symptoms of hypothermia may include:

- Deterioration in physical coordination.
- Irrational, confused behavior.
- Sluggish movement.
- Shivering.
- Muscle tension.
- Shallow, slow breathing.

If a chill is experienced, leave the roadway at your first opportunity and find shelter. Drink warm liquids, do some exercise to warm yourself and change out of wet clothes.

Extreme Hot Weather

In extreme hot weather, wear protective gear that breathes. It is important to wear a jacket and long pants to protect you in a collision and to prevent dehydration. Drink plenty of water, stop and remove unnecessary heavy clothing and dry your hands if they become slippery due to perspiration.

Symptoms of heat stroke may include:

- Throbbing headache.
- Feeling dizzy or light-headed.
- Muscle weakness or cramps.
- Nausea and vomiting.
- Rapid heartbeat, which may be strong or weak.
- Rapid, shallow breathing.

Test Your Knowledge

1. What is the only proven remedy to remove alcohol from your body? (*Page 7*)
 - A. *Hot coffee.*
 - B. *Time.*
 - C. *Physical exercise.*
2. Prescription drugs: (*Page 7*)
 - A. *Always help you ride safer.*
 - B. *Are safe to use while riding.*
 - C. *Can affect your ability to ride safely.*
3. To compensate for the slower reaction time in very cold weather, you should: (*Page 8*)
 - A. *Ride close to other vehicles.*
 - B. *Speed up.*
 - C. *Increase your following distance.*

Section Three

Before You Ride

A responsible rider makes a point to:

1. Wear protective riding gear.
2. Be familiar with the motorcycle.
3. Inspect the motorcycle.
4. Be free of impairments (alcohol and drugs).

Selecting and Wearing Protective Gear

Anytime you ride a motorcycle:

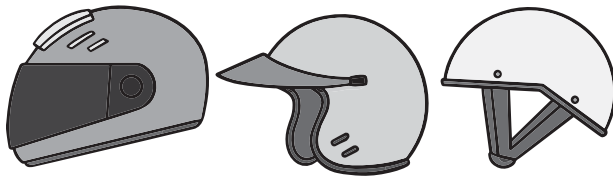
- You must wear a helmet compliant with U.S. Department of Transportation (DOT) standards.
- You should wear face and eye protection.
- You should wear motorcycle protective riding gear (gloves, long pants, jacket and sturdy footwear).

Helmet Use

Oregon requires you to wear a motorcycle helmet whenever you ride a motorcycle, moped or unenclosed autocycle as either an operator or passenger.

Here are some facts to consider:

- Helmets protect you from the elements (wind, bugs, debris, etc.).
- A DOT-compliant helmet does not restrict vision or mask important sounds.
- Crashes are unpredictable and may happen at any time, even on short rides or within minutes of starting the ride.
- Regardless of speed, a helmet will reduce the chances of severe or fatal head injuries.



Full-Face
Helmet

Three-Quarter
Helmet

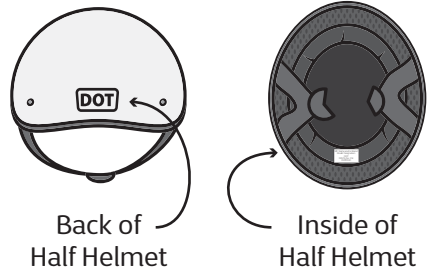
Half
Helmet

Helmet Selection

Protection should be the first consideration when buying your motorcycle helmet. There are three primary types of helmets: full-face, three-quarter, and half. A full-face helmet gives the most head protection since it covers all of the head and face. This design has a flip-up face shield that protects the eyes. A three-quarter helmet affords riders good head protection and is constructed with the same basic components, but doesn't offer the face and chin protection of full-face helmets. If you wear a three-quarter helmet, you should use an approved snap-on face shield or goggles. Half helmets provide the least amount of protection.

Whichever style you choose, make sure that the helmet:

- Is DOT compliant. You can tell if a helmet is DOT compliant if it has a label attached to the helmet that states the manufacturer's name and/or brand, model, and says DOT, FMVSS No.218, CERTIFIED.
- Has no obvious defects such as cracks, loose padding or frayed straps.
- Fastens securely.



Back of
Half Helmet

Inside of
Half Helmet

Helmet Fit

A helmet should fit comfortably, but snug all the way around. A helmet that is too loose can lift in the wind or come off your head in a fall. One that is too tight can create sores or cause headaches. When choosing a helmet, try on several brands and sizes to get an idea of fit and comfort.

Here are a few tips for the best fit:

- Cheek pads should touch your cheeks without pressing uncomfortably.
- There should be no gaps between your temples and brow pads.
- If the helmet has a neck roll, it should not push the helmet away from the back of your neck.
- On full face helmets, press on the chin piece. The helmet or face shield should not touch your nose or chin.

Face and Eye Protection

Without face protection, an object could hit you in the eye, face or mouth. A full-face helmet provides the maximum face and eye protection while riding and in the event of a crash. A plastic shatter-resistant face shield can help protect your eyes and face from wind, dust, dirt, rain, insects and pebbles thrown up from vehicles ahead. These distractions can be painful and can take your full attention from the road. Whatever happens, keep your eyes on the road and your hands on the handlebars.

Windshields will not protect your eyes from wind and debris; neither will eyeglasses or sunglasses. A windshield is not a substitute for a face shield. Glasses will not keep your eyes from watering, and they might blow off when you turn your head while riding. Goggles protect your eyes but won't protect the rest of your face like a face shield does. Goggles can also reduce peripheral vision. Tinted eye protection or shields should not be worn at night or any other time when little light is available.

Hearing Protection

Long-term exposure to wind noise can cause irreversible hearing damage. Properly worn hearing protection can reduce wind noise and make your ride more enjoyable while still allowing you to hear important sounds like car horns and sirens. You can choose from a variety of styles from disposable foam plugs to reusable custom-molded devices.

Protective Riding Gear

Riding gear designed for motorcycle riders provides protection in the event of a crash as well as from heat, cold, rain, debris and hot or moving parts of the motorcycle. Sturdy synthetic or leather materials provide the best protection. Wearing brightly colored clothing with retro-reflective material will make you more visible to other roadway users.

Sturdy synthetic or leather materials provide the best protection.

- **Jackets and Pants** should cover arms and legs completely and be made of durable material. Jeans do not provide adequate protection. Wear a jacket even in warm weather to prevent dehydration. Many motorcycle riding jackets are designed to protect without getting you overheated, even on summer days.
- **Protective Footwear** provides protection for the feet, ankles and lower parts of the legs. They should be high and sturdy enough to cover your ankles and give them support. Leather boots are best. Soles should be made of hard, durable slip-resistant material. Keep heels short so they do not catch on rough surfaces. Tuck laces in so they won't catch on your motorcycle.

- **Gloves** allow a better grip and help protect your hands. Your gloves should be full-fingered and made of leather or similar durable material.
- **Rain Suits** designed for motorcycle riding resist tearing apart or ballooning up at high speeds. You will be much more comfortable and alert than a rider who is wet and cold. One- or two-piece styles are available. A rain suit with retro-reflective strips or high visibility orange or yellow colors are good choices.

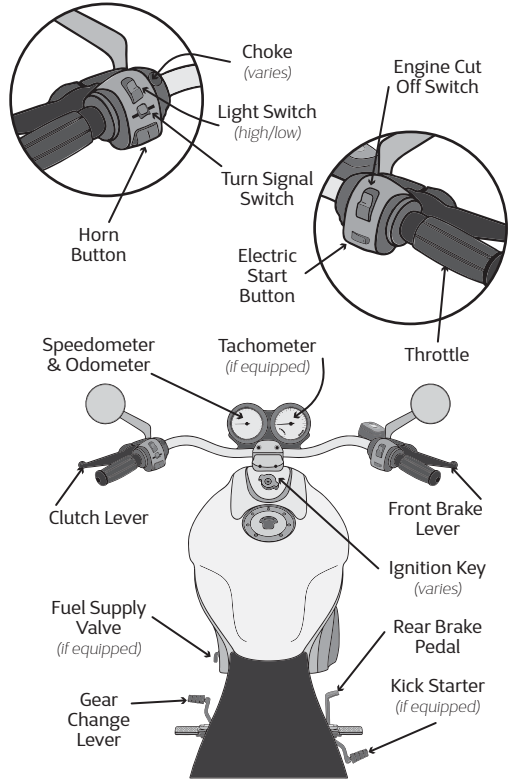
Whatever the weather conditions, always wear protective gear that will keep you comfortable, enabling you to concentrate on your riding.

Know Your Motorcycle

You should get to know your motorcycle. Learning how things work and what parts need the most attention could reduce your chances of being in a crash and extend the life of your motorcycle. You should allow extra room for stopping if you are not familiar with the motorcycle.

To make sure that your motorcycle will not let you down:

- Read the owner's manual first and get to know it.
- Be familiar with the motorcycle controls.
- Conduct a pre-ride check of the motorcycle before every ride.
- Check your tire pressure. Low tire pressure can affect steering, stopping and how the motorcycle handles.
- Keep it serviced and maintained. A motorcycle needs more frequent inspections and maintenance than a car. A breakdown is more likely to cause an accident.



Make sure your motorcycle fits you. Your feet should reach the ground while you are seated on the motorcycle. The clutch and brake levers should be adjusted to fit the reach of your hands. The gear change lever and rear brake pedal may be adjusted to fit your feet and boots for proper operation.

Motorcycle Controls

There are six primary controls needed to make the motorcycle move and stop. You will need both hands and both feet to operate these controls.

