



MICHIGAN Motorcycle Operator Manual

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Michigan.gov/SOS



Michigan Department of State, April 2018

Although this publication includes information about Michigan traffic laws, it is not meant as a legal document or as a substitute for the Michigan Vehicle Code. Information in this publication is subject to change.

This manual is a supplement to Michigan's driver manual which covers rules of the road, signs, signals, roadway markings and safe driving practices.

Graphics and pictures contained within this manual are provided courtesy of Motorcycle Safety Foundation and Highway Safety Services, LLC.

Special thanks to the AAMVA Test Maintenance Subcommittee & Stakeholders Advisory Group for their contributions toward the development of this manual.

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QUICK TIPS: Should You Ride A Motorcycle?

Riding a motorcycle is a unique experience. Riding is fun and invigorating, yet the skills needed for safe riding, combined with the lack of car-like crash protection on a motorcycle, can cast doubts on whether a person should choose to ride a motorcycle. Some potential riders lack the ability to execute skilled and timely actions in a complex traffic environment; others lack keen judgment or don't have a firm grasp of the concept of risk management.

MSF believes that motorcycling isn't for everyone. If you're considering becoming a rider, however, here are some questions for you to use as a self-assessment of the physical capabilities and mental attitude required to safely navigate a motorcycle on the street:

1. Are you a higher risk-taker than others you know? If you tend to need a thrill while driving a car and have aggressive or risky tendencies (following too closely, turning without signaling, talking on a cell phone, getting angry at other drivers, etc.), motorcycling may not be for you. While motorcycling improves the overall quality of life for many, for some it can lead to disaster. Thinking that accidents only happen to others is an attitude that will get you in trouble.
2. Can you ride a bicycle? This is a prerequisite for enrolling in our Basic *RiderCourse* and generally a good gauge of your ability to maneuver a motorcycle. Bicycling, like motorcycling, is a physical activity that involves balance and coordination. And speaking of coordination ...
3. Can you drive a stick-shift car? This is *not* a requirement, but it may make learning to ride easier because almost all motorcycles have manual transmissions. If you can't get the hang of shifting gears but still want to enjoy a powered two-wheeler, you might want to start out on a motor scooter. Motor scooters generally have automatic transmissions and come in many sizes, from simpler models with an engine size of 50 cubic centimeters (cc) to powerful 650cc models.
4. Do you see well? Riding a motorcycle requires special perceptual skills that rely on good vision. Have you had an eye examination recently? Do you tend to see things that are far away later than other people you know? The ability to see well ahead is important for safe riding.

5. Are you mechanically inclined? Today's motorcycles are very reliable machines, but with all the bolts, nuts, and mechanisms out in the open, and only two tires connecting you to the pavement, you need to be able to inspect your equipment and make the occasional minor adjustment. You don't need to be a master mechanic, but it helps to know your way around a tire pressure gauge and a wrench. Most everything a rider needs to know is in the motorcycle owner's manual, and if you've never read your car owner's manual, that could be a sign that motorcycling is not for you.
6. Are you safety-minded? If you routinely find yourself bandaged up after doing simple do-it-yourself projects around the house, or think it's acceptable to operate a motor vehicle under the influence of alcohol, the unique challenges of motorcycle riding may not be compatible with your decision-making. Riders can control their situation only if safety is a high priority. Millions of motorcyclists ride millions of miles without incident, and they likely take safety seriously.
7. Do you respect machinery and other equipment that has risk? For example, when using a lawn mower or chainsaw, do you maintain it properly and wear eye/ear/hand protection when needed? If you're not serious about safety in connection with simple machinery and equipment whose improper use can lead to serious injury, you may not respect motorcycling enough to follow safety precautions. Successful riders know that safety isn't a matter of luck, but a matter of doing the right things to minimize risk.
8. Can you focus? Inattention is a major cause of crashes. Safe motorcycling requires dedicated attention to the immediate task and a keen awareness of everything going on 360 degrees around you. Rush-hour traffic aboard a motorcycle is not the place to be daydreaming. For instance, if you find yourself overusing your brakes because you were caught off-guard, or are often surprised by a passing car or truck you didn't see, your situational awareness could be less than adequate.
9. Can you handle your car in an emergency? Drivers don't often have the need to brake hard or swerve to miss a crash, but it's important to have the skills to be able to do so when needed. On a motorcycle, having these types of skills is essential because other highway users tend not to see motorcyclists in traffic, especially around intersections.
10. Are you willing to invest some time in learning to ride the right way *before* hopping on a bike? Your best "first ride" is a Basic *RiderCourse* where you can familiarize yourself with the safe operation of a motorcycle. You can even take the course as an experiment, to help you better understand the dynamics of good riding and to determine if motorcycling is right for you.

Section One Motorcycle Rider Licensing

Motorcycling is a unique experience. Compared to a car, you don't sit in a motorcycle, you become part of it. Not as a passive driver, but as an active rider, arcing into a string of smooth corners, playing along with the rhythm of the road; shifting, accelerating and braking with precision. Whether you ride to-and-from work or prefer the camaraderie of a group ride on the weekend, motorcycling engages all your senses and creates an invigorating sense of freedom.

Along with that freedom, comes responsibility. All states require some form of license endorsement demonstrating you possess a minimum level of skill and knowledge. Take your time learning how to operate your motorcycle and get plenty of riding experience. Find an experienced and responsible motorcyclist to mentor your learning. This mentoring and riding experience will prepare you for handling today's traffic environment



This Section Covers

- The Michigan Rider Education Program (Mi-REP)
- Michigan Laws - Motorcycle Operation
- Alcohol and the Law
- Drugs and the Law
- Michigan Laws
- Types of Motorcycle Endorsement or Permits
- Applying for a Motorcycle Endorsement
- Motorcycle Registration Requirements
- General Driver's License Renewal Information

and reduce the potential for a crash. All riders are encouraged to attend an entry-level rider education course which provides the information and hands-on training required to obtain a motorcycle endorsement. You'll learn how to improve your riding skills and mental strategies, so you can be a safer, more alert rider. This booklet and other motorcycle publications can help prepare you to be successful.

The Michigan Rider Education Program

Administering the Michigan Rider Education Program (Mi-REP) is an important aspect of the Michigan Department of State's traffic safety mission. Michigan's program uses safety standards established by the Motorcycle Safety Foundation (MSF) to ensure consistent and comprehensive training. All motorcycle riders must complete a motorcycle rider education class or pass a knowledge test and Rider Skills Test in order to obtain a motorcycle endorsement, which is required to legally ride on public streets and highways. Successful completion of an approved rider education course allows you to waive the Rider Skills Test requirement and the Secretary of State office knowledge test. Courses are designed for novices and experienced riders.

The Mi-REP helps riders lay the foundation for the good judgment,



www.michigan.gov/motorcycling

skills and experience which are required for operating a motorcycle safely. Returning or experienced riders can also benefit from training by renewing or sharpening the skills necessary for safe motorcycling. Some insurers offer discounts on motorcycle insurance premiums for riders who complete these courses. Visit www.michigan.gov/motorcycling to find a motorcycle rider education course near you.

Reciprocity for Out-of-State Motorcycle Rider Training Programs

Michigan riders applying for their motorcycle endorsement, that have completed a training course outside of Michigan, must submit their out-of-state motorcycle rider safety completion card to the Secretary of State's Office before an endorsement can be issued. The requirement to pass a motorcycle Rider Skills Test or motorcycle rider education course may be waived in these cases. For more information, visit www.michigan.gov/Mi-REP.

Accommodations for People with Disabilities and Non-Native Speakers

The Mi-REP and its motorcycle rider education training sponsors are in compliance with the Americans with Disabilities Act and the Michigan Persons with Disabilities Civil Rights Act. If you need accommodation or have been denied services, call 888-SOS-MICH (767-6424). Hearing impaired customers should contact the Michigan Relay Service at 711 or the Michigan Division on Deaf, DeafBlind and Hard of Hearing at 313-437-7035 or doddbhh@michigan.gov. A deaf or hard of hearing individual may use a sign language interpreter during a rider education course. The Department of State Information Center can provide a list of interpreters if you call 888-SOS-MICH (767-6424).

A student may bring a foreign language interpreter to translate instruction in the classroom and on the range. All interpreters must be at least 16 years old. The interpreter

must present a driver's license or other photo identification to the RiderCoach at the training site. The RiderCoach must record the interpreter's name and identification information.

Testing Improprieties

Michigan law mandates that:

- Any Third-Party Testing Organization or motorcycle rider education provider who intentionally misrepresents a riding skills test by omitting any testing requirement or procedure, or participates in any illegal activity related to driver licensing, is subject to severe penalties. Those include loss of the testing authorization, criminal prosecution and restitution for monetary damages to the test applicant, the department or both.
- Any person, including the examiner or applicant, who knowingly encourages, facilitates or participates in improper, illegal or fraudulent driver testing is also subject to criminal prosecution.
- Any person found to have been improperly, illegally or fraudulently tested must take the appropriate tests again. The fee for retesting may be charged to the applicant.
- Improper, fraudulent or unlawful driver's license tests result in illegal license applications.

Under the Michigan Vehicle Code (Public Act 300 of 1949), it is a felony:

- To make a false certification regarding any driver's license application.
- To bribe or attempt to corrupt a person or agency that conducts a driving test with the intent to influence the opinion or decision of the tester.
- For an examining officer who conducts a driving test under an agreement entered into with the Department of State to vary from, shorten or in any other way change the method or examination criteria prescribed under that agreement.

- For a person to forge, counterfeit or alter a driving test certification issued by a designated examining officer.

A felony committed under these laws is punishable by one to five years in prison and a maximum \$5,000 fine for the first offense. Subsequent convictions result in additional penalties.

Business Requirements for Rider Education Providers

Rider education providers must adhere to certain business practices and standards established by the Motorcycle Safety Foundation and Mi-REP. Rider education providers must:

- Be approved by the department before services are offered.
- Employ only Motorcycle Safety Foundation-certified RiderCoaches.
- Maintain an established place of business and obtain written permission to use all approved test sites.
- Publish a printed fee and refund policy and provide receipts. Test fees are set by state law for public providers and by the provider for private providers.
- Maintain liability insurance.

Business Requirements for Third-Party Testing Organizations

Third-Party Testing Organizations must adhere to certain business practices and administer driving skills tests according to established standards and procedures contained in a formal, legal agreement with the department. Among many contract requirements, Third-Party Testing Organizations must:

- Be approved by the department before testing services are offered.
- Maintain an established place of business and obtain written permission to use all approved test sites.
- Respond to all driver-testing service inquiries by the next business day.

- Publish a printed fee and refund policy and provide receipts. Test fees are set by the Third-Party Testing Organization and are not regulated by law.
- Maintain a surety bond.
- Ensure examiners attend and pass all required training and obtain department authorization before administering tests.

Reporting Improper, Illegal or Fraudulent Test Activities

If you are aware of any improper, illegal or fraudulent testing activities, report them immediately to the Department of State. Please be sure to include the names of the people and organizations involved, the date of the incident and a detailed description of the activities observed or discussed. All legitimate reports will be investigated. A written statement may be required. This information should be submitted to the:

Michigan Department of State
Driver Programs Division
Richard H. Austin Building
430 W. Allegan St., 3rd Floor
Lansing, MI 48918
Phone 517-241-6850
Fax 517-373-0964
ThirdPartyTesting@Michigan.gov

Michigan Laws Regarding Motorcycle Operation

Before traveling, make sure you are aware of any state laws that affect the operation of a motorcycle. Michigan has several laws concerning registration, motorcycle endorsements and safe riding equipment – as well as traffic laws – that motorcyclists are required to obey. The Motorcycle Safety Foundation (MSF) urges all motorcycle operators and passengers to wear a U.S. DOT-approved helmet at all times when riding. However, under Michigan law, helmet use is not mandatory in some situations.

In Michigan, a helmet is required if you are:

- Taking a state-approved motorcycle rider education course.
(www.michigan.gov/motorcycling)
- Taking a state-approved Rider Skills Test.
(www.Michigan.gov/motorcycletest)
- Under the age of 21.
- Age 21 or older and:
 - Have had your motorcycle endorsement (CY) for ***less than two years OR have not passed a state-approved motorcycle rider education course.***
 - Do not have at least \$20,000 in first-party medical benefits. (A motorcycle operator with a rider must have not less than \$20,000 per person per occurrence.)

Types of Two- and Three-Wheeled Vehicles

“Motorcycle” means every motor vehicle having a saddle or seat for the use of a rider and designed to travel on not more than three wheels in contact with the ground but excluding a tractor.
MCL 257.31.

“Moped” means a two- or three-wheeled vehicle that is equipped with a motor that does not exceed 100 cubic centimeters piston displacement, cannot propel the vehicle at a speed greater than 30 miles per hour on a level surface, and its power drive system does not require the operator to shift gears. MCL 257.32b.

“Autocycle” means an enclosed motorcycle that is equipped with safety belts, roll bar, windshield, wipers, steering wheel and equipment otherwise required on a motorcycle, and has not more than three wheels in contact with the roadway at any one time. MCL 257.25a.

Street-Legal Motorcycle

At minimum, your street-legal motorcycle should have:

Registration [license] plate; attachment to vehicle; legibility...

(1) Except as otherwise provided in this

subsection and subsection (6), a registration plate issued for a vehicle shall be attached to the rear of the vehicle . . .

(2) A registration plate shall at all times be securely fastened in a horizontal position to the vehicle for which the plate is issued so as to prevent the plate from swinging. The plate shall be attached at a height of not less than 12 inches from the ground, measured from the bottom of the plate, in a place and position that is clearly visible. The plate shall be maintained free from foreign materials that obscure or partially obscure the registration information and in a clearly legible condition . . .
MCL 257.225(1)(2).

Handlebars of motorcycle . . .

A person shall not operate . . . a motorcycle or moped equipped with handlebars that are higher than 15 inches from the lowest point of the undepressed saddle to the highest point of the [handle grips].
MCL 257.661a.

Head lamps; number; modulator; height . . .

(2) A motorcycle or moped shall be equipped with at least 1 (one) and not more than 2 (two) head lamps that comply with this chapter.

(3) A motorcycle or moped head lamp may be wired or equipped to allow either its upper beam or its lower beam, but not both, to modulate from a higher intensity to a lower intensity. A head lamp modulator installed on a motorcycle or moped with two head lamps shall be wired in a manner to prevent the head lamps from modulating at different rates or not in synchronization with each other. A head lamp modulator installed on a motorcycle or moped shall meet the standards prescribed in 49 CFR 571.108.

(4) Every head lamp upon a motor vehicle shall be located at a height measured from the center of the head lamp of not more than 54 inches nor less than 24 inches above the level surface upon which the vehicle stands.
MCL 257.685(2)(3)(4).

Clearance and marker lamps and reflectors; color.

(a) [Those] mounted on the front or on the side near the front of a vehicle shall display or reflect an amber color.

(b) [Those] mounted on the rear or on the sides near the rear of a vehicle shall display or reflect a red color.

(c) All lighting devices and reflectors mounted on the rear of any vehicle shall display or reflect a red color, except the stop light or other signal device, which may be red or amber, and except that the light illuminating the license plate shall be white.

MCL 257.689.

Spot lamps; fog lamps.

(a) . . . a motorcycle shall not be equipped with more than 1 (one) spot lamp, and every lighted spot lamp shall be so aimed and used upon approaching another vehicle that no part of the beam will be directed into the eyes of the approaching driver. Spot lamps may not emit other than either a white or amber light.

(b) A motor vehicle may be equipped with not more than 2 (two) fog lamps mounted on the front at a height of not less than 12 inches nor more than 30 inches above the level surface upon which the vehicle stands.

MCL 257.696.

Rear stop lamps.

. . . A motorcycle or moped shall be required to have 1 (one) rear stop lamp.

MCL 257.697b.

Side cowl or fender lamps; running board courtesy lamp; backing lights; lamp or reflector; flashing, oscillating, or rotating lights . . . violation as civil infraction.

(4) . . . A lamp or a part designed to be a reflector, if visible from the front, shall display or reflect a white or amber light; if visible from either side, shall display or reflect an amber or red light; and if visible from the rear, shall display or reflect a red light, except as otherwise provided by law . . .

MCL 257.698(4).

Brake equipment.

(b) A motorcycle or moped when operated upon a highway shall be equipped with at least 2 (two) brakes, 1 (one) on the front wheel and 1 (one) on the rear wheel, that may be operated by hand or foot . . .

MCL 257.705(1)(b).

Horn or other warning device. . .

(a) . . . a motorcycle or moped, when operated upon a highway, shall be equipped with a horn in good working order and capable of emitting sound audible under normal conditions from a distance of not less than 200 feet, but a horn or other warning device shall not emit an unreasonably loud or harsh sound or a whistle . . .

MCL 257.706(a).

Muffler, engine . . . and exhaust system . . .

(1) . . . a motorcycle or moped shall at all times be equipped with a muffler in good working order and in constant operation to prevent excessive or unusual noise and annoying smoke. A person shall not remove, destroy or damage any of the baffles contained in the muffler, nor shall a person use a muffler cutout, bypass or similar device upon a motorcycle or moped on a highway or street . . .

MCL 257.707(1).

Noise limitations; prohibitions.

(1) After April 1, 1978, a motor vehicle shall not be operated or driven on a highway or street if the motor vehicle produces total noise exceeding one of the following limits at a distance of 50 feet except as provided in subdivision (b)(iii) . . .

(b) A motorcycle or a moped:

(i) 86 DBA if the maximum lawful speed on the highway or street is greater than 35 miles per hour.

(ii) 82 DBA if the maximum lawful speed on the highway or street is not more than 35 miles per hour.

(iii) 95 DBA under stationary run-up test at 75 inches . . .

MCL 257.707c(1)(b)(i)(ii)(iii).

257.707a. . .

(b) “Decibels on the a-weighted network” or “DBA” means decibels measured on the a-weighted network of a sound level meter, as specified in American National Standards Institute standard S 1.4-1971.

MCL 257.707(a).

Mirrors.

. . . All motor vehicles shall be equipped with an outside rearview mirror on the driver’s side, which shall be positioned to give the driver a rear viewing angle from the driver’s side of the vehicle. . . Rearview mirrors may be positioned on the helmet or visor worn by the operator of a motorcycle if the helmet is securely attached to the head of the operator. . .

MCL 257.708.

Tires. . .

(f) A person shall not operate a vehicle on a highway when a tire in use on that vehicle is unsafe as provided in subsection (h).

(h) A tire is unsafe if it is in any of the following conditions:

(i) Has a part of the belting material, tire cords, or plys exposed.

(ii) Has evidence of cord or tread separations.

(iii) Is worn to or below the minimum tread level in two or more adjacent major grooves at three or more locations spaced around the circumference of the tire. Minimum allowable tread levels are as follows:

Motorcycles and moped.....1/32 inch front and rear

(iv) Has a marking “not for highway use,” “for racing purposes only,” “for farm use only,” or “unsafe for highway use.”

(v) Has been regrooved or recut below the original tread design depth except in the case of special purpose designed tires having extra undertread rubber provided for this purpose and identified as those tires . . .

MCL 257.710(f)(h)(i)(ii)(iii)(iv)(v).

Alcohol and the Law

Drinking and Driving in Michigan

Operating a motor vehicle while intoxicated MCL 257.625 [Excerpt]

It is illegal to operate a motor vehicle in Michigan:

- While intoxicated or impaired by alcohol, illegal drugs and certain prescribed medications.
- With a Bodily Alcohol Content (BAC) of 0.08 or greater (operating while intoxicated) or with a BAC of 0.17 or greater (high BAC).
- With the presence of a Schedule 1 drug or cocaine. Included in this group are marijuana, Ecstasy, hallucinogens, designer amphetamines and heroin.

Drunken drivers face swift and tough action under Michigan’s drunken driving laws. The laws:

- Require courts to decide drunken driving cases within 77 days after an arrest.
- Require a six-month driver’s license suspension, even for a first conviction. Drivers may be eligible to receive a restricted license after serving 30 days of the suspension.
- Require five days to one year of jail time, 30 to 90 days of community service or both, for a second conviction of drunken driving.
- Include a felony for a conviction for drunken driving that causes death.
- Include a felony for a conviction for drunken driving that causes a serious injury to another.
- Require fines for a conviction of driving while a driver’s license is suspended or revoked of up to \$500 for a first offense and \$1,000 for an additional offense.
- Do not allow hardship appeals for habitual alcohol offenders.
- Require a \$125 reinstatement fee if your driver’s license was suspended, revoked or restricted.

Drugs and the Law

Marijuana and Motorcycle Operation

Marijuana is gaining acceptance as having legitimate medicinal applications and as a recreational drug in the United States, as evidenced by recent trends in state laws permitting its use. Even if marijuana is legal for medicinal or recreational use in the state in which you are riding, operating a motor vehicle while under the influence of marijuana is not legal, and it is risky because the drug can distort your perception of space, time and speed. This is especially critical for motorcycle riders, who must continually make detailed assessments of complex traffic situations and make split-second decisions requiring precise rider input to navigate safely and maintain an adequate safety margin.

States are beginning to set marijuana impairment limits based on blood content levels of marijuana's primary psychoactive ingredient, THC. However, compared to alcohol and BAC level, it is difficult to determine the relationship between the amount of marijuana ingested and the resulting THC level in the blood. Complicating factors include marijuana's potency, which is highly variable, and ingestion method, which has significant bearing on the onset and duration of impairment. When marijuana is smoked, its effects generally begin within a few minutes and can last from 2 to 4 hours. But when marijuana is eaten, the onset of effects could be delayed for more than an hour and the duration of the "high" could be more than 6 hours.