- **Handlebars** – The handlebars are used to steer and turn. They are also used to initiate and control motorcycle lean.
- **Throttle** – Is the right handgrip and is operated by rolling the handgrip toward you to increase speed and away from you to decrease speed. When released, the throttle snaps back to an “idle” position. To use the throttle safely and comfortably, keep four fingers around the throttle/handgrip and the wrist in a flat position.
- **Clutch Lever** – Located in front of the left handgrip. To operate, squeeze the clutch lever in toward the left handgrip, disconnecting power from the rear wheel. To reengage power, slowly release the clutch lever while gently applying throttle.
- **Gearshift Lever** – Is usually located on the left side of the motorcycle in front of the footrest and is operated by the left foot. To shift to a higher gear (upshift), squeeze the clutch lever and then lift the gearshift lever down. To shift to a lower gear (downshift), squeeze the clutch lever and then press the gearshift lever down. Motorcycle transmissions shift only one gear per each lift or downward press. The shift lever must be released before you can shift again. A typical shift pattern is 1-N-2-3-4-5-(6). Neutral (N) is a half-shift up from first or a half- shift down from second; a full upshift or downshift will bypass neutral. An instrument light indicates when the transmission is in neutral.
- **Front Brake Lever** – Located in front of the right handgrip and controls the brakes on the front wheel. To operate, use all four fingers and squeeze the front brake lever smoothly and progressively.
- **Rear Brake Pedal** – Located in front of the right footrest and controls braking on the rear wheel. To operate, press down on the rear brake pedal smoothly with your right foot.

Other Controls and Equipment

Along with the six primary controls there are a few other controls on most motorcycles that are important to know and locate. The location and operation of some of these controls vary from model to model. Refer to your motorcycle owner’s manual.

- **Engine Cut-Off Switch** – Usually red and located on the right handgrip and operated by the right thumb. It allows you to shut off the engine without removing your hands from the controls.
- **Fuel Supply Valve** – Controls fuel supply to the engine. To run, turn from OFF to ON. Also may include RESERVE and PRIME positions. It may not be present on some motorcycles.
- **Ignition Switch** – Usually located near the instrument cluster, on the gas tank or under the tank and activated with a key. Positions include ON, OFF,

LOCK and PARK. The LOCK position allows the key to be removed and engages a steering-lock mechanism. PARK activates the taillight for increased visibility if you park alongside a roadway at night.

- **Choke (if equipped)** – Frequently located near the left handgrip, the instrument cluster or the carburetor. It is important that you consult your owner's manual for more information. The choke provides an enriched fuel mixture to assist in cold engine starts. Turn to OFF position when engine is warmed.
- **Turn Signal Switch** – Usually located on the handgrip(s) and operated by the thumb. Most models do not self-cancel. Check your owner's manual.
- **High/Low Beam Headlight** – Located on the left handgrip. On most motorcycles the headlight activates when the ignition is on.
- **Horn** – Located on the left handgrip. Operate by pressing with your thumb.
- **Electric Start Button** – Located on the right handgrip. Operate by pressing with your thumb.
- **Speedometer** – Indicates motorcycle road speed. An odometer shows miles ridden, and a re-settable trip meter can be used to show trip miles or miles since the last gas stop.
- **Tachometer (if equipped)** – Indicates motorcycle engine speed in revolutions per minute (RPM). Never exceed red line RPM.
- **Indicator Lights** – Located in the instrument cluster. Includes neutral, turn signals, oil pressure, high beam, side stand down and possibly others.
- **Mirrors** – Located on the left and right sides of the motorcycle. Some mirrors are convex. Convex mirrors provide a wider view than flat mirrors but make vehicles look further away than they really are. Adjust them so you can see the road behind you.
- **Side and Center Stands** – Supports the motorcycle when parked. Not all models have center stands. Most stands have return springs that snap up and hold them in place. Always raise the stand before riding.

Required Motorcycle Equipment

All motorcycles and mopeds must have:

- At least one but not more than three white headlights. Modulating headlights are allowed during daylight hours. Oregon law requires that the headlight be on at all times.
- At least one red taillight.
- One white license plate light.
- At least one rear license plate.
- At least one red brake light (stop lamp).
- Front turn signal lights (may be white or amber) if the motorcycle was built after 1972.

- Rear turn signal lights (may be red or amber) if the motorcycle was built after 1972.
- A red reflector on the rear.
- At least one rear view mirror.
- One horn.
- Fenders on all wheels.
- At least one brake operated by hand or foot.
- An exhaust system in good working order, constant operation and meets noise emission standards determined by the Department of Environmental Quality.
- All lighting must be DOT compliant.

Test Your Knowledge

1. When choosing a helmet, for the best fit, make sure the helmet: *(Page 12)*
 - A. *Loosely fits the top of your head.*
 - B. *Tightly fits at the base, loosely at the top.*
 - C. *Fits snugly all the way around your head.*
2. What type of riding gear provides the best protection when riding a motorcycle: *(Page 13)*
 - A. *Denim jeans.*
 - B. *Synthetic or leather clothing.*
 - C. *Cotton pants.*
3. Before every ride, it is important to: *(Page 14)*
 - A. *Change the oil.*
 - B. *Conduct a pre-ride check.*
 - C. *Reset the odometer.*

Section Four

Vehicle Control Skills

The following section offers basic riding information on getting started, shifting gears, stopping, straight-line riding and turning. These basic skills are important to learn before moving onto more complex skills.

Training, practice, time and experience are the only ways you can learn how to safely operate a motorcycle and control direction, speed and balance. Being aware of your abilities and knowing the rules of the road will help you as you learn how to operate a motorcycle.

Getting Started

Mounting the Motorcycle

To mount the motorcycle, stand on the left side of the motorcycle. Grasp both handgrips, squeeze the front brake to keep the motorcycle from rolling, and swing your right leg over the seat. Sit and straighten the bike; raise the side stand with your foot and adjust the mirrors.

Starting the Engine

1. Turn the fuel valve and ignition switch ON.
2. Shift to neutral. Do not rely on the indicator light. Rock the motorcycle back and forth. If the motorcycle rolls freely, it's in neutral.
3. Turn the engine cut-off switch to ON.
4. Turn the choke ON for cold starts. Many motorcycles require squeezing the clutch before the starter will operate. This is also a good precaution against accidentally starting the bike in gear and reduces the load on the starter motor.
5. Press the starter button. Avoid using the throttle; the motorcycle should start without it. Many motorcycles have a safety mechanism that cuts power to the motor if the bike is placed in gear with the side stand down; so if you haven't brought the side stand up, do it now. If the motor doesn't start in the first 5 to 8 seconds, stop and repeat the steps above.

Stopping the Engine, Dismounting and Securing the Motorcycle

1. Turn the engine cut-off switch to OFF. Turn the ignition OFF. Turn the fuel valve OFF if your motorcycle has one. Make sure all lights are off.
2. To dismount, put the side stand down. Lean the motorcycle onto the side stand, while grasping both handgrips squeeze the front brake and swing your right leg over. Turn the handlebar fully toward the side stand for stability.
3. After dismounting, remove the ignition key and engage fork lock or other security device.

Riding Posture

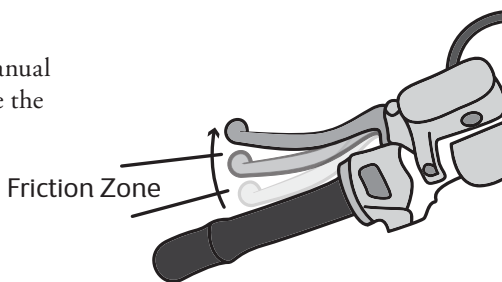
To properly control a motorcycle:

- **Posture** – Keep your back straight and head and eyes up. Sit so you can use your arms to steer the motorcycle rather than to hold yourself up.
- **Hands** – Hold the handgrips firmly. Start with your right wrist flat. This will help you to control the throttle.
- **Knees** – Keep your knees close to the gas tank when the motorcycle is moving.
- **Feet** – Keep your feet on the footrests when the motorcycle is moving and avoid pointing your toes down. Keep your feet near the controls so you can easily and quickly use them.



Friction Zone

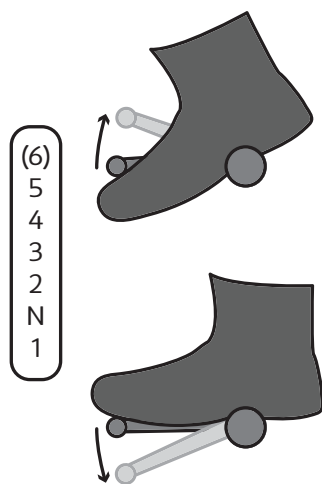
Since most motorcycles have a manual transmission, you will need to use the “friction zone” to start the motorcycle moving and prevent stalling. The friction zone is the point on the clutch where the engine’s power begins to transmit to the rear wheel. As you reach the friction zone, roll on the throttle and the motorcycle will start moving forward. Do not fully release the clutch lever until your motorcycle is moving and stable.



Shifting Gears

There is more to shifting gears than simply getting the motorcycle to pick up speed smoothly. Learning to use the gears when downshifting, turning or starting on hills is important for safe motorcycle operation.

- To upshift to a higher gear:
 - Roll off, or close, the throttle as you squeeze in the clutch lever.
 - Lift the shift lever. Use firm pressure.
 - Release the shift lever after each shift is completed.
 - Ease the clutch out as you roll on the throttle.
- To downshift to a lower gear:
 - Roll off or close the throttle as you squeeze in the clutch lever.
 - Press down firmly (but don't stomp) on the shift lever.
 - Ease out the clutch to avoid skidding the rear tire.



When coming to a stop, you should shift down through the gears as you slow. Always try to shift gears gradually; an abrupt change in power to the rear wheel can cause a skid.

Starting on an Incline

Here are some important tips to remember when starting on a hill:

- Use the front brake to hold the motorcycle while you start the engine and shift into first gear.
- Change to the foot brake to hold the motorcycle while you operate the throttle with your right hand.

- Open the throttle a little bit for more power.
- Release the clutch gradually.
- Release the rear brake when the motorcycle starts to pull forward. This means the clutch is beginning to transmit power.
- Continue to release the clutch gradually. If you release it too quickly, the front wheel may come off the ground, the engine may stop, or both.
- Continue to open the throttle gradually, as needed.

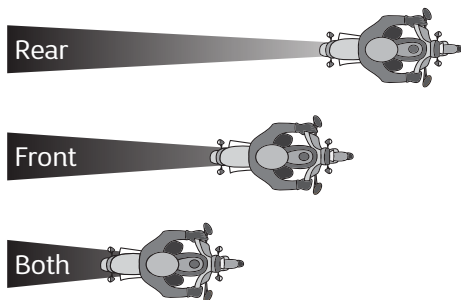
It is more difficult to start the motorcycle moving on an upgrade than on flat ground. There is always the danger of rolling backwards into a vehicle behind you.

Stopping

Your motorcycle has brakes on the front and rear wheels. Always use both brakes every time you slow or stop. When used correctly, the front brake can provide 70% or more of your total stopping power.

Using both front and rear brakes shortens stopping distance.

To stop your motorcycle, squeeze the front brake lever and press down on the rear brake pedal smoothly until stopped. Grabbing at the front brake or jamming down on the rear can cause the brakes to lock, resulting in control problems.



Stopping Distance

Normal Stopping in a Curve

If you need to stop while leaned over in a curve, apply smooth gradual pressure to both brakes as you start reducing your lean angle. The more you reduce the lean the more traction you will have to stop. You can apply more brake pressure as your motorcycle straightens up. If you apply too much brake pressure or do so suddenly, a skid can occur.

Integrated Braking Systems

Some motorcycles have integrated braking systems that link the front and rear brakes together by applying a single brake control. (Consult the owner's manual for information on the use of these systems.)

Turning

New riders must be aware of the difficulty of negotiating turns and curves. Riders often try to take curves or turns too fast. Reduce speed before entering the turn and maintain this speed. These four steps will help you learn the skills for turning:

SLOW – Reduce your speed before the turn. This can be done by rolling off the throttle as needed and, if necessary, applying both brakes.

LOOK – Look through the turn to where you want to go. Turn just your head, not your shoulders, and keep your eyes level with the horizon.

Normal
Turning



Slow
Turning



ROLL – Roll on the throttle to maintain steady speed or gradually accelerate through the turn. This will help keep the motorcycle stable.

PRESS – To turn, the motorcycle must lean. To lean the motorcycle, countersteer – press on the handgrip in the direction of the turn. Press forward on the left handgrip – lean left – go left. Press forward on the right handgrip – lean right – go right. The higher the speed or the sharper the turn, the greater the lean angle.

Turning Techniques

In normal turns, the rider and the motorcycle should lean together at the same angle.

In slow tight turns, counterbalance by leaning the motorcycle only and keeping your body straight.

Test Your Knowledge

1. How should you position your hands on the handgrips? (Page 19)
 - A. *Keep the left wrist down.*
 - B. *Keep the right wrist up.*
 - C. *Keep your right wrist flat.*
2. What is the “friction zone”? (Page 20)
 - A. *Point on the clutch where the engine’s power begins to transmit to the rear wheel.*
 - B. *Point when the clutch warms up.*
 - C. *Point on the throttle where the engine’s power begins to transmit to the rear wheel.*
3. To bring your motorcycle to a stop: (Page 21)
 - A. *Squeeze the front brake lever gradually and drag your feet until stopped.*
 - B. *Grab the front brake lever and firmly press down on the rear brake pedal until stopped.*
 - C. *Squeeze the front brake lever and press down on the rear brake pedal gradually until stopped.*
4. What are the four steps for turning? (Page 22)
 - A. *Slow, Look, Roll, Press.*
 - B. *Search, Evaluate, Decide, Execute.*
 - C. *Evaluate, Accelerate, Brake, Roll.*

Section Five

Street Strategies

Rider Risks and Responsibilities

You need to develop a set of street riding strategies that allows you to gather critical information to make good decisions and avoid problems.

Rider Responsibilities

Accept the responsibilities associated with operating a motorcycle:

- You must have a motorcycle endorsement or instruction permit.
- You must follow the laws and rules of the road.
- You must share the road with other users (i.e. people walking or biking, large vehicles, etc.)
- Always ride alcohol- and drug-free.
- Always wear protective gear.

Motorcycles are not as visible as other vehicles because of their size. This puts you at risk!

Risk Awareness

Riding a motorcycle involves some risks not encountered when driving other types of vehicles. Some of these risks include:

- **Vulnerability** – Motorcycles provide less protection in a crash and do not have the stability of cars. This is why you should always wear protective gear.
- **Visibility** – Motorcycles are not as visible as other types of vehicles because of their size. Other motorists may not be looking for motorcycles in traffic. This places you at risk.

Risk Management

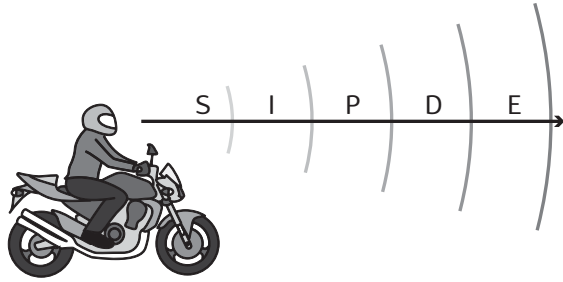
To manage risk you must be aware of the potential risks and then have a plan to reduce the risks.

SIPDE

Good experienced riders remain aware of what is going on around them. They improve their riding strategy by using SIPDE, a 5-step process used to make appropriate judgments, and apply it correctly in different traffic situations:

- Scan
- Identify
- Predict
- Decide
- Execute

Let's examine each of these steps.



Scan

Search aggressively ahead, to the sides and behind to avoid potential hazards even before they arise. How aggressively you search, and how much time and space you allow, can eliminate or reduce harm. Focus on finding potential escape routes.

Identify

An aggressive scan allows you to identify potential hazards and conflicts before you reach them.

- Vehicles and other motorcycles—may move into your path and increase the likelihood of a crash.
- People walking or rolling and animals—are unpredictable, and may make short, quick moves.
- Stationary objects—potholes, guardrails, bridges, roadway signs, hedges or trees may influence your riding strategy.

Predict

After identifying a potential hazard or conflict, you will need to quickly predict what it will do. Before making your move, ask yourself: How critical is the situation? What are my choices? What are the consequences? Do I need to take action? This stage of SIPDE will develop as you gain experience and skill.

Decide

Determine what you need to do based on your prediction. You must decide when, where and how to take action. You must constantly make decisions to deal with constantly changing road and/or traffic conditions.

Execute

Carry out your decision.

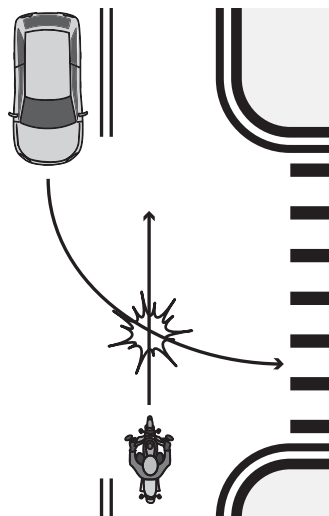
- Communicate your presence with lights and/or horn.
- Adjust your speed by accelerating, stopping or slowing.
- Adjust your position and/or direction.

When you encounter multiple hazards, adjust your speed to permit them to separate. Then deal with them one at a time as single hazards. Decision making becomes more complex with three or more hazards.

In potentially high-risk areas, such as intersections, shopping areas and school or construction zones, cover the clutch and both brakes to reduce the amount of time it takes you to react.

Intersections

The greatest potential for multi-vehicle crashes is at intersections. At intersections, drivers entering your right of way is the most common cause of motorcycle and vehicle crashes. Cars that turn left in front of you, including cars turning left from the lane to your right, and cars on side streets that pull into your lane, are the biggest dangers. Your use of SIPDE at intersections is critical. In 2019, there were 2,495 two-vehicle fatal crashes involving a motorcycle and another type of vehicle.³ In 41% of these crashes, the other vehicles were turning left while the motorcycles were going straight, passing, or overtaking other vehicles.



Increase your chances of being seen at intersections by riding with your headlight on. Ride in a lane position that provides the best view of oncoming traffic. For example, if a car is stopped to your right, slow down and move to the left. Provide a space cushion around the motorcycle that permits you to take evasive action.

When approaching an intersection where a vehicle is preparing to cross your path:

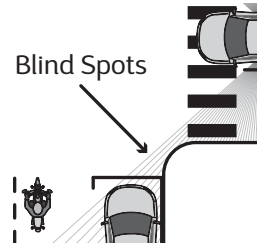
- Slow down.
- Select a lane position to increase your visibility to that driver.
- Cover both brakes to reduce the time you need to react.
- Cover the clutch lever to prevent stalling. As you enter the intersection, move away from the vehicle.

3 National Center for Statistics and Analysis (2021, April). Motorcycles: 2019 data (Traffic Safety Facts. Report No. DOT HS 813 112). Washington, DC: National Highway Traffic Safety Administration.

- Do not make radical movements, as drivers might think you are preparing to turn.
- Be prepared to take action.

Blind Intersections

If you approach a blind intersection, move to the portion of the lane that will bring you into another driver's field of vision at the earliest possible moment. In this picture, the rider has moved to the left portion of the lane – away from the parked car – so the driver on the cross street can see them as soon as possible.

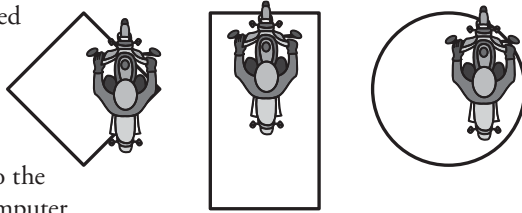


The key is to see as much as possible and remain visible to others while protecting your space.

If you have a stop sign or stop line, stop there first. Then edge forward and stop again, just short of where the cross-traffic lane meets your lane. From that position, lean your body forward and look around buildings, parked cars, or bushes to see if anything is coming. Just make sure your front wheel stays out of the cross lane of travel while you're looking.

Traffic Signals

Many traffic signals are triggered by inductive loops or wires buried under the pavement. When a vehicle goes over them, the metal disrupts the current, which sends a signal to the traffic signal control box. A computer directs the signal to change at the appropriate time.



Most motorcycles contain enough metal to trigger the light, but you should know where the most sensitive spots are. Look for the cut in the pavement, filled with tar. Depending on the shape, the most sensitive spots are:

- **Diamonds** – just inside one of the points.
- **Rectangles** – up front, in the middle.
- **Circles** – about $\frac{1}{4}$ of the way in.

Other detection systems may use cameras, infrared sensors, or microwaves to sense the presence of a vehicle. If a traffic control device, controlled by a vehicle detection device, fails to detect your motorcycle and does not change to green after one complete cycle, Oregon law permits a motorcycle to proceed with caution through an intersection even if the traffic control device still displays red. You must wait for a complete cycle and stop for any people walking or rolling before proceeding.

Sharing the Road

Space Management

It is extremely important to maintain an adequate “cushion of space” between vehicles.