Be safe. Do not operate your motorcycle or any motor vehicle if you are impaired by marijuana, and find alternate transportation if you are planning to be under the influence of marijuana at your destination. Just as with alcohol, riders impaired by marijuana can be convicted of riding under the influence, and be subjected to similar harsh penalties.

Michigan Laws

For information about all of Michigan's compiled laws, visit www.legislature.mi.gov

Types of Endorsements and Permits

Motorcycle Temporary Instruction Permit

The intention of the motorcycle Temporary Instruction Permit (TIP) is to give new riders an opportunity to practice riding on public roads under the constant supervision of an experienced motorcyclist before taking the motorcycle Rider Skills Test. The TIP is simply a transitory tool used to obtain the Michigan motorcycle endorsement. A TIP is valid for 180 days and is required for the Rider Skills Test.

To obtain a motorcycle TIP you must:

- Be at least age 16. Teens ages 16-17 must have a valid Level 2 or Level 3 Graduated Driver License and present proof of enrollment in, or completion of, an approved motorcycle rider education course. A parent's signature is required for anyone under age 18 wishing to obtain a motorcycle TIP unless the applicant is an emancipated minor.
- Hold a valid Michigan driver's license.
- Pass the vision and motorcycle knowledge tests.
- Pay the TIP fee.

Operating with a Temporary Instruction Permit

A Temporary Instruction Permit (TIP) allows you to legally operate a motorcycle for 180 days. A TIP requires that you:

- Carry the permit with you when riding.
- Ride under the constant visual supervision of a licensed motorcycle operator who is at least 18 years old.
- Ride only during the day – nighttime riding is not permitted on a TIP.
- Do not carry any passengers.

Only two motorcycle TIPs will be issued to you during a 10-year period. [MCL 257.306(5).] If your second TIP has expired or if you have failed two motorcycle Rider Skills Tests, you must pass a motorcycle rider education course to obtain your endorsement.

Motorcycle Endorsement



(1) A person, before operating a motorcycle, other than an auticycle, upon a public street or highway, shall procure a motorcycle endorsement on his or her operator's or chauffeur's license. . . .

(4) A person who violates subsection (1) is guilty of a misdemeanor punishable as follows:

(a) For a first violation, by imprisonment for not more than 90 days or a fine of not more than \$500.00, or both.

(b) For a violation that occurs after a prior conviction, by imprisonment for not more than one year or a fine of not more than \$1,000.00, or both. MCL 257.312a.

In addition to the penalties outlined in the law, your motorcycle can be towed and impounded. Let's face it, you're **unendorsed** and you've just been pulled over by a law enforcement officer. After the traffic stop, you can't legally ride your motorcycle home, and parking it on the roadside until you can make arrangements to have it picked up leaves your bike vulnerable to theft or damage. Towing and impounding your bike is a possible outcome if you are caught riding unendorsed.



Three-Wheel Motorcycle Endorsement

An endorsement issued to operate a three-wheel motorcycle, other than an auticycle, is restricted to that operation and does not permit operation of a two-wheel motorcycle. MCL 257.312b (3).

*Three-wheel License Restriction Code: 20



Applying for a Motorcycle Endorsement

To operate a motorcycle on public roads, you must possess a valid Michigan driver's license with a motorcycle endorsement. The cost of the motorcycle endorsement is added to the regular driver's license fee. A motorcycle endorsement may be obtained by either successfully completing a motorcycle rider education course or a Rider Skills Test (which includes a knowledge test given at a Secretary of State office). The requirements for obtaining a motorcycle endorsement differ for teens and adults.

- www.Michigan.gov/motorcycling to find a motorcycle rider education course.
- www.Michigan.gov/motorcycletest to find a Third-Party Testing Organization that offers the Rider Skills Test.

Teens

To apply for a motorcycle endorsement, you must be at least 16 and:

- Possess a valid Level 2 or Level 3 Graduated Driver License.
- Successfully complete an approved motorcycle rider education course.
- Visit a Secretary of State office and present the motorcycle rider education course completion certificate and pass the vision test. Your parent or legal guardians' signature is required if you are under age 18.

Adults

To obtain a motorcycle endorsement by taking a motorcycle rider education course, you must:

- Successfully pass a motorcycle rider education course.
- Present your driver's license and certificate of course completion to a Secretary of State clerk.

- Pass the vision test.
- Pay the motorcycle endorsement fee.

To obtain a motorcycle endorsement by taking the Rider Skills Test offered through a Third-Party Testing Organization, you must:

- Be at least age 18.
- Possess a valid driver's license.
- Pass the written knowledge test and vision test administered at a Secretary of State office.
- Obtain a motorcycle Temporary Instruction Permit and practice riding under the supervision of an endorsed motorcycle rider for up to 180 days. (Only two TIPs will be issued in a 10-year period.)
- Pass the Rider Skills Test given by a Third-Party Testing Organization approved by the Department of State.
- Visit a Secretary of State office and present your Rider Skills Test certificate of completion, your motorcycle TIP and your driver's license, and pay the motorcycle endorsement fee.

You will be required to take a rider education course if you fail the motorcycle Rider Skills Test twice.

Motorcycle Rider Education Courses

Motorcycle rider education courses are offered by private and public sponsors statewide throughout the motorcycling season. Fees will vary, depending on the provider. Mi-REP offers several motorcycle rider education courses for different skill levels. All motorcycle rider education courses are taught by certified RiderCoaches.

- **A Basic Rider Course (BRC)**, Classroom instruction in addition to practice time using training motorcycles on a motorcycle range is provided in the BRC. BRC riders finish the three-day course by taking a written knowledge test and a riding skills test on the practice range. You must pass both the knowledge and riding skills tests to obtain a BRC certificate of completion. Present the BRC certificate of completion and your driver's license when applying for the endorsement at a Secretary

of State office. You do not need to own a motorcycle to take a BRC.

- **3-Wheel Basic Rider Course (3WBRC)**, The 3-Wheel Basic Rider Course is the best place for motorcyclists to learn about riding a three-wheel motorcycle. The course includes four hours of classroom activities and up to eight hours of on-cycle riding exercises. Students must pass a written knowledge test and a skills test as part of the requirements to successfully complete the course. Students who obtain their certificate of course completion may qualify for a discount on their insurance. The three-wheeled vehicle endorsement cannot be used to operate a two-wheeled motorcycle. Most courses require students to have their own three-wheeled vehicle and insurance; check with the provider before enrolling in a class. The motorcycle must be properly titled and registered, display a valid license plate and pass a safety inspection.
- **Returning Rider Basic Rider Course (RRBRC)**, Successful completion of this course allows you to go to the Secretary of State office to obtain a motorcycle endorsement in lieu of taking a Rider Skills Test. This one-day program includes elements from the Basic Rider Course (BRC). A knowledge test and Rider Skills Test will be given. It is designed for riders who want to brush up on their basic skills or who want to obtain a motorcycle endorsement. Students must provide their own motorcycle and proof of insurance. The motorcycle must be properly titled and registered, display a valid license plate and pass a safety inspection. Automatic shift motorcycles will be allowed in this class.
- **Advanced Rider Courses (ARC)** A one-day course that complements a rider's basic skills and helps with personal risk assessment. It includes a fast-paced classroom segment with several interactive activities to improve perception and hazard awareness. Range exercises enhance both basic skills and crash avoidance skills. Improving braking and cornering finesse is emphasized. The course is beneficial for riders on any type of street

motorcycle. The ARC is for riders who already have their endorsement and who want to sharpen their riding skills. Students must provide their own motorcycle and proof of insurance. The motorcycle must be properly titled and registered, display a valid license plate and pass a safety inspection.

Rider Skills Test

Rider Skills Tests are another good measurement of the skills necessary to operate a motorcycle safely in traffic. Assessing your own skills is not enough. People often overestimate their own abilities. It's even harder for friends and relatives to be totally honest about your skills. The Rider Skills Test is designed to be scored objectively by a certified Rider Skills Test examiner. Rider Skills Tests are provided by Third-Party Testing Organizations approved by the Michigan Department of State. Test fees are set by the testing organization and may vary, so be sure to ask about costs when calling providers in your area for information.

What to Expect During the Rider Skills Test

Following are the required skills test elements and approximate times for the test. The allotted times are estimated minimums. Visit the department's website at www.michigan.gov/motorcycletest for more information.

- Vehicle inspection – 5 minutes, not scored.
- Basic control skills on range – 10 minutes, scored.

During the Rider Skills Test, authorized examiners must always:

- Read standard instructions to each applicant for each part of the test (a list of instructions is provided to the examiner for this purpose).
- Use only department-approved, off-street exercises.

Before taking the Rider Skills Test, you must:

- Have a legally equipped and registered motorcycle.

- Wear the proper gear, including a U.S. DOT-approved, labeled and properly fastened helmet. The skills test will not be given if you are not wearing an approved helmet.

To drive a motorcycle to your skills test, you must wear a DOT-approved helmet, you must have a valid motorcycle TIP and you must be under the constant visual supervision of a licensed motorcycle operator at least age 18.

The motorcycle skills test approved by the Department of State has seven exercises that gauge your ability to handle a motorcycle, including starting, accelerating, turning and braking. The test, on page 12, consists of four riding exercises that measure your motorcycle control and hazard response skills and will take about 15 minutes to complete. (These same range exercises are also used to evaluate a rider's skill in the basic motorcycle rider education courses.)

Engine stall: This is scored during the entire test. Points are assessed each time you stall the engine during any exercise.

1. **Cone weave:** You must weave through a series of five cones that are placed 12 feet apart.
Normal stop: You must make a smooth stop without skidding, with the front tire of your motorcycle in a painted box.
2. **Right turn from a stop:** You take off from a stop making an immediate right turn.
U-Turn: You must make a left U-turn in a marked area. Those operating motorcycles over 600 cc are allowed more room to complete the U-turn. Motorcycles of 600 cc or less have a smaller U-turn area.
3. **Quick stop:** You accelerate along a straight path. At the end of the path (marked by cones), you must stop your motorcycle as quickly and safely as possible.
4. **Obstacle swerve:** You accelerate along a straight path. At the end of the path (marked by cones), you must swerve to avoid an obstacle line and then swerve to avoid the sidelines of the exercise.

Vision Test

You will be given a vision test to determine if your vision meets minimum standards. If corrective lenses are needed to pass the test, your driver's license will show you must wear corrective lenses while driving. If you fail the vision test, your eye-care specialist must complete a vision statement. A favorable vision statement means a driver's license can be issued. Sometimes special driving limitations, such as "daytime driving only," will be required if a vision statement indicates it. If the vision statement is not favorable, your application will be denied.

Knowledge Test

A motorcycle safety knowledge test given at a Secretary of State office must be passed before a motorcycle TIP can be issued. Knowledge test questions are based on information, practices and ideas from this manual. They require that you know and understand the rules of the road and safe riding practices. The knowledge test and Rider Skills Test requirements are waived if you have successfully passed a motorcycle rider education course approved by the department.
MCL 257.309 (10).