Increasing the following distance between vehicles will provide you with:

- Time to react.
- Space to maneuver.

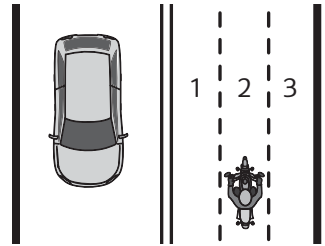
A responsible rider recognizes that space is the best protection against potential hazards.

Lane Positions

Oregon law gives you the right to use a full traffic lane when you ride a motorcycle or moped. In some ways, the size of the motorcycle can work to your advantage. Each traffic lane gives a motorcycle at least three paths of travel, as indicated in the illustration.

Your lane position should:

- Increase your ability to see and be seen.
- Avoid others’ blind spots.
- Avoid surface hazards.
- Protect your lane from other drivers.
- Communicate your intentions.
- Avoid windblast from other vehicles.
- Provide an escape route.



In general, there is no single best position for you to be seen and to maintain a space cushion around the motorcycle. No portion of the lane need be avoided – including the center, if weather and roadway conditions permit.

Use the whole width of the lane to help other roadway users see you better.

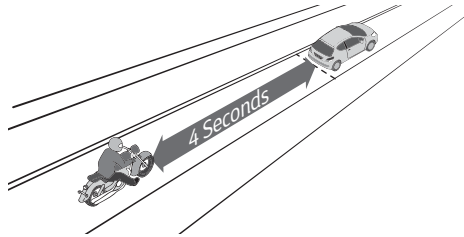
Position yourself in the portion of the lane where you are most likely to be seen and you can maintain a space cushion around you. Move from one side of the lane to another to increase your distance from other vehicles. A responsible rider changes position as traffic situations change. Ride in path 2 or 3 if vehicles or other potential hazards are on your left. Remain in path 1 or 2 if hazards are on your right. If vehicles are present on both sides of you, the center of the lane, path 2, is usually your best option.

The oily strip in the center portion that collects drippings from cars is usually no more than 2 feet wide. Unless the road is wet, the average center strip permits adequate traction to ride on safely. You can operate to the left or right of the oily strip and still be within the center portion of the traffic lane. Avoid riding on big buildups of oil and grease usually found at busy intersections or tollbooths.

Following Another Vehicle

Motorcycles need as much, or more, distance to stop as cars. It is recommended that motorcycle operators try to maintain a **four-second following distance** behind the vehicle ahead. This allows you space to stop, swerve, and to keep a reasonable space cushion.

A larger cushion of space is needed if your motorcycle will take longer than normal to stop. For example if you are riding 40 mph or more, if the pavement is slippery, if you cannot see through the vehicle ahead or if traffic is heavy and someone may squeeze in front of you, open up a five-second or more following distance.

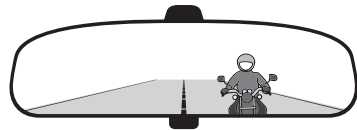


Keep well behind the vehicle ahead even when you are stopped. This will make it easier to get out of the way if someone behind you is not slowing down. It will also give you a cushion of space if the vehicle ahead starts to back up for some reason.

To estimate your four-second following distance:

- Pick out an object, such as a pavement marking, sign, pole or other stationary point on or near the road ahead.
- When the rear bumper of the vehicle ahead passes the object, count off the seconds: “one-thousand-one, one-thousand-two, one-thousand-three, one-thousand-four.”
- If you reach the object before you reach “four,” you are following too closely.
- Reduce speed and then count again at another stationary point to check the new following interval. Repeat until you are following no closer than four seconds.

Remember that most drivers don’t look at their side view mirrors nearly as often as they check their rear view mirror. If the traffic situation allows, the center portion of the lane is the best place for you to be seen by the drivers ahead and to prevent lane sharing by others.



Being Followed

Speeding up to lose someone following too closely can end up with someone tailgating you at a higher speed.

A better way to handle tailgaters is to get them in front of you. When someone is following too closely, change lanes and let them pass. If you can't do this, slow down and open up extra space ahead of you to allow room for both you and the tailgater to stop. This will also encourage them to pass. If they don't pass, you will have given yourself and the tailgater more time and space to react in case an emergency does develop ahead.

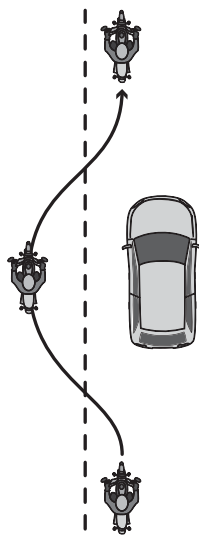
Passing and Being Passed

Passing and being passed by another vehicle is not much different from a car. However, visibility is more critical. Be sure other drivers see you, and that you see potential hazards.

Motorcycle and moped riders must follow the same rules in passing as drivers of automobiles. It is against the law for motorcyclists to pass between moving vehicles using an occupied lane on a multi-lane highway or a one-way street. It is also against the law to pass on the right if you must drive off the paved part of the road or use the shoulder to go around another vehicle. Oregon law allows one motorcycle or moped rider to pass another using the same lane.

Passing

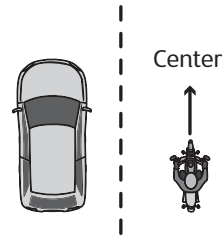
- Ride in the left portion of the lane at a safe following distance to increase your line of sight and make you more visible. Signal and check for oncoming traffic. Use your mirrors and turn your head to look for traffic behind.
- When safe, move into the left lane and accelerate. Select a lane position that doesn't crowd the car you are passing and provides space to avoid hazards in your lane.
- Ride through the vehicle's blind spot as quickly as possible while maintaining the required speed limit.
- Signal again, and complete mirror and head checks before returning to your original lane and then cancel your signal.
- When passing parked cars, stay towards the left of your lane. The greatest danger is drivers pulling away from the curb without checking for traffic behind. Cars pulling out and making sudden U-turns are also dangerous. They may cut you off entirely, blocking the whole roadway and leaving you with no place to go.



Being Passed

When you are being passed from behind or by an oncoming vehicle, stay in the middle portion of your lane. Riding any closer to them could put you in a hazardous situation.

Do not move into the portion of the lane farthest from the passing vehicle. It might invite the other driver to cut back into your lane too early.

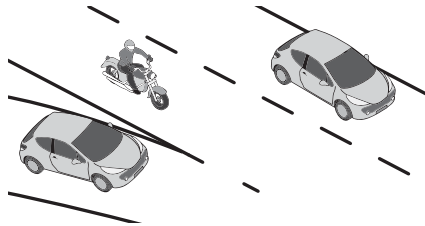


Changing Lanes

Check your mirrors and your blind spot before changing lanes. Be sure to execute a complete head check. This means turning your head in the direction you intend to go to check your blind spot for traffic approaching to the side and behind you.

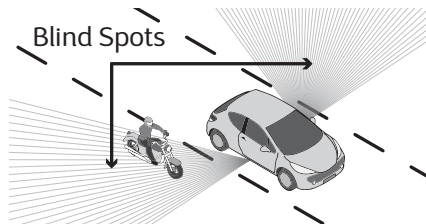
Lane Sharing

Vehicles and motorcycles need a full lane to operate safely. To discourage others from sharing your lane, you may choose to ride in the center portion of your lane. Oregon law allows motorcycles to ride two abreast in a single lane. However, this is not a recommended safety practice. Sharing a lane with a car while passing them is commonly known as “lane splitting” and is not legal in Oregon. Lane splitting can leave you vulnerable to the unexpected and reduces your space cushion. Do not ride between rows of stopped or moving motor vehicles. This is illegal in Oregon and can be dangerous.



Merging Vehicles

Do not assume that drivers merging on an entrance ramp will see you. Minimize the potential for danger by giving them plenty of room. Change lanes if one is open. If there is no room for a lane change, adjust speed to open up space for the merging driver.

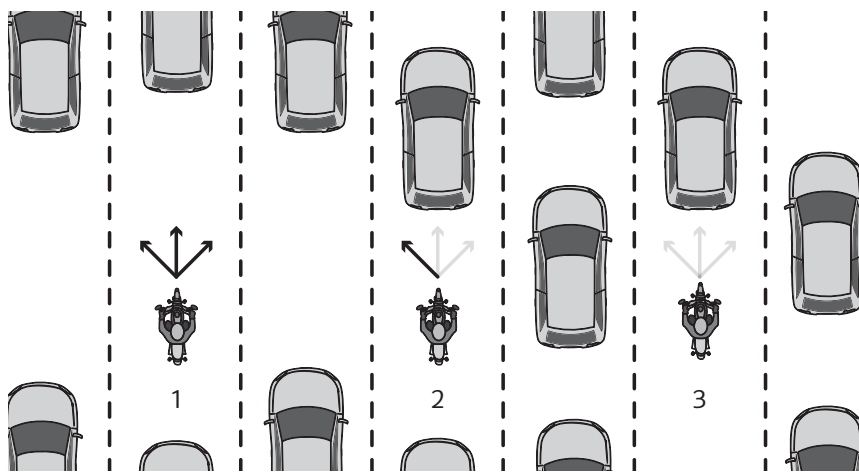


Vehicles Alongside

Avoid riding in the blind spot of a vehicle. Responsible riders recognize that vehicles traveling in the adjacent lane may unexpectedly change direction forcing the rider into a potentially dangerous situation. Vehicles in the next lane also block your escape if you come upon a hazard in your own lane. Adjust your speed until a proper and adequate space cushion has been established between vehicles.

Escape Routes

An escape route is an alternate path of travel that you can take if a hazard develops in your path. No matter what the conditions, always use SIPDE and plan an escape route. In the illustration below, the first rider has three escape routes open should they need to take an alternate path. The second rider has an escape route open to the left. The third rider does not have a clear escape route and should increase their space cushion. The third rider has nowhere to go if they need to take an alternate path of travel, which leaves them vulnerable to potential hazards.



Increasing Visibility

In crashes with motorcyclists, drivers often say that they never saw the motorcycle. From ahead or behind, a motorcycle's outline is much smaller than a car's. Also, it's hard to see something you are not looking for, and many drivers are not looking for motorcycles. More likely, they are looking through the narrow, two-wheeled silhouette in search of vehicles that may pose a problem to them.