Motorcycle Registration Requirements

Under Michigan law, motorcycle registrations are issued for one year and expire on the owner's birthday. You must register your motorcycle at a Secretary of State office if you plan to operate it on public roads. When registering, you will need to provide:

- Proof of insurance for at least \$20,000/\$40,000 public liability and \$10,000 property damage coverage.
- For an original registration, your motorcycle title.
- For a renewal registration, your renewal notice or last year's registration.

Renewing Your Motorcycle Registration

Proof of insurance is required when renewing your motorcycle registration and license plate. If your renewal notice has a Personal Identification Number (PIN) or the phrase "insurance verified electronically" printed on it, you:

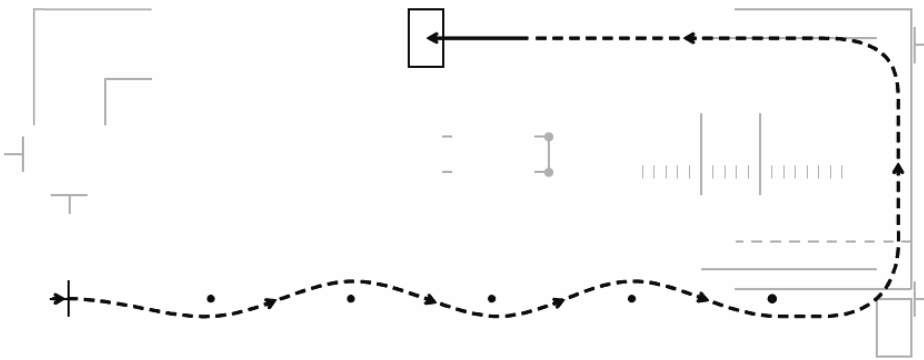
- Do not need to provide proof of insurance when renewing by mail or at a Secretary of State office.
- Have the option to renew online or at a Self-Service Station.

Tips When Renewing:

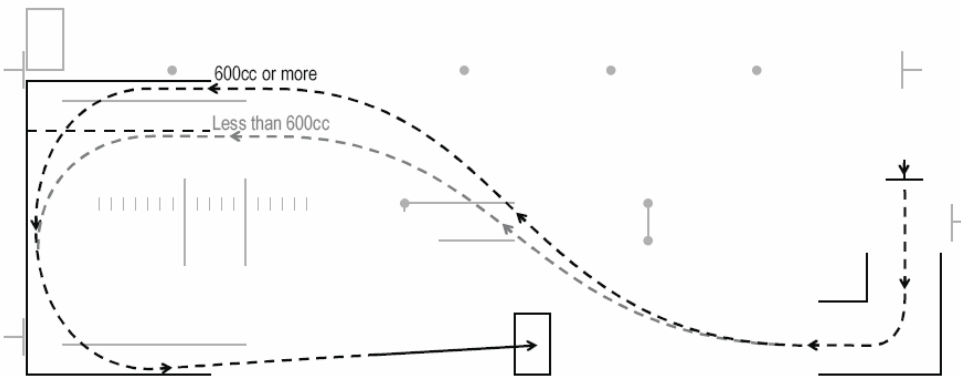
- Online – ExpressSOS.com – Hop online, not in line, to ExpressSOS.com, featuring Print 'N Go technology. Click on "Renew Vehicle Plate/Tab" and you will finish with a copy of your new registration in hand.
- Self-Service Station – Self-Service Stations are available at many Secretary of State offices and some are available 24/7. Your tab and registration are issued immediately.
- Mail – A worksheet and an addressed envelope is provided with your renewal notice.
- In person – Visit any Secretary of State office to renew in person.
- Debit and credit cards – Discover, MasterCard and Visa are accepted when renewing online, at Self-Service Stations and at the counter of all branch offices. A nominal processing fee may be charged.
- Cash, checks or money orders – Checks and money orders may be used when renewing by mail or at a branch office. Branch offices also accept cash.
- Your tab and registration will arrive within 14 days. These are issued immediately when renewing at a branch office or Self-Service Station.

For more information, please refer to your renewal notice, visit the Secretary of State website at www.Michigan.gov/sos or call 888-SOS-MICH (767-6424).

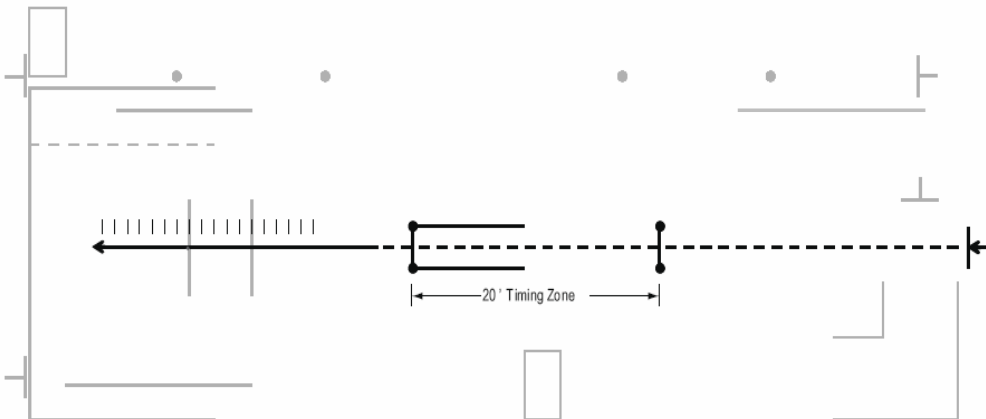
Successful completion of these four motorcycle riding skills is required to pass a basic motorcycle rider education course or the Rider Skills Test:



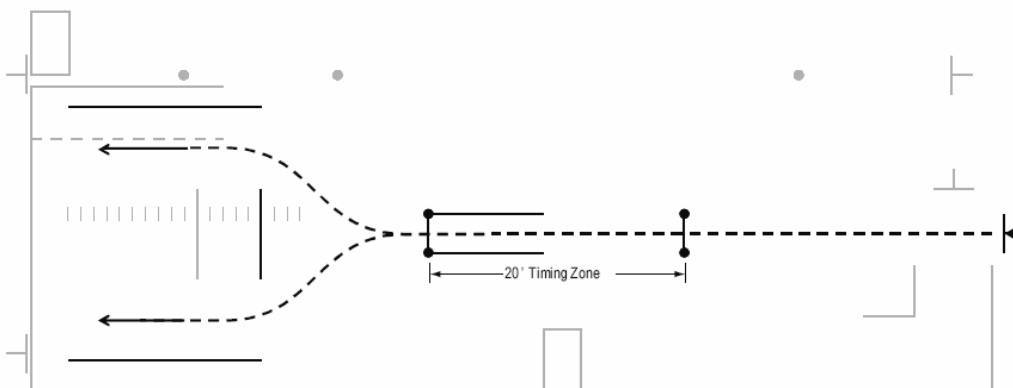
1. Cone weave and normal stop



2. Right turn from a stop



3. Quick Stop



4. Obstacle swerve

General Driver's License Renewal Information

Your driver's license is valid for four years. The license expiration date is shown on the upper right corner. The Department of State sends a renewal notice about 45 days before your license expires. Plan to renew at least two weeks before it expires. If your renewal notice does not arrive or is lost, do not let your driver's license expire. Go to a Secretary of State office and renew it.

Providing a Social Security Number

Anyone applying for or renewing a Michigan driver's license must provide a Social Security number before the application can be processed. The federal Welfare Reform Act requires states to collect Social Security numbers for use in child-support enforcement. A person who has never been issued a Social Security number must certify to that fact on an application obtained at a Secretary of State office. Individuals who make a false statement on the application are subject to imprisonment for one to five years, a fine of \$500 to \$5000, or both. The individual's license or permit will also be suspended.

Renewing Your Driver's License Online

Hop online, not in line, to ExpressSOS.com, featuring Print 'N Go technology. Check the front of your renewal notice to see if you are eligible to renew online. Go to **www.ExpressSOS.com** and click on "Renew Driver's License." Pay with Discover, MasterCard or Visa. A nominal processing fee will be charged.

Renewing Your Driver's License by Mail

You may be eligible to renew your driver's license by mail if you:

- Renewed in person the last time.
- Do not have a Commercial Driver License.
- Are not listed on the sex offender registry.

If you have had a change in your physical condition during the past six months, you must renew in person. You may need to submit a physician's statement to renew.

Renewing Your Driver's License In Person

When you renew your driver's license at a Secretary of State office, you will be required to take a vision screening. A new photograph will be taken. You may pay the renewal fee with cash, money order or a personal check. Discover, MasterCard and Visa are accepted at all branch offices at the counter. A nominal processing fee will be charged when using a debit or credit card.

Change of Address

Michigan law requires that your driver's license address, which is your place of residence, match the address on your voter registration card. You may submit a change of address online at **www.ExpressSOS.com** (click on "Update Address/Profile Details"), by mail (forms are available online at **www.Michigan.gov/sos**) or at any Secretary of State office. There is no fee for this service.

Office Hours

- Monday, Tuesday, Thursday and Friday – 9 a.m. to 5 p.m.
- Wednesdays – 11 a.m. to 7 p.m. Offices in city centers are open from 9 a.m. to 5 p.m.
- Secretary of State PLUS offices and SUPER!Centers provide extended Wednesday hours from 9 a.m. to 7 p.m.
- SUPER!Centers also offer Saturday hours from 9 a.m. to noon.
- Smaller offices may close for a lunch hour, and all branches are closed on state holidays.

Test Your Knowledge

Select the alternative (A, B or C) that best answers the question.

1. To operate a motorcycle legally on public roads in Michigan, you must have:

- A. A driver's license.
- B. A chauffeur's license.
- C. A motorcycle endorsement (CY).

2. A person with a motorcycle Temporary Instruction Permit must:

- A. Always carry the permit when riding.
- B. Ride under the constant visual supervision of a licensed motorcyclist age 18 or older.
- C. Never ride at night or carry passengers.
- D. All of the above.

3. How many motorcycle Temporary Instruction Permits does Michigan law allow?

- A. As many as needed until the rider successfully passes the rider skills test.
- B. Two permits in a 10-year period.
- C. Two permits each year.

1. Answer: C – page 8, Applying for a Motorcycle Endorsement

2. Answer: D – page 7, Operating with a Temporary Instruction Permit (TIP)

3. Answer: B – page 7, Operating with a Temporary Instruction Permit (TIP)

Being in Shape to Ride



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.

Alcohol, Other Drugs and Riding

Alcohol is a major contributor to motorcycle crashes, particularly fatal crashes. Studies show that nearly 40 percent of all riders killed in motorcycle crashes had been drinking. Riding “under the influence” of alcohol or other drugs poses physical and legal hazards for every rider. By becoming knowledgeable about the effects of alcohol and other drugs, you will see that riding and alcohol don’t mix.

Effects of Alcohol and Other Impairing Drugs

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 the 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 slows your ability to process information and impacts your ability to react quickly to a situation.