Even if a driver does see you coming, you aren't necessarily safe. Motorcycles may appear farther away, and may appear to be traveling slower than they actually are. It is common for drivers to pull out in front of motorcyclists, thinking they have plenty of time. Too often, they are wrong. However, you can do many things to make it easier for others to recognize you and your motorcycle.

Being seen is your responsibility! Bright colors and retro-reflective materials are the best choices for keeping you visible to surrounding traffic both day and night.

Clothing

Most crashes occur in broad daylight. Wear bright colored clothing to increase your chances of being seen. Remember, your body is half of the visible surface area of the rider-motorcycle unit.

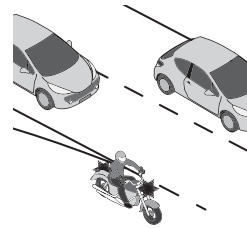
Retro-reflective, bright colored clothing is best. Bright orange, red, yellow or green jackets or vests are your best option for being seen. Brightly colored helmets can also help others see you. After dark, retro-reflective material on a vest and on the sides of the helmet will help drivers coming from the side spot you. Retro-reflective material can also be a big help for drivers coming toward you or from behind.

Headlight

Oregon law requires that you have your headlight on at all times. Keeping your headlights on is the best way to help others see your motorcycle.

Signals

Oregon law requires the use of signals, either hand or electrical, before making a turn or changing lanes. Motorcyclists may use hand signals during the day. At night, or in limited visibility conditions, turn signal lights are required for motorcycles.



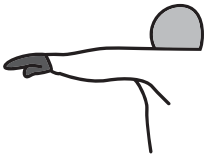
The signals on a motorcycle communicate to other drivers your intentions. Always use signals when turning or changing lanes. Using your signals will increase visibility. Always turn your head to check your blind spot before changing lanes.

Most motorcycle turn signals are not self-canceling. Be sure to cancel the signal after making your turn. This will allow other drivers to know your intentions and prevent anyone from entering into your path.

You should also be familiar with hand signals, as shown in the figure, and be able to use them if the motorcycle's turn signals are not working correctly.

Left turn

Left arm extended, palm open



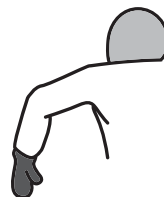
Right turn

Left arm raised up, palm open



Stop

Left arm straight down, palm facing back



Brake Light

Your motorcycle's brake light is usually not as noticeable as the brake lights on a car. If the situation permits, help others notice you by flashing your brake light before you slow down.

It is especially important to flash your brake light before:

- You slow more quickly than others might expect (for example, turning off a high-speed highway).
- You slow where others may not expect it (for example, in the middle of a block or at an alley).

If you are being followed closely, it's a good idea to flash your brake light before you slow. The tailgater may be watching you and not see something ahead that will make you slow down. This will hopefully discourage them from tailgating and warn them of hazards ahead they may not see.

Horn

Be ready to use your horn to get someone's attention quickly. Keep in mind that a motorcycle's horn isn't as loud as a vehicle's; therefore, use it, but don't rely on it.

Test Your Knowledge

1. The biggest danger for a motorcycle in an intersection is: (Page 26)
 - A. *Drivers tailgating you.*
 - B. *Drivers turning left in front of you.*
 - C. *Improper lane positions.*
2. In which portion of the lane should you position yourself? (Page 28)
 - A. *The left portion of the lane.*
 - B. *The lane portion where you are most likely to be seen.*
 - C. *The right portion of the lane.*
3. What is an escape route? (Page 32)
 - A. *An alternate path of travel you can take if a hazard develops.*
 - B. *A nearby roadway to take if traffic is heavy.*
 - C. *A safe place to stop when weather or roadway conditions are poor.*

Section Six

Roadway Management

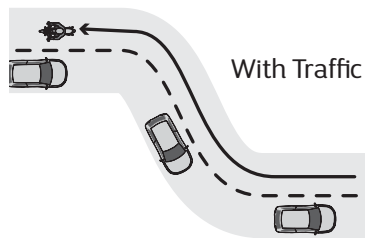
Situations change constantly on the road. As a responsible rider, you know how important it is to be in full control of the motorcycle. A responsible rider knows that good road management starts with knowledge and practice of SIPDE.

Cornering and Curves

Many crash-involved riders enter curves too fast and are unable to complete the curve. Although every curve is different, the basic cornering procedure – slow, look, roll, press – applies to all curves.

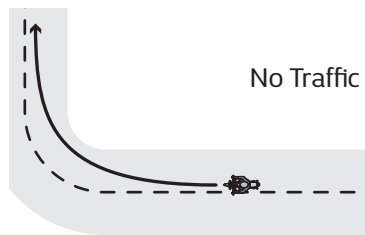
Your best path in a curve depends on traffic, road conditions and curve of the road. If traffic is present:

- Move to the center of your lane before entering a curve – and stay there until you exit. Look all the way through the turn.
- This permits you to spot approaching traffic, adjust for traffic “crowding” the centerline and adjust for debris blocking part of your lane.



If no traffic is present:

- Start at the outside of a curve to increase your line of sight. Look all the way through the turn to the exit.
- As you turn, move toward the inside of the curve, and as you pass the center, move to the outside to exit. This will create a straighter line through the curve.



Be alert to whether a curve remains constant, gradually widens, gets tighter or involves multiple curves. Ride within your skill level and posted speed limits. Choose a path of travel that creates a straighter line through the curve as long as traffic permits.

Crash Avoidance

No matter how careful you are, there will be times when you find yourself in a difficult spot. Your chances of avoiding a crash and possible injury will depend on your ability to respond quickly and properly. Two critical crash avoidance skills you will need to learn and practice are stopping quickly and swerving.

Stopping Quickly

Stopping a motorcycle quickly and safely is a skill that requires a lot of practice.

This is accomplished by applying controlled pressure to both the front and rear brakes at the same time without locking either wheel.

To do this:

- Squeeze the front brake lever and apply pressure to the rear brake pedal smoothly at the same time. Do not apply maximum pressure to the front brake lever and rear brake pedal all at once. Gradually increase pressure to the front brake lever as weight is transferred forward to the front tire.
- Keep your knees firmly against the tank and your eyes up, looking well ahead. Good riding posture will help you stop the motorcycle in a straight line and keep your weight from shifting forward.
- If a wheel locks and skids, release pressure on that brake to get the tire rolling, then immediately reapply the brake with controlled gradual pressure.

Stopping Quickly in a Curve

If you must stop quickly while turning or riding in a curve, one technique is to straighten the motorcycle, square the handlebars and then stop. There may be conditions that do not allow straightening first, such as running off the road in a left-hand curve or dealing with oncoming traffic in a right-hand curve. In such situations, it is preferable to apply the brakes smoothly and gradually. As you slow, you can reduce your lean angle and apply more brake pressure until the motorcycle is straight and maximum brake pressure is possible. You should “straighten” or “square” the handlebars in the last few feet of stopping; the motorcycle should then be straight up.

Anti-Lock Braking Systems (ABS)

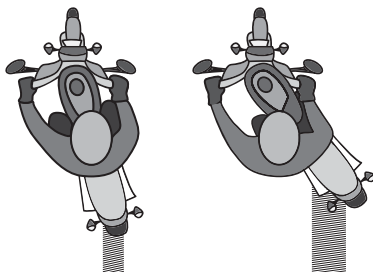
Some motorcycles use this technology to prevent wheel lock-up. If your motorcycle is equipped with anti-lock brakes apply maximum pressure on both the front and rear brakes as quickly and firmly as you can. You may feel a pulsation in the brakes; continue to hold brake pressure until you have completely stopped.

Proper braking.

Neither wheel is locked and motorcycle is in alignment.



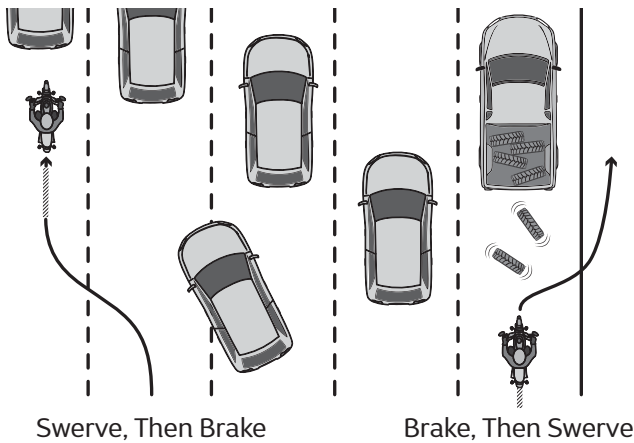
Excessive rear brake pressure locks rear wheel. Motorcycle is out of alignment and control.



Handling Skids

Here's what to do when a skid cannot be avoided:

- **Front-Wheel Skids** – If the front wheel locks, release the front brake immediately to get the wheel rolling again, then reapply the front brake smoothly, with increasing pressure. Front-wheel skids result in immediate loss of steering control and balance. Failure to fully release the brake lever immediately will result in a crash.
- **Rear-Wheel Skids** – A skidding rear wheel is a dangerous condition, caused by too much rear brake pressure, which can also result in a crash. If the rear wheel locks, you lose the ability to change direction. If the rear wheel begins to skid, release the rear brake immediately and reapply the rear brake smoothly.



Swerving

If braking is required, separate it from swerving. Brake before or after – never while swerving.

Swerving to avoid a crash may be appropriate if stopping isn't a solution. A swerve is two consecutive countersteers to execute a sudden change in path or direction. Be sure you have enough time and space to swerve. To swerve:

- Apply firm forward pressure to the handgrip located on the side you want to go. In other words, to swerve to the right, press the right handgrip. This will cause the motorcycle to lean quickly. The sharper the swerve, the more the motorcycle must lean.
- Press on the opposite handgrip once you clear the obstacle to return to your original direction of travel.
- Keep your body upright and allow the motorcycle to lean in the direction of the turn while keeping your knees against the tank and your feet solidly on the footrests.

Handling Hazardous Surfaces

Slippery Surfaces

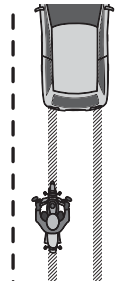
On slippery surfaces, you should use added caution. Motorcycles handle better when ridden on surfaces with good traction. Maintaining balance and control is difficult on slippery surfaces.