This Section Covers

- Alcohol, Other Drugs and Riding
- Health
- Emotions

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



How Alcohol Works

Unlike other beverages, alcohol is absorbed directly through the walls of the stomach and the small intestine, goes into the bloodstream, and travels throughout the body and to the brain.

Alcohol is absorbed quickly and can be measured within 30 to 70 minutes after a person has had a drink.

A typical alcoholic drink equals about half an ounce of alcohol.

Alcohol Concentration



This is the approximate amount of alcohol found in:

- One shot of distilled spirits, or
- One 5-ounce glass of wine, or
- One 12-ounce beer.

What Affects My Blood Alcohol Concentration (BAC)?

BAC refers to the amount of alcohol contained in a person's blood. In all states, an adult with a BAC of 0.08 percent or above is considered intoxicated. However, impairment begins with the first drink. Even under 0.08 you can be impaired and convicted for riding impaired. How fast a person's BAC rises varies with a number of factors:

- The number of drinks. The more you drink, the higher the BAC.
- How fast you drink. When alcohol is consumed quickly, you will reach a higher BAC than when it is consumed over a longer period of time.
- Your sex. Women generally have less water and more body fat per pound of body weight than men. Alcohol does not go into fat cells as easily as other cells, so more alcohol remains in the blood of women.
- Your weight. The more you weigh, the more water is present in your body. This water dilutes the alcohol and lowers the BAC.
- Food in your stomach. Absorption will be slowed if you've had something to eat.

Don't Drink or Don't Ride

The safest and most responsible choice is to not drink and ride. Because 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 the alcohol from your body fast. None of the "remedies" you may have heard about – cold showers, hot coffee or physical exercise – will make you remove the alcohol faster. The only proven remedy to removing the alcohol is time. Remember – your body can process about one drink an hour.

Other Impairing Drugs and Riding

All drugs may affect your ability to ride safely. This is true of many prescription, over-the-counter and illegal drugs. 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.

Health

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

Emotions

Emotions can interfere with your ability to think, can create mental distractions, increase risk-taking, create a lack of attention and can interrupt the 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.

Test Your Knowledge

1. If you have only one drink before riding:

- A. You cannot be arrested for drinking and riding.
- B. Your riding skills will not be affected.
- C. It can affect your ability to operate a motorcycle.

2. What percent BAC is considered intoxicated?

- A. 0.02 percent.
- B. 0.04 percent.
- C. 0.08 percent.

1. C – page 16, *What Affects My Blood Alcohol Concentration?*

2. C – page 16, *What Affects My Blood Alcohol Concentration?*





QUICK TIPS: The Importance of Riding Unimpaired by Alcohol or Other Drugs

Theory: Alcohol And Motorcycles Are Incompatible

- At a BAC* of 0.01 to 0.04%, judgment begins to lessen, the drinker is less critical of their own actions, reaction time is slowed, and indications of mental relaxation may appear.
- At a BAC of 0.05 to 0.07%, judgment is not sound, thinking and reasoning powers are not clear, and the ability to perform complex skills is lessened.
- At a BAC of 0.08% or above, judgment and reasoning powers are severely hampered, and the individual cannot complete common simple tasks without error.

Proof: Statistics From Recent Studies (by NHTSA, Florida, Kentucky, and Australia)

- Having any alcohol in one's body increases the chance of crashing by five times.
- Having a BAC greater than 0.05% increases the risk of crashing about forty-fold.
- 46 percent of all motorcyclists killed in crashes were using alcohol.
- One fourth of all fatal alcohol-related motorcycle crashes involve motorcyclists running off the road, overturning, or falling from the motorcycle rather than striking another object.

Explanation: Alcohol Affects Your Ability To "SEE"

SEEsm is the acronym for MSF's strategy to help motorcycle riders maintain a safety margin as well as remain ready and able to respond properly to traffic situations. SEE stands for:

- **Search** for hazards that might lead to trouble.
- **Evaluate** how the hazards might interact to create risk; prioritize multiple hazards to deal with one at a time.
- **Execute** an action to maintain a margin of safety.

Alcohol affects these three human elements of safe motorcycle operation by impairing your vision (**Search**), judgment/decision-making ability (**Evaluate**), and coordination/reaction time (**Execute**).

Recommendation: Plan Ahead

- Riders should never mix alcohol with riding. Even low, legal limits of BAC increase your risk while riding a motorcycle.
- Riders who are away from home and decide to drink should either (1) wait until their BAC has returned to zero before riding, even if it means staying overnight, or (2) leave the motorcycle in a secure location and find alternate transportation home.

*BAC = Blood Alcohol Concentration

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 drug **free**).



Selecting and Wearing Protective Gear

Anytime you ride a motorcycle you should wear:

- A helmet compliant with the U.S. Department of Transportation (DOT).
- Face and eye protection.
- Motorcycle protective riding gear (gloves, long pants, jacket, sturdy footwear).

Helmet Use

Helmet use and motorcycle operators

A motorcycle operator is required to wear an approved crash helmet unless he or she:

- Is at least 21 years old,
- Has at least \$20,000 in first-party medical benefits insurance in effect, and
- Has held a motorcycle endorsement for at least two years, or has passed an approved motorcycle rider education course.
MCL 257.658(5).

Helmet use; motorcycle passengers

A motorcycle passenger is required to wear an approved crash helmet unless he or she:

- Is at least 21 years old, and

This Section Covers

- Selecting and Wearing Protective Gear
- Getting to Know Your Motorcycle
- Motorcycle Controls

- Has at least \$20,000 in first-party medical benefits insurance in effect in addition to the insurance that is required of the motorcycle operator.
MCL 257.658(5).

Helmet use; moped

A moped operator less than 19 years of age shall wear a crash helmet. MCL 257.658(4).

Crash data shows that head injuries account for a majority of serious and fatal injuries to motorcyclists. Research also shows that riders wearing helmets have fewer and less severe head injuries in a crash.

Here are some facts to consider:

- Helmets make your riding experience more enjoyable.
- 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 severity of head injuries.

Helmet Selection

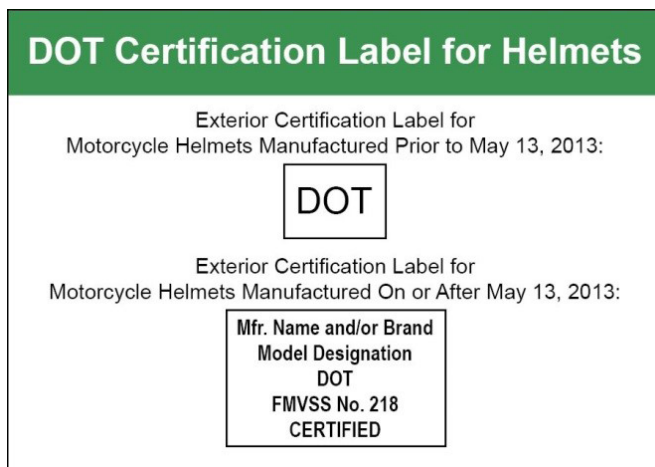
Protection should be the first consideration when buying your motorcycle helmet. There are three primary types of helmets: full-face, three-quarter and half. A full-face helmet gives the most head protection since it covers all of the head and face. This design has a flip-up face shield that protects 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:

- Meets crash helmet standards and is DOT compliant. You can tell if a helmet is compliant with U.S. Department of Transportation standards if it has a label that states the manufacturer's name and/or brand, model and the wording "DOT, FMVSS No. 218, CERTIFIED." Michigan requires motorcycle helmets to meet DOT standards. (Mich. Admin. Code, R 28.951)
- Has no obvious defect such as cracks, loose padding or frayed straps.
- Fastens securely.



Helmet Fit

A helmet should fit comfortably, but snugly. 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.

Whatever helmet you decide on, keep it securely fastened on your head when you ride. Otherwise, if you are involved in a crash, it's likely to come off your head before it gets a chance to protect you.

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 from cars 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.

Face shields come in a variety of designs to fit most any helmet. Make sure that the face shield you choose is designed for your helmet and does not interfere with eyeglasses or sunglasses. To be effective, eye or face shield protection must:

- Be free of scratches.
- Be resistant to penetration.
- Give a clear view to either side.
- Fasten securely, so it does not blow off.
- Permit air to pass through to reduce fogging.
- Permit enough room for eyeglasses or sunglasses if needed.

Windshields will not protect your eyes from the 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, though they 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.

Windshields, Goggles, Eyeglasses or Face Shields

A person operating a motorcycle in excess of 35 mph that is not equipped with a windshield, shall wear goggles with transparent lenses, eyeglasses or a transparent face shield that is shatter resistant and of sufficient size to protect his or her eyes against airborne materials and other road debris.

MCL 257.708a.

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 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. Sandals, sneakers and similar footwear should not be used since they provide little protection and may interfere with controls. 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 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.

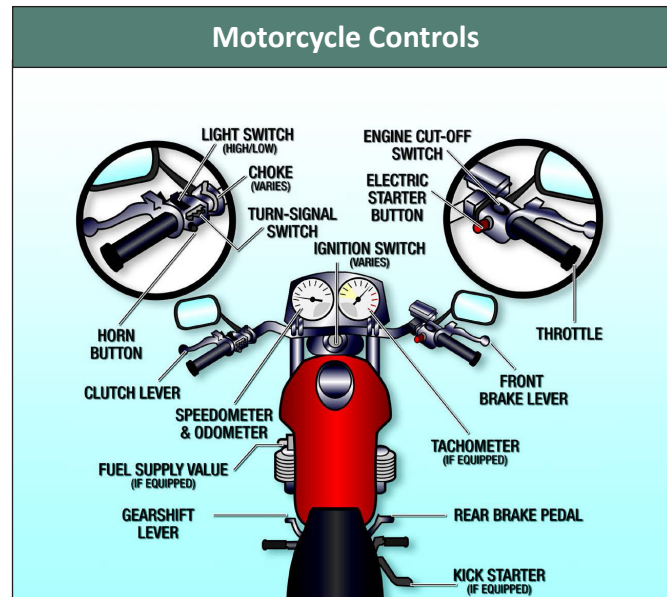
Know Your Motorcycle

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. 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.
- Keep it serviced and maintained.
- Make sure your motorcycle fits you. Your feet should reach the ground while you are seated on the motorcycle.

Motorcycle Controls

It is important to read your motorcycle owner's manual to learn where your motorcycle controls are and how to operate them. You should be able to operate them while riding without having to look for them.



Test Your Knowledge

1. What should be the first consideration when buying your motorcycle helmet?

- A. Appearance
- B. Protection
- C. Price

2. A plastic shatter-resistant face shield:

- A. Is not necessary if you have a windshield.
- B. Only protects your eyes.
- C. Helps protect your whole face.

1. B – pages 20-21, *Helmet Selection*

2. C – pages 21-22, *Face and Eye Protection*



Motorcycle Safety Foundation *Rider Choices*™ Contract For Safety

I appreciate that my family and friends may be concerned about my safety now that I have chosen to ride a motorcycle. I also understand that my choices can affect those who care about me, especially if I am injured in a motorcycle crash. I agree that motorcycling, like many activities involving vehicles and motion, involves some degree of risk, and I hereby commit to riding safely and minimizing my risk. By initialing each of the following statements, I agree to:

- ___ **Be Aware of the Risks Associated with Motorcycling** – I understand that safe motorcycling requires dedicated attention to the immediate task and a keen awareness of everything going on 360 degrees around me. I also understand that motorcycles lack the crash protection of cars, and since motorcycles are smaller and narrower than cars, car drivers may not see me and may cut me off or squeeze into my lane without warning.
- ___ **Get Trained and Licensed** – I will take at least one MSF *RiderCourse*® to learn the proper mental strategies and riding skills in a controlled environment, under the guidance of professional MSF-certified RiderCoaches, before riding on the street. I will get a motorcycle license or endorsement and obtain proper insurance for my motorcycle, to demonstrate that I am a responsible individual.
- ___ **Wear Protective Gear** – I will always choose to wear proper protective riding gear when I ride; most importantly a DOT-compliant helmet, plus eye protection, gloves, over-the-ankle boots, jacket and pants, regardless of my destination or the duration of my ride.
- ___ **Select an Appropriate Motorcycle** – I will only ride a motorcycle that fits my physical characteristics and is otherwise right for me. I will become familiar with its controls, power delivery, braking, and handling characteristics by studying the owner's manual and practicing on lightly traveled streets before venturing onto busy streets or highways.
- ___ **Use a Safe-Riding Strategy** – I will maintain awareness of the traffic environment and my position within it by using safe-riding strategies such as SEE – Search, Evaluate, Execute – and a 2-second minimum following distance. I will communicate with other motorists by always using my turn signals and a head-check when turning or changing lanes, and will make a mental note of possible escape routes in case my path is blocked.
- ___ **Ride Within My Limits** – I will not ride faster or longer than my abilities allow, nor will I ride aggressively or make risky maneuvers. Riding too fast in corners is a primary cause of single-vehicle crashes. I will honestly assess my own physical capabilities and mental attitude before each ride since both aspects are required to safely navigate my motorcycle on the street.
- ___ **Ride Unimpaired** – I will never use alcohol or drugs when riding. I understand that motorcycling is a serious activity that requires intense focus, keen perception, split-second decision-making, physical coordination, and a fine sense of balance, and that alcohol and drugs weaken those abilities. In fact, almost half of all motorcyclists killed in crashes were using alcohol.
- ___ **Keep my Motorcycle in Excellent Operating Condition** – I will follow the recommended maintenance schedule as outlined in the owner's manual, will ensure repairs are made promptly, and will pay particular attention to the tires, since inflation pressure and overall condition affect the critical grip between my motorcycle and the road surface.
- ___ **Be a Lifelong Learner** – I will return periodically for a variety of refresher rider training courses to brush up on my skills and knowledge, because the positive effects gained from a training course do not last forever.

To summarize, I acknowledge that if I ride untrained, recklessly, or without the protection of motorcycle-specific safety apparel, I am at increased risk of a life-altering injury or death. This would not only affect me but could affect my family and friends. Therefore, I am committed to being a safe and responsible motorcyclist.

signed: _____

date: _____

printed name: _____

witness: _____



QUICK TIPS: Anti-Lock Braking Systems (ABS)

How Does ABS Work?

If either of a motorcycle's tires loses traction and skids along the road surface during braking, the rider might lose control of the motorcycle. An anti-lock braking system (ABS) helps maintain traction by preventing the wheels from locking up as the tires approach the maximum braking limit. With ABS, each wheel has a speed sensor that sends signals to an electronic control unit (ECU). The ECU is a computer that monitors the rotational speed of the wheels and modulates brake pressure to provide maximum braking capacity in a given situation while maintaining maximum traction.

If one of the wheels is on the verge of coming to a sudden stop (a skid), the ECU will decrease the braking force in order to prevent the skid. To decrease braking force, the ECU sends a signal to open a relief valve that reduces hydraulic pressure in the braking system on that individual wheel. When the tire regains traction and starts spinning again, the ECU sends a signal to restore the hydraulic pressure in the brake line, which in turn, increases the braking power. This process occurs rapidly and repeatedly, causing the brakes to pulsate when the ABS is in use. It is important to note that this process occurs independently between the front and rear wheels. If the ABS system fails, an indicator light will come on, and the brakes will still work, but without the ABS function.

What Can and Can't ABS Do?

- Several studies have cited improper braking as a pre-impact factor responsible for some motorcycle crashes. Some manufacturers offer ABS as an option on certain models, allowing consumers to choose ABS technology to help them brake more effectively.
- ABS is not guaranteed crash prevention, but in certain situations it can help riders avoid a crash.
- ABS only works when the front brake lever and rear brake pedal are continuously applied during stopping, and not "pumped."
- ABS can quickly respond to a change in surface friction during braking and help prevent the rider from losing control. ABS's greatest benefit may be on wet or icy roads.
- ABS is most effective when the bike is completely upright and going in a straight line.
- The dynamics of motorcycles, which must lean to corner, prevents the ABS from assisting the rider in every situation.
- During aggressive cornering, ABS may not have the intended effect. Cornering at the limit requires very smooth braking, and the pulsing caused by ABS can upset the bike, causing it to "low-side" and slide out from under the rider.
- It is important to note that ABS is not a substitute for proper braking techniques and common sense. ABS is not intended to shorten stopping distances on dry roads, so riders are not free to speed or tailgate in hopes that ABS will compensate for their poor judgment.
- ABS does not allow a motorcycle to violate the laws of physics.



Cycle Safety Information

What You Should Know About Motorcycle Helmets

Helmets Work

Most sport-type activities have their own suitable protective gear and equipment. Motorcycling is no exception. Every rider and passenger should wear over-the-ankle footwear, long pants, a long-sleeved jacket, full-fingered motorcycle gloves, and a helmet manufactured to comply with DOT (U.S. Department of Transportation) standards.

Helmets work. Helmet effectiveness has been confirmed by scientific studies, while helmet myths – “helmets break necks, block vision and impair hearing” – have been consistently disproved. Safety-conscious riders wear helmets as a sensible, responsible choice every time they ride; we know that you will, too.

What a Helmet Does for You

First, it is the most important protective gear you can wear while riding a motorcycle. Think of it at the same time you think of your ignition key: Pick up the key; pick up the helmet. They go together. Helmet use is not a “cure-all” for motorcyclist safety, but in a crash, a helmet can help protect your brain, your face, and your life.

Combined with other motorcycle-specific protective gear, rider-education courses, proper licensing and public awareness, the use of helmets is one way to reduce injury.

You hope your helmet never has an impact. But crashes do happen. We can't predict when or what kind they will be. You should not say to yourself, “I'm just running down to the store,” and not wear your helmet.

Second, a good helmet makes riding a motorcycle more fun, due to the comfort factor: another truth. It cuts down on wind noise roaring by your ears, on windblast on your face and eyes, and deflects bugs and other objects flying through the air. It even contributes to comfort from changing weather conditions and reduces rider fatigue.

Third, wearing a helmet shows that motorcyclists are responsible people; we take ourselves and motorcycling seriously. Wearing a helmet, no matter what the law says, is a projection of your attitude toward riding. And that attitude is plain to see by other riders and non-riders alike.

How and Why a Helmet Works

Different helmets do different things. There are hard hats on construction and heavy-industry heads, football helmets on athletes' heads, and Kevlar® caps on military heads. None are interchangeable. Motorcycle helmets are very sophisticated and specialized for the activity. They've been developed carefully and scientifically over the years.

Four basic components work together to provide protection in the motorcycle helmet: an outer shell; an impact-absorbing liner; the comfort padding; and a good retention system.

What we see first is the **outer shell**, usually made from some family of fiber-reinforced composites or thermoplastics like polycarbonate. This is tough stuff, yet it's designed and intended to compress when it hits anything hard. That action disperses energy from the impact to lessen the force before it reaches your head, but it doesn't act alone to protect you.

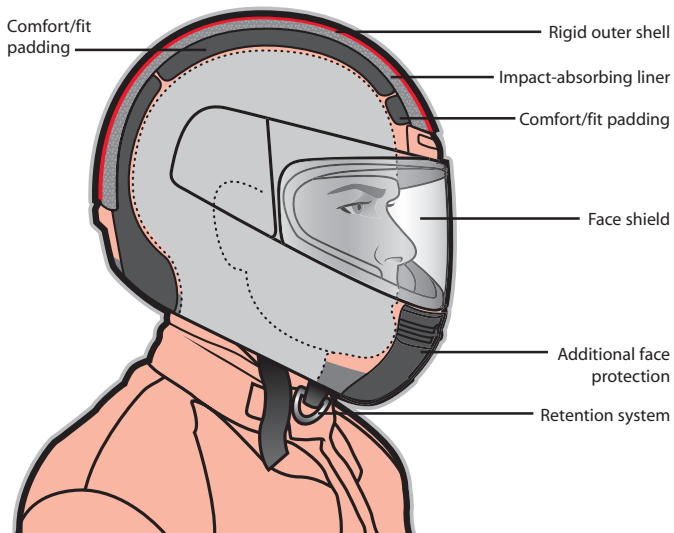
Inside the shell is the equally important **impact-absorbing liner**, usually made of expanded polystyrene (commonly thought of as Styrofoam). This dense layer cushions and absorbs shock as the helmet stops and your head wants to keep on moving.

Both the shell and the liner compress if hit hard, spreading the forces of impact throughout the helmet material. The more impact-energy deflected or absorbed, the less there is of it to reach your head and brain and do damage. Some helmet shells delaminate on impact. Others may crack and break if forced to take a severe hit; this is one way a helmet acts to absorb shock. It is doing its intended job. Impact damage from a crash to the non-resilient liner may be invisible to the eye; it may look normal, but it may have little protective value left and should be replaced.

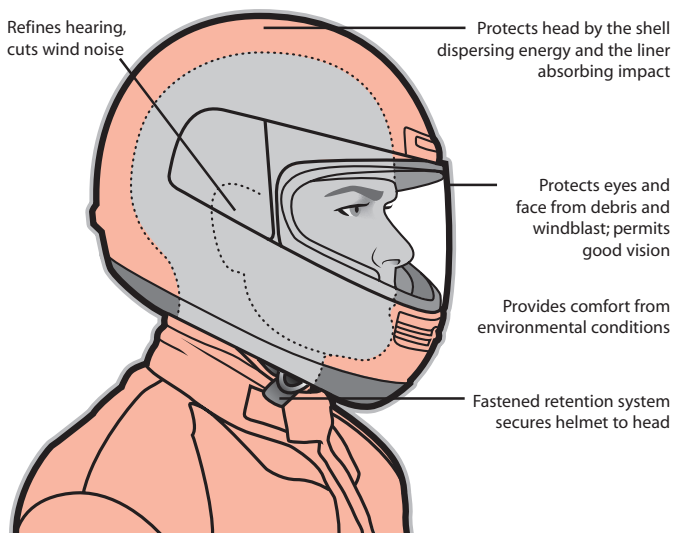
The **comfort padding** is the soft foam-and-cloth layer that sits next to your head. It helps keep you comfortable and the helmet fitting snugly. In some helmets, this padding can even be taken out for cleaning.