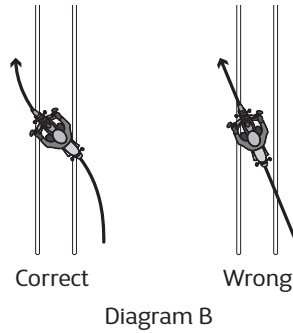
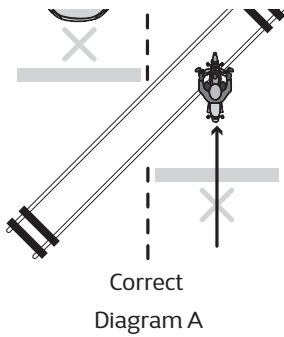
To reduce your risk you can take certain preventative measures:

- **Reduce Speed** – Slow down before you get to a slippery surface to lessen your chances of skidding and increase your following distance. Your motorcycle needs more distance to stop. And, it is particularly important to reduce speed before entering wet curves.
- **Avoid Sudden Moves** – Any sudden changes in speed or direction can cause a skid. Be as smooth as possible if you speed up, shift gears, turn or brake.
- **Use Both Brakes** – The front brake is still effective, even on a slippery surface. Squeeze the brake lever gradually to avoid locking the front wheel. Remember, use gentle pressure on the rear brake.

Surfaces that provide less traction include:

- **Wet Surfaces** – When it starts to rain, ride in the tire tracks left by cars and avoid pooled water and highway ruts. Often, the left tire track will be the best position, depending on traffic and other road conditions.
- **Snow- or Ice-Covered Surfaces** – Snow melts faster on some sections of a road than on others. Patches of ice can occur in low or shaded areas and on bridges and overpasses. It is recommended you avoid snow- and ice-covered surfaces.
- **Shiny Surfaces** – Metal covers, steel plates, bridge gratings, train tracks, lane markings, leaves and wooden surfaces can be very treacherous when wet.
- **Dirt, Sand and Gravel** – On curves and ramps leading to and from highways, dirt, sand and gravel can collect along the sides of the road. Avoid sudden changes in speed and direction and choose a lane position that minimizes the risk of injury.
- **Oil Spots** – Watch for these when you put your foot down to stop or park. You may slip and fall. Securing the proper footing will help you from losing your balance or falling.





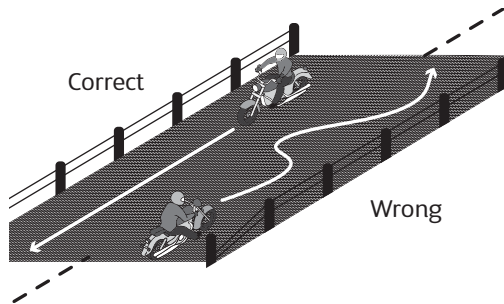
Railroad Tracks, Trolley Tracks and Pavement Seams

Usually it is safer to ride straight within your lane to cross tracks. Turning to cross tracks at a 90 degree angle or parallel path can be more dangerous – your path may carry you into another lane of traffic. (See Diagram A.)

For track and road seams that run parallel to your path of travel, move far enough away from tracks, ruts or pavement seams to cross at a 45 to 90 degree angle. Then, make a quick, sharp turn. Edging across could catch your tires and throw you off balance. (See Diagram B.)

Grooves and Gratings

Riding over rain grooves or metal bridge gratings may cause your motorcycle to weave. Maintain a steady speed and ride straight across.



Uneven Surfaces or Obstacles

Watch out for uneven surfaces such as bumps, broken pavement, potholes or debris on the road.

Try to avoid obstacles by slowing or going around them. If you must go over the obstacle, first determine if it is possible. Approach it as close to a 90 degree angle as possible. Look where you want to go to control your path of travel. If you have to ride over the obstacle, you should:

- Slow down as much as possible before contact.
- Make sure the motorcycle is fully upright.
- Rise slightly off the seat with your weight on the footrest to absorb the shock with your knees and elbows. This will help keep you from being thrown off the motorcycle.
- Just before contact, roll on the throttle slightly to lighten the front end.

If you ride over an object on the street, pull off the road and check for damage before riding any farther.

Test Your Knowledge

1. How should you keep your body position when stopping quickly? (Page 36)
 - A. *Knees against the tank and eyes up.*
 - B. *Knees away from the tank and eyes up.*
 - C. *Knees against the tank and wrists up.*
2. If you must stop quickly while turning, a good technique is to: (Page 36)
 - A. *Straighten the motorcycle, square the handlebars and then stop.*
 - B. *Apply the front brake and increase your lean angle.*
 - C. *Apply brakes first and lean away from the turn.*
3. When swerving, it is important to: (Page 37)
 - A. *Brake and swerve at the same time.*
 - B. *Swerve in the direction the hazard is traveling.*
 - C. *Separate braking from swerving.*

EASY, RIDER. Slow down for curves
and ride sober.



**Ride Safely.
The Way to Go.**
Transportation Safety - ODOT

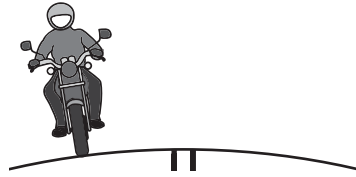
Section Seven

Special Riding Situations

The following section offers some additional information on special riding situations you may encounter when riding a motorcycle.

Crowned Roads

A road surface that is higher in the middle than at the sides is a crowned road. Use caution and slow down when cornering on crowned roads because ground clearance is reduced and the lean angle available is less than on a flat road.



Work Zones

Work zones present a hazard to all drivers but even more so for motorcycle riders. Lacking four-wheel stability, the motorcycle rider must reduce speed and be especially mindful of potential hazards.

The following are types of work zone road hazards and what to do if you encounter them:

- **Sand or Gravel on Pavement** – Slow down, don't make sudden turns, and brake lightly in a straight line if you need to slow more. If you encounter long stretches of sand or gravel, downshift and keep your speed steady.
- **Scored or Grooved Pavement** – Keep your head and eyes up. Go slow, don't fight the handlebars. Keep a steady throttle.
- **Oil or Fresh Tar** – Avoid if possible. Go slow and avoid sudden moves.
- **Rippled and Uneven Temporary Pavement** – Scan the pavement and pick the smoothest line. Cross slowly and carefully. Be aware of raised edges between lanes that have been repaved and those awaiting to be paved—crossing a raised edge at high speeds and a narrow angle could cause you to lose control.
- **Objects in the Road** – Scan well ahead. Go around object if possible. Increase your following distance to allow maneuvering room.

Tire Failure

You will seldom hear a tire go flat. You can usually tell from the way the motorcycle reacts. If the motorcycle starts handling differently, it may be a tire

failure. This can be dangerous. If one of your tires suddenly loses air, respond quickly to keep your balance. Pull off and check the tires.

If the front tire goes flat, the steering will feel “heavy.” A front-wheel flat is particularly hazardous because it affects your steering. You have to steer well to keep your balance.

If the rear tire goes flat, the back of the motorcycle may jerk or sway from side to side.

If either tire goes flat while riding:

- Hold handgrips firmly, ease off the throttle and keep a straight course.
- If braking is required, gradually apply the brake of the tire that isn't flat.
- When the motorcycle slows, edge to the side of the road, squeeze the clutch and stop.

Stuck Throttle

Twist the throttle back and forth several times. If the throttle cable is stuck, this may free it. If the throttle stays stuck, immediately use the engine cut-off switch and pull in the clutch at the same time. This will remove power from the rear wheel, though engine noise may not immediately decline. Once the motorcycle is “under control,” pull off the road and stop.

After you have stopped, check the throttle cable carefully to find the source of the trouble. Make certain the throttle works freely before you start to ride again.

Wobble

A “wobble” occurs when the front wheel and handlebars suddenly start to shake from side to side at any speed. Most wobbles can be traced to improper loading, unsuitable accessories or incorrect tire pressure. If you are carrying a heavy load, lighten it. If you can't, shift it. Center the weight lower and farther forward on the motorcycle. Make sure tire pressure, spring pre-load, air shocks and dampers are at the settings recommended for that much weight. Make sure windshields and fairings are mounted properly.

Trying to accelerate out of a wobble could make the motorcycle more unstable. Instead:

- Grip the handlebars firmly, but don't fight the wobble.
- Close the throttle gradually to slow down. Do not apply the brakes; braking could make the wobble worse.
- Move your weight as far forward and down as possible.
- Pull off the road as soon as you can to fix the problem.

Have the motorcycle checked out thoroughly by a qualified professional.

Animals

Dogs sometimes chase motorcycles. Once an approaching dog is spotted, slow down and downshift until the dog is near your motorcycle then accelerate away from the dog as it approaches. Keep control of your motorcycle, and look to where you want to go. Don't kick at the dog because doing so will make controlling the motorcycle difficult.

Larger animals such as deer or elk present a different problem. These animals are unpredictable, and hitting one can be as harmful as colliding with another vehicle. Use more aggressive SIPDE maneuvers for additional time and space in areas where larger animals may be present. If one of these animals is encountered on or near the roadway, slow down and proceed with caution. Pass the animal carefully at a low speed and continue to check for traffic approaching from behind.

Night Riding/Foggy Conditions

Riding at night or in foggy conditions presents additional risks because a rider's ability to see and be seen by others is limited. You should adjust your riding behavior to compensate for limited visibility by:

- **Reducing Your Speed** – Ride even slower than you would during the day.
- **Increasing Distance** – Distances are harder to judge at night than during the day.
- **Using the Car Ahead** – Use other vehicles' headlights to see farther ahead and taillights for clues about curves, bumps or maneuvers. Use your low beam and stay somewhat back.
- **Using Your High Beam** – Get all the light you can. Use your high beam whenever you are not following or approaching a car. *Unless in foggy conditions. Only use your low beam in the fog.*
- **Be Visible** – Wear retro-reflective materials when riding at night.
- **Being Flexible About Lane Position** – Change to whatever portion of the lane is best able to help you see, be seen and keep a safe space cushion.