The **retention system**, or chin strap, is very important. It is the one piece that keeps the helmet on your head in a crash. A strap is connected to each side of the shell. Every time you put the helmet on, **fasten the strap securely**. It only takes of couple of seconds. To ride without your helmet secured would be as questionable as driving without your seatbelt fastened.

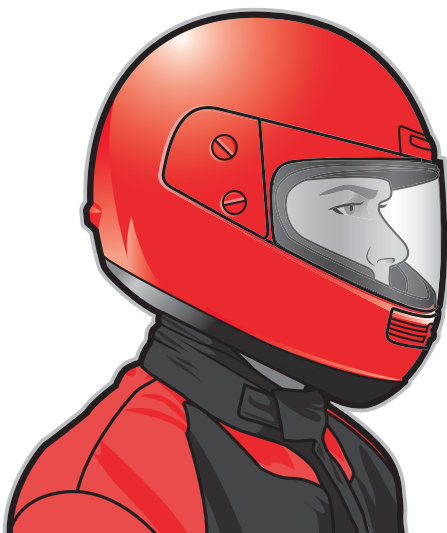
Basic Construction



Protective/Comfort Attributes



See and be seen. Be prepared. Enjoy the ride.



Choosing a Helmet

While color, design and price may be a part of your decision about which helmet to buy, think first about protection and comfort. A full-face helmet gives the most protection since it covers more of your face. It usually has a moveable face shield that protects the eyes when it is closed.

A three-quarter, open-face helmet is also a choice of some riders. It is constructed with the same basic components, but doesn't offer the face and chin protection of full-face helmets. If you use an open-face helmet, you should have a snap-on face shield in place when you ride, or buy a pair of goggles that can withstand the impact of a stone or other debris. Prescription eyeglasses or sunglasses are not sufficient protection, and they might move or fly off.

A "shorty" half-helmet protects even less of your head. It is more likely to come off your head upon impact. Therefore, "shorty," half-shell helmets are not recommended. Novelty helmets – characterized by a thin or non-existent liner – must be avoided.

A lot of good helmets are available today, in a range of prices. One look around your dealer's helmet display will convince you that nearly any look you could want from a helmet is readily available. Many manufacturers are color-coordinating their helmets with the newest motorcycle models. And the days of heavy or cumbersome helmets are over. They're made of lightweight, modern materials and are improved each year. Manufacturers are also working to make them less expensive, stronger and more comfortable.

What you must know when choosing a helmet is that it meets minimum safety standards. The way to find a well-made, reliable helmet is to look for the DOT sticker on the inside or outside of the helmet. The sticker means the helmet complies with the safety test standards of the U.S. Department of Transportation. A Snell sticker may also appear on a helmet, meaning the helmet also complies with standards set by the Snell Memorial Foundation.

Each organization has rigid procedures for testing:

Impact – the shock-absorbing capacity of the helmet.

Penetration – the helmet's ability to withstand a blow from a sharp object.

Retention – the chin strap's ability to stay fastened without stretching or breaking.

Peripheral vision – the helmet must provide a minimum side vision of 105 degrees to each side. (Most people's usable peripheral vision is only about 90 degrees to each side.)

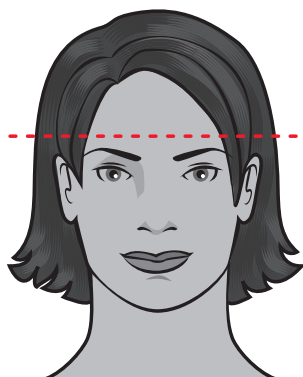
ALL new adult-sized helmets for on-highway use must meet DOT standards. Helmet dealers and distributors must ensure that all the helmets they sell bear the DOT sticker. Whatever your helmet choice, be sure it has this certification. You don't want an inferior helmet or one designed for another purpose. If someone tries to sell you one without it, don't buy it. If your helmet has no DOT sticker, do not wear it, regardless of its age.

Snell has been testing helmets for decades. The use of Snell standards by helmet manufacturers is voluntary. Unlike DOT standards, Snell testing is revised (most recently in 2010) as helmet design and technology improve.

Both agencies attempt to reproduce, under test conditions, the situations that are hazardous to motorcyclists. Their testing methods differ, but the intent is the same: to make certain any helmet they recognize has life-saving, shock-absorbing minimums.

Since head injuries account for a majority of motorcycle fatalities, protection is vital. (Head injury was specified on 42 percent of the death certificates for motorcycle operators and passengers in California in 1987-88; Romano PS, McLoughlin E. (1991). Helmet use and fatal motorcycle injuries in California, 1987-88. *Journal of Head Trauma Rehabilitation*. May 1991; 6(2):21-37.) Even the best helmet is no guarantee against injury. However, without a helmet you are more likely to have serious head injuries than a rider who is wearing one.

Getting the Right Fit



inches	cm	Hat Size	Helmet Size
20 1/8 – 20 1/2	51 – 52	6 3/8 – 6 1/2	XX-Small
20 7/8 – 21 1/4	53 – 54	6 5/8 – 6 3/4	X-Small
21 5/8 – 22	55 – 56	6 7/8 – 7	Small
22 3/8 – 22 7/8	57 – 58	7 1/8 – 7 1/4	Medium
23 1/4 – 23 5/8	59 – 60	7 3/8 – 7 1/2	Large
24 – 24 3/8	61 – 62	7 5/8 – 7 3/4	X-Large
24 7/8 – 25 1/4	63 – 64	7 7/8 – 8	XX-Large

Size

There's more to fitting a helmet than just buying the one that matches your hat size or guessing at "small, medium or large." However, hat size is a good starting point. If you don't know your size, you can use the chart above. Measure your head at its largest circumference – usually just above your eyebrows in front, above your ears and around in back. Try it several times so you know you've gotten the largest number. If your head size falls between the numbers listed, try the smaller size first and give it time to conform to your head. Most helmets are marked and sold as XXS, XS, S, M, L, XL or XXL, so you may need to contact the manufacturer for size equivalents. Helmet sizes vary among manufacturers and model types.

The Best Way to Try on Your Helmet

- Hold it by the chin straps. The bottom of the helmet should face you with the front pointing down.
- Put your thumbs on the inside of the straps, balancing the helmet with your fingertips.
- Spread the sides of the helmet apart slightly and slip it down over your head using the chin straps.

The helmet should fit snugly and may even feel a bit tight until it is in place correctly. Be sure it sits squarely on your head. It shouldn't be tilted back on your head like a hat. Remember, if your helmet is too large, several things could happen: it will move around and up and down on your head when you least want it to; it can be noisy and let in wind; worst of all, it may come off in a crash!

Once the helmet is on your head, make a few other fit checks before fastening the straps.

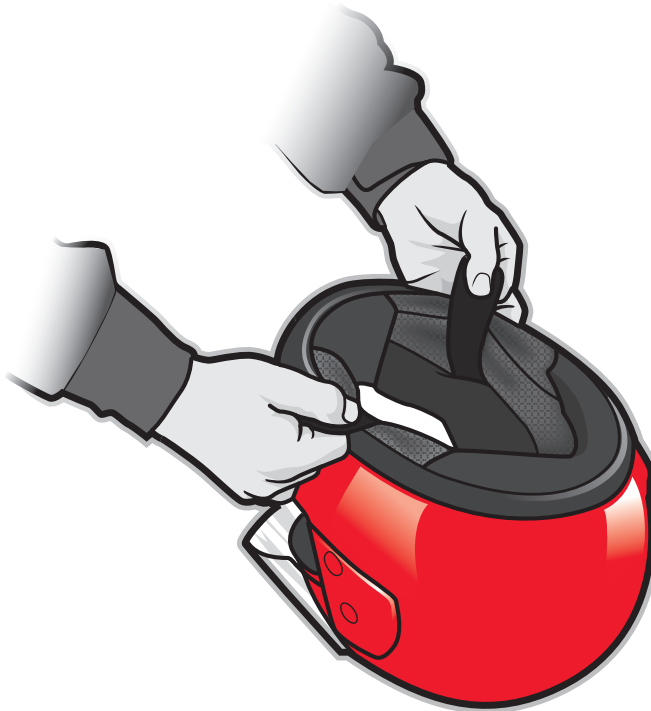
- The cheek pads should touch your cheeks without pressing uncomfortably.
- There should be no gaps between your temples and the brow pads.
- If the helmet has a neck roll, it shouldn't push the helmet away from the back of your neck.
- On full-face helmets, press on the chin piece. The helmet or face shield should not touch your nose or chin. If it does, it will surely do so at speed from wind pressure.

With the helmet still on and the straps securely fastened, move it from side to side and up and down with your hands. If it fits right, your skin should move as the helmet is moved. You should feel as if a slight, even pressure is being exerted all over your head. Remember, too, that a helmet loosens up a bit as the comfort liner compresses through use. A new helmet should be as tight as you can comfortably wear it.

Now, with the chin strap still securely fastened and your head straight, try rolling the helmet forward off your head. You shouldn't be able to pull it off. If you can, the helmet is too big.

Take off the helmet. Does your head feel sore anywhere? Are there any red spots on your forehead? Pressure points can be uncomfortable and can cause a headache after a long ride, so be sure your helmet isn't causing any. If it is, choose the next largest size or try a different brand of helmet. Human heads are not all the same shape; neither are helmets.

If you are still unsure about the helmet's fit, wear it around the store for a while to see if it remains comfortable. A helmet is an important investment, no matter what its price. Be sure the one you choose is right for you.



Helmet Care

Follow the manufacturer's care instructions for your helmet. Use only the mildest soap recommended. Avoid any petroleum-based cleaning fluids, especially if you own a polycarbonate helmet. Exposure to strong cleaning agents can cause the helmet to decompose and lose protective value.

Keep your helmet's face shield clean. Normally, mild soap and warm water with a soft cloth will do the job. If it gets scratched, replace it. A scratched face shield can be difficult to see through. At night, it could dangerously distort your vision and your view of oncoming lights.

A helmet looks tough and sturdy, but it should be handled as a fragile item. This means that you don't want to drop your helmet onto hard surfaces. It could ruin your helmet. Remember that its function is to absorb impacts, which can affect its integrity and effectiveness.

It is not wise to store helmets near gasoline, cleaning fluids, exhaust fumes, or excessive heat. These factors can result in the degradation of helmet materials, and often the damage goes unnoticed by the wearer. Read the information that comes with the helmet so you know how to care for it.

Definitely read the instructions about painting, decorating, pinstriping, or applying decals to your helmet.

When you take your helmet off, find a flat, secure place for it. You could set it on the ground, secure it on a rack, or stow it on a shelf. On some bikes, putting it on the fuel tank may expose it to fumes. If you place it on the seat, make sure it won't fall off.