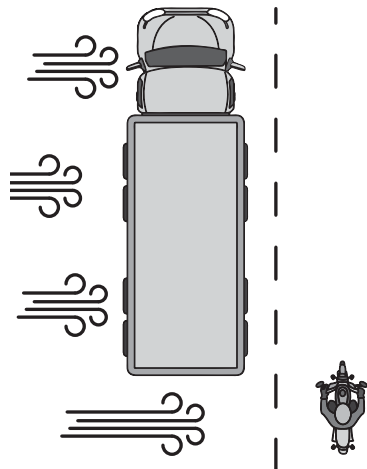
Wind

Strong, steady winds can affect you and your motorcycle. The effects can occur anywhere and often happen in open areas, mountainous terrain and river gorges.

Wind turbulence can occur when you share the road with large vehicles like trucks, buses and recreational vehicles.

To respond to wind gusts or windblasts:

- Lean into the wind by applying forward pressure on the handgrip.



- Move away from other vehicles as they approach or as you pass.
- Maximize the space cushion around you.
- Find a safe place to park until conditions improve if the wind becomes too dangerous.

Test Your Knowledge

1. What can you do to safely corner on a crowned road? (Page 41)
 - A. *Lean your body to the left side of the road.*
 - B. *Ride in the right portion of the lane.*
 - C. *Use caution and slow down.*
2. When riding in strong wind: (Page 43)
 - A. *Move away from other vehicles as they approach or pass you.*
 - B. *Ride close to other vehicles to shield you from the wind.*
 - C. *Lean away from the wind and lighten your hold on the handgrip.*
3. If a dog approaches your motorcycle, the safest thing to do is: (Page 43)
 - A. *Slow down and downshift, then accelerate away from the dog as it approaches.*
 - B. *Speed up to get out of the dog's reach.*
 - C. *Maintain your speed and position your motorcycle as far away from the dog as you can.*



The Way to Go. Transportation Safety – ODOT

Section Eight

Passengers, Cargo and Group Riding

Only skilled, experienced riders should carry passengers or heavy loads or ride in groups. If you choose to carry passengers or heavy loads or ride in a group, you will need to know some important information.

Carrying Passengers and Cargo

Before carrying a passenger or heavy loads, know how both could affect motorcycle operation. The extra weight of a passenger or cargo will affect the way your motorcycle handles, requiring extra practice, preparation and caution. For this reason, only experienced riders should attempt to carry passengers or large loads. Before taking a passenger or heavy load on the street, adjust the air pressure of both tires and suspension settings to compensate for the additional weight. Refer to the owner's manual for more information.

When carrying a passenger, your motorcycle must have:

- Permanent seat(s) to carry both the operator and the passenger. No passenger, regardless of age, should be seated in front of you.
- Footrests for the passenger.

When riding with passengers:

- Ensure solid handholds for the passenger are available. The passenger can also hold on to your waist, hips or belt.
- Ride a little slower, especially when taking curves, corners or bumps.
- Start slowing earlier; you may need to use more pressure on the brakes.
- Wait for larger gaps to cross, enter or merge in traffic.
- Incorporate a larger cushion of space when stopping or slowing the motorcycle.

Only skilled, experienced riders should carry passengers or heavy loads or ride in groups.

Instructing Passengers

Your passenger should wear the same protective gear as you. As a routine practice, instruct your passenger on motorcycling basics prior to starting their trip. Even if your passenger is a motorcycle rider, provide complete instructions before you start.

Tell your passenger to:

- Keep both feet firmly planted on the motorcycle's footrests, even when stopped.
- Keep legs away from the muffler(s), chains or moving parts.
- Hold firmly onto your waist, hips or passenger handgrips.
- Sit as far forward, without crowding, directly behind you.
- Look over your shoulder in the direction of the turn or curve to help you lean in the direction of the turn or curve.
- Avoid unnecessary conversation and movement when the motorcycle is in operation.

Tell your passenger to tighten their hold when you:

- Approach surface problems.
- Are about to start from a stop.
- Are about to stop or make a sharp turn.

Carrying Loads

- **Keep the Load Low** – Secure loads as low as possible. Fasten loads securely, or put them in saddlebags or side cases. Piling heavy loads on the back of the seat changes the motorcycle's center of gravity and may disturb its balance.
- **Keep the Load Forward** – Place the load over, or in front of, the rear axle. Tank bags keep loads forward, but use caution when loading hard or sharp objects. Make sure the tank bag does not interfere with handlebars or controls. Mounting loads behind the rear axle can affect how the motorcycle turns and brakes. It can also cause a wobble.
- **Distribute the Load Evenly** – Load saddlebags or side cases with about the same weight on each side. An uneven load can cause the motorcycle to pull to one side. Overloading may also cause the bags to catch in the wheel or chain, locking the rear wheel and prompting the motorcycle to skid.
- **Secure the Load** – Fasten the load securely with elastic cords (bungee cords or nets). Elastic cords with more than one attachment point per side are more secure. A tight load won't catch in the wheel or chain. Rope tends to stretch and knots can come loose causing the load to shift or fall.
- **Check the Load** – Stop and check the load every so often to make sure it has not worked loose or moved.

Group Riding

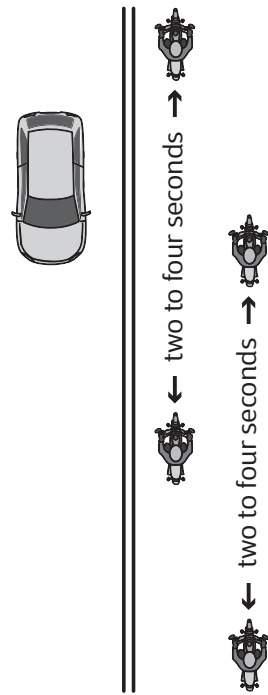
Riding with others is one of the many great experiences of motorcycling. Riding with other motorcyclists can help to increase rider visibility and safety. Responsible riders do so in a manner that neither endangers nor interferes with the free flow of traffic. Concentration and communication are essential to group riding. You should gain some riding experience before riding in a group. Riders with differing skill sets can lead to a less skilled rider getting in over their head and riding beyond their ability. To enhance safety and reduce the risk of injury when riding in groups you should:

- Communicate your route before riding.
- Keep the group small (3-5 riders) to avoid losing riders at the end.
- Keep your distance.
- Ride in staggered formation.
- Keep newer riders up front, right behind the leader.
- Move into single-file formation when riding curves, turns, or entering or leaving a highway.
- Establish hand signals for communication during the ride.

Staggered Formation

Don't pair up. The safest way to ride in groups is in staggered formation. The leader rides in the front on the left, while the second rider stays at least two to four seconds behind to the right. A third rider will ride in the left position two to four seconds behind the first rider. The fourth rider will keep a two to four second distance behind the second rider. This formation keeps the group close and allows each rider a safe distance within the group. If your group is riding at higher speeds, heavy traffic, bad weather, passing vehicles or riding single file around a curve, maintain at least four seconds following distance.

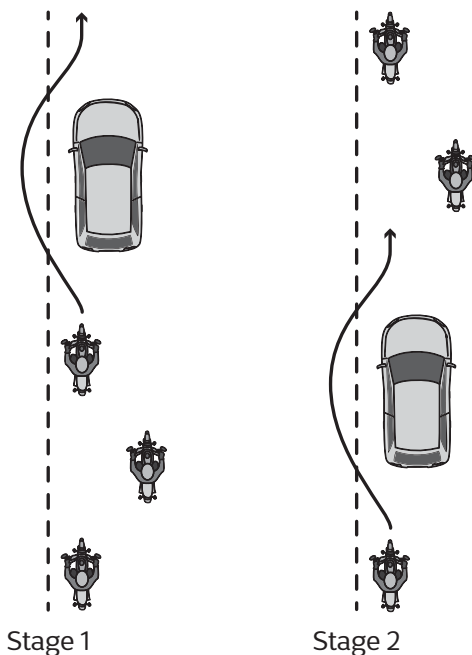
For speeds greater than 30 mph, a safe following distance should be four seconds or more to allow time to make a decision and take action.



Staggered Formation

Passing in a Group

- Riders in a staggered formation should pass one at a time.
- First, the lead rider should pull out and pass when it is safe. After passing, the leader should return to correct formation position – the left portion of the lane, and ride at passing speed to open up space for rider number two.
- After the first rider passes safely, the second rider should move from the right position to the left (lead) position and complete their pass, pulling into staggered formation behind the lead.
- The rest of the group follows this routine. Pass from the left position and return to the proper formation.
- The lead rider returns to cruising speed when the last rider has completed the pass.
- If being passed while riding in a group, maintain your lane position.



Test Your Knowledge

1. Extra weight of a passenger or cargo will: (Page 45)
 - A. *Improve the way your motorcycle handles improving the handling characteristics.*
 - B. *Affect the way your motorcycle handles, requiring extra practice, preparation and caution.*
 - C. *Have no additional impact on the motorcycle's maneuvering abilities.*
2. When you tell your passenger you are about to start from a stop, they should: (Page 46)
 - A. *Tighten their hold.*
 - B. *Lean to the right side.*
 - C. *Move back in the seat.*

Section Nine

Three-Wheel Motorcycles

Three-wheel motorcycles handle differently from cars and two-wheel motorcycles; most do not balance and lean like two-wheel motorcycles. Use caution and only ride once you have learned the necessary skills and experience to safely operate and control your three-wheel motorcycle.

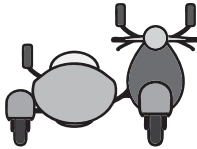
Common Operating Characteristics of Three-Wheeled Motorcycles and Motorcycles with a Sidecar

Types of Three-Wheel Motorcycles

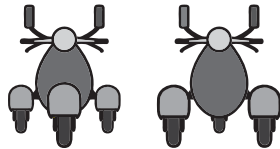
Traditional two-wheel motorcycles are considered single-track vehicles. Three-wheel motorcycles could have either double or triple tracks. Double track motorcycles are motorcycles with sidecars, while triple track motorcycles (trikes) can have either two front wheels or two rear wheels.



Motorcycle
2-wheel/single track



Motorcycle w/sidecar
3-wheel/double track



Three-Wheel Motorcycles
3-wheel/triple track

Differences between Two-Wheel Motorcycles and Three-Wheel Motorcycles

A three-wheel motorcycle is naturally more stable than a two-wheel motorcycle. However, under certain conditions it could tip over or lift one of the wheels off the pavement. In order to ensure its stability, you will need to pay attention to your body position, your speed and how you load a three-wheel motorcycle.

Three-wheel motorcycles also steer differently. Since most three-wheel motorcycles cannot lean, the front wheel must be pointed in the direction you want the motorcycle to go (much like using a steering wheel in a car).

Be Familiar with Your Motorcycle

Make sure you are completely familiar with the three-wheel motorcycle before you take it out on the street. Be sure to review the owner's manual. Remember three-wheel motorcycles take up more space than two-wheel motorcycles and you will need more space to maneuver.

Body Position

Your body position is important for control on a three-wheel motorcycle. You should be able to reach both handgrips comfortably while leaning and shifting your weight in turns.

Turning

Approach turns and curves with caution. If you enter a turn too fast, you may end up crossing into another lane of traffic, lifting a wheel or going off the road. Oversteering could cause the motorcycle to skid and you could lose control.

Hills

When riding uphill on a three-wheel motorcycle, some weight will shift to the rear causing the front of the vehicle to become lighter. This weight shift reduces the traction on the front wheel(s) for steering and braking. You should shift some of your body weight forward to maintain steering control.

When riding downhill, gravity increases the amount of braking force required to slow or stop the vehicle. It is important, therefore, to begin slowing earlier for cornering and stopping.

Lane Position

The width of a three-wheel motorcycle is similar to the width of some automobiles; therefore, unlike a two-wheel motorcycle, you are limited in lane positioning. Keep toward the center of the lane and within the lane markings.

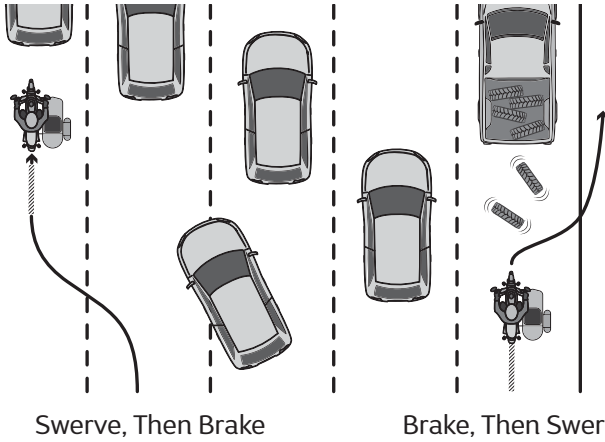
Lane positioning when riding in groups is also an important consideration. Ride single file and always maintain a safe margin, four seconds minimum, between motorcycles.

Center



Swerving

A three-wheel motorcycle is not as maneuverable as a two-wheel motorcycle. It is important to look well ahead to avoid the need for any sudden turns or swerving. Swerving is seldom the best option to avoid a collision. If swerving is required, brake either before or after the swerve, never while swerving. You should not attempt swerving unless you have proper skills and experience to do so. If you need to avoid a collision, the best option may be hard braking.



Cornering and Curves

When riding through curves, remember to keep all three wheels within your lane.

Adjust your speed before entering a curve. You may need to lean or shift your weight in the direction of the turn to avoid causing any of the wheels to leave the ground and possibly losing control.

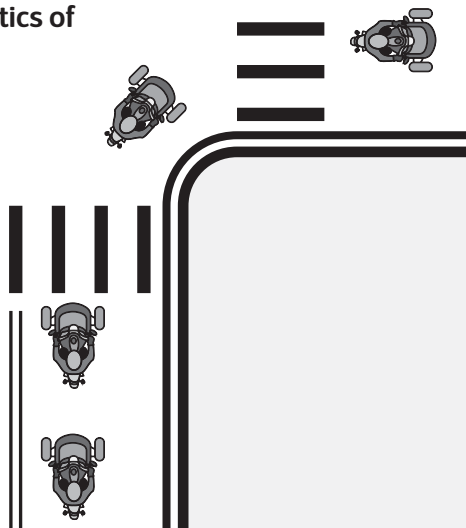
Unique Operating Characteristics of Triple-Track Motorcycles

Turning

Because the weight of a triple-track motorcycle is distributed almost equally between the two front or two rear wheels, these motorcycles handle the same in left and right turns.

When turning a triple-track motorcycle:

- Approach a turn with your head up, and look through the turn.



- Adjust speed before the turn to allow you to safely accelerate through the turn.
- Lean or shift your weight in the direction of the turn.
- Steer the front wheel(s) toward the turn.
- Accelerate gradually as you exit the turn.

Stopping Quickly

An important handling characteristic to be aware of on a triple-track motorcycle is that the two wheels will have more braking power than the single wheel. This is because weight does not shift as much to the single wheel on a triple-track motorcycle during hard braking. More of the weight stays on the two wheels and makes the brakes more effective. How much braking power varies by triple-track motorcycle design, consult your owner's manual.

Carrying a Passenger and Cargo

Only skilled, experienced riders should carry passengers or heavy loads. The additional weight of a passenger or cargo will change the handling characteristics of the vehicle.

If a passenger is being carried, the passenger will sit directly behind you. When carrying cargo, center the load and keep it low in the storage areas so it is balanced side-to-side. Refer to your owner's manual for more information.

Unique Operating Characteristics of a Motorcycle with a Sidecar

Stopping

Check your sidecar for brakes. Some sidecars are equipped with brakes while others are not. Your stopping distance and handling will be affected if your sidecar is not equipped with brakes.

You may need to steer slightly in the direction of the sidecar when applying the motorcycle brakes if your sidecar is not equipped with brakes.

Accelerating

During acceleration, steer slightly in the opposite direction from the sidecar to maintain a straight line path.

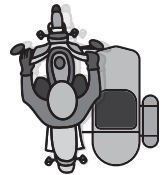
Stopping:

You may need to steer slightly in the direction of the sidecar.



Accelerating:

You may need to steer slightly in the opposite direction from the sidecar.



Turning

When operating a sidecar-equipped motorcycle, additional consideration needs to be given to the direction of the turn and amount of weight in the sidecar. When turning a motorcycle with a sidecar:

- Evaluate the degree of turn required.
- Adjust speed before the turn to allow you to safely accelerate through the turn.
- Lean or shift your weight in the direction of the turn.
- Maintain speed as you enter the turn.
- Accelerate gradually as you exit the turn.

Turning Left

During a left turn, the sidecar acts as a stabilizer, so the sidecar wheel stays on the ground. However, if the turn is taken too sharply or at too great a speed, it may cause the rear wheel of the motorcycle to lift off the ground and the nose of the sidecar to contact the pavement. This is a dangerous condition that could cause the sidecar to dig in and flip. The best way to prevent rear-wheel lift is to slow appropriately before the turn and shift your body weight away from the sidecar.

Turning Right

A right turn taken too sharp or at too great a speed may cause the sidecar wheel to lift off the ground. The lift will be greater if the sidecar is empty or lightly loaded. You can avoid this wheel lift by slowing before entering the turn and shifting more of your weight to the inside of the turn, towards the sidecar.

Stopping Quickly

Stopping quickly in a straight line is the primary technique for avoiding collisions in traffic. Always use the front and rear brakes simultaneously, adjusting pressure on the levers to apply maximum braking just short of skidding either wheel. If the wheels skid, ease off some of the pressure and then reapply to regain steering control.

Making quick stops in a curve is more difficult, especially if the road curves to the right. Hard braking in a curve to the right tends to lift the sidecar, which may require additional weight shift to the right to compensate. Stopping quickly in turns to the left is less dangerous because there is a reduced danger of tipping over. If you must stop quickly in a curve, maintain your path and brake smoothly and firmly with increasing pressure while shifting your body weight more into the turn.

Carrying Passengers and Cargo

Only skilled, experienced riders should carry passengers or heavy loads. The additional weight of a passenger or cargo will change the handling characteristics of the vehicle.

You must give some thought to where the passengers are seated and the loads are positioned. The best place for a passenger is in the sidecar. Avoid carrying a passenger behind you while leaving the sidecar empty. This could increase your chances for a tip over. If you have two passengers, place the heavier passenger in the sidecar to improve handling. The passenger sitting behind you should sit upright at all times. It is helpful, but not necessary, for the passenger to lean into curves with you. When loaded, your motorcycle will need more time and distance to stop. You will need to increase your following distance.

When carrying cargo in a sidecar, it should be centered low, over the sidecar axle and secured firmly in place. If the cargo shifts, handling will be affected.

Test Your Knowledge

1. If you need to avoid a collision while riding a three-wheel motorcycle, the best option may be: *(Page 51)*
 - A. *Swerving.*
 - B. *Hard braking.*
 - C. *Accelerating.*
2. Entering a turn or curve too fast may cause the vehicle to: *(Page 50)*
 - A. *Suddenly speed up.*
 - B. *Suddenly stall.*
 - C. *Cross into another lane of traffic.*
3. When riding three-wheel motorcycles in groups, ride: *(Page 50)*
 - A. *In staggered formation.*
 - B. *In single file.*
 - C. *Beside other vehicles.*
4. When turning a three-wheel motorcycle: *(Page 52)*
 - A. *Move back on the seat to increase rear wheel traction.*
 - B. *Countersteer to reduce lean angle.*
 - C. *Lean or shift your weight in the direction of the turn.*



Governor's Advisory Committee on Motorcycle Safety

The Governor's Advisory Committee on Motorcycle Safety (GAC-MS) is an eight-member committee devoted to rider safety. The committee focuses on rider education, unimpaired riding, rider training, and advising ODOT and local governments on best practices as they pertain to motorcycles in the construction, maintenance, and operations of highways, roads, and streets.

The GAC-MS is the voice of Oregon's riders. Riders can comment to the committee on motorcycle safety issues during regular meetings or send correspondence. The GAC-MS's meeting schedule, foundation documents, copies of pamphlets on the riding challenges unique to Oregon plus a state map of suggested routes can be found on the GAC-MS website below.

<http://www.oregon.gov/ODOT/Safety/Pages/GAC-MS.aspx>.

Motorcycles Make Sense — So Does Professional Training

Motorcycles are fun to ride and easy to park. Unfortunately, many riders never learn the critical skills needed to ride safely.

Professional training for beginning and experienced riders helps prepare them for real-world traffic situations.

Motorcycle training teaches and improves skills such as:

- Effective turning.
- Obstacle avoidance.
- Braking maneuvers.
- Traffic strategies.
- Protective apparel selection.



For the beginning, intermediate or advanced training course nearest you, visit:

team-oregon.org or call 800-545-9944

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