If you plan to use a communication device when you ride, find a model that doesn't require drilling speaker holes in the outer shell. Before you purchase your speakers, check with your state's laws regulating their use in helmets. Some states prohibit them.

Replacing Your Helmet

Replace your helmet if it was involved in a crash; it probably absorbed some impact shock. Some helmet manufacturers will inspect and, when possible, repair a damaged helmet. If you drop your helmet and think it might be damaged, take advantage of this service.

Most helmet manufacturers recommend replacing your helmet every few years. If you notice any signs of damage before then, replace it sooner.

Why replace your helmet every few years if it doesn't appear damaged? Its protective qualities may deteriorate with time and wear. The chin strap may fray or loosen at its attaching points; the shell could be chipped or damaged. The best reason is that helmets keep improving. Chances are that the helmet you buy in a couple of years will be better – stronger, lighter, and more comfortable – than the one you own now. It might even cost less!

Can't remember when you bought your present helmet? Check the chin strap or permanent labeling. New helmets must have the month and date of production stamped on it. If there's no date at all, you should definitely replace your helmet – now!

State Helmet Requirements

Reflectivity

Many states require a specific amount of retroreflective material on a helmet. Thoroughly read the manufacturer's information. Your local motor-vehicle department can give you exact information on the location and number of square inches of retroreflective material required in your state.

Helmet Laws

Wearing a helmet properly strapped on your head is mandatory in many states. But that's a moot point, because as a responsible, safety-minded motorcyclist, you'll be wearing your helmet every time, and everywhere, you ride.

Getting More Information

You've now read that there are many things to consider when buying a helmet. Get all the information you can. Contact helmet manufacturers and read their literature. Consult recent motorcycle-enthusiast magazines for up-to-date information to help in your decision. Two authorities you may contact are:

National Highway Traffic Safety Administration

Office of Traffic Injury Control Programs
1200 New Jersey Ave, SE West Building
Washington, D.C. 20590
888-327-4236; nhtsa.gov

Snell Memorial Foundation, Inc.

3628 Madison Avenue, Suite 11
North Highlands, CA 95660
916-331-5073; smf.org; info@smf.org

While gathering information on protecting your head, why not get good tips on other personal protective gear? Read MSF's **Cycle Safety Information** (CSI) sheet, "Personal Protective Gear for the Motorcyclist," available from the MSF at no charge. While you're at it, pick up a copy of MSF's *Motorcycling Excellence*. And be sure to complete an MSF *RiderCourse* to keep your skills and strategies sharp.

**Wear your helmet,
every time you ride.**

The Motorcycle Safety Foundation is a national, not-for-profit organization promoting the safety of motorcyclists with programs in rider training, operator licensing and public information. For the Basic or Basic *RiderCourse*2 - License Waiver nearest you, call the national toll-free telephone number: 800-446-9227. The MSF is sponsored by the U.S. distributors and manufacturers of BMW, BRP, Ducati, Harley-Davidson, Honda, Kawasaki, KTM, Piaggio, Polaris Motorcycles, Suzuki, Triumph and Yamaha motorcycles.

The information contained in this publication is offered for the benefit of those who have an interest in riding motorcycles. The information has been compiled from publications, interviews and observations of individuals and organizations familiar with the use of motorcycles, accessories and training. Because there

are many differences in product design, riding styles; and federal, state and local laws, there may be organizations that hold differing opinions. Consult your local regulatory agencies for information concerning the operation of motorcycles in your area. Although the Motorcycle Safety Foundation will continue to research, field test and publish responsible viewpoints on the subject, it disclaims any liability for the views expressed herein.



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Revised October 2014

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.

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.

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

This Section Covers

- Getting Started
- Riding in a Straight Line
- Shifting Gears
- Stopping
- Turning

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 in a Straight Line

Riding Posture

To properly control a motorcycle:

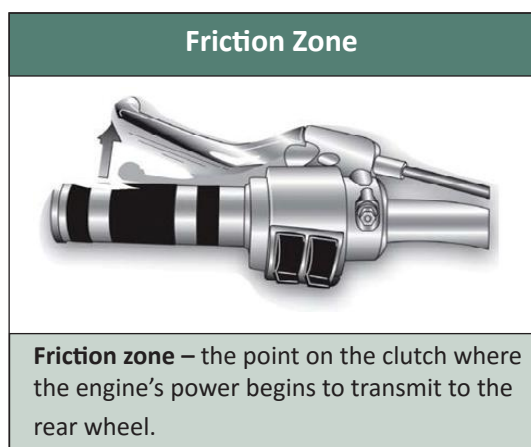
- **Posture** – Keep your back straight and head and eyes up. Sit so you can use your arms to steer the motorcycle rather than to hold yourself up.
- **Hands** – Hold the handgrips firmly. Start with your right wrist flat. This will help you to control the throttle.
- **Knees** – Keep your knees close 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

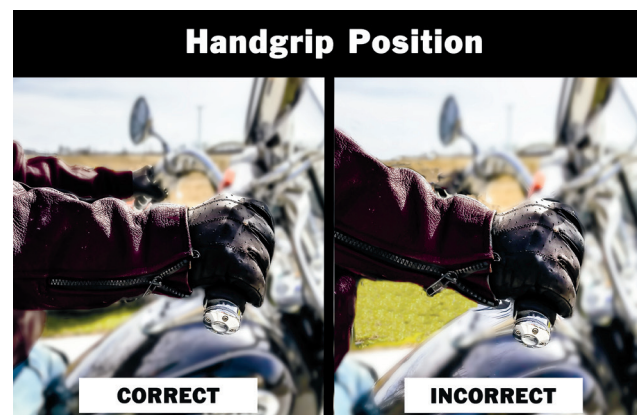
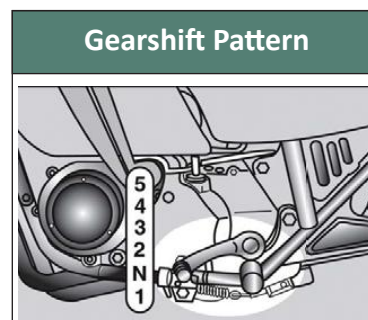
Since most motorcycles have a manual transmission, you will need to use the “friction zone” to start the motorcycle moving and to prevent stalling. The friction zone is the point on the clutch where the engine’s power begins to transmit to the rear wheel. As you reach the friction zone, roll on the throttle 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.

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 foot brake when the engine begins to slow down. 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 percent or more of your total stopping power, therefore, use of the front brake is required for effective speed reduction. 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 gradually until stopped. Grabbing at the front brake or jamming down on the rear can cause the brakes to lock, resulting in control problems.

Normal Stopping in a Curve

If you need to stop while leaned over in a curve, apply smooth gradual pressure to both brakes as

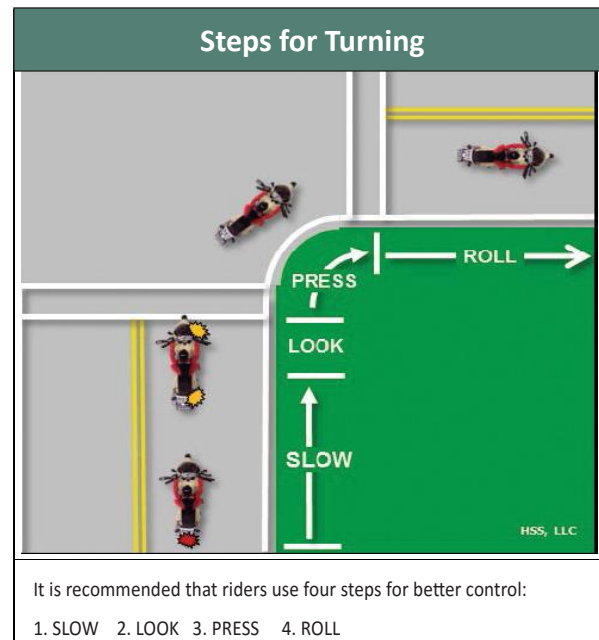
you start reducing your lean angle. The more you reduce the lean the more traction you will have to stop. You can apply more brake pressure as your motorcycle straightens up.

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.



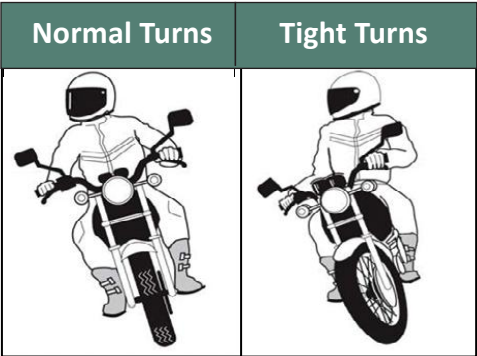
PRESS – Press on the handgrip in the direction of the turn. Press left handgrip – lean left – go left. Press right handgrip – lean right – go right. The higher the speed in a turn, the greater the lean angle.

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

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. **When stopping, you should:**
A. Use both brakes.
B. Use the front brake only.
C. Use the rear brake only.
2. **When turning, you should:**
A. Turn your head and shoulders to look through turns.
B. Turn just your head, not your shoulders to look through turns.
C. Keep your knees away from the gas tank.

1. A – page 32, Stopping
2. B – page 32, Turning

Motorcycle Safety Foundation's

SERIOUSLY SAFE TOP TEN LIST



Take formal training and get licensed.

Wear all gear when riding.



Ride unaffected by alcohol or drugs.

Assume others don't see you.



Maintain 360° awareness.

Create a space cushion all around.



Enter intersections and curves with caution.

Practice emergency braking and swerving.



Save aggressive riding for the racetrack.

Refresh your skills and knowledge regularly.



Section Five **Street Strategies**

Risk Awareness/Acceptance

Safe riding is more of a skill of the eyes and mind than of the hands and feet. You need to



develop a set of street riding strategies that allows you to gather critical information to make good decisions and avoid problems. Almost all activities people engage in have some level of risk. Operating a

motorcycle requires your full attention to reduce risk. Consider the following steps to manage risk and be a responsible rider.

Rider Responsibilities

- Accept the responsibilities associated with operating a motorcycle.
- You must have a motorcycle license/endorsement.
- You will be expected to follow the laws and rules of the road.
- You must share the road with other users (i.e. pedestrians, bicyclists, large vehicles, etc.).
- Ride alcohol and drug free.
- Always wear protective gear.

You must share the road with other users.



This Section Covers	
<ul style="list-style-type: none">• Risk Awareness/Acceptance• Risk Management• Intersections• Space Management	<ul style="list-style-type: none">• Escape Routes• Increasing Conspicuity• Speed Management

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 Acceptance

Once you become aware of the risks associated with motorcycling it is time to accept those risks. Choosing to accept the challenges of being a responsible motorcyclist means to think about the consequences of your riding behavior in traffic. It also means accepting personal responsibility for the results of your decisions and actions, as well as developing good skills and judgment.

Motorcycles are not as visible as other types of vehicles because of their size.

Risk Management

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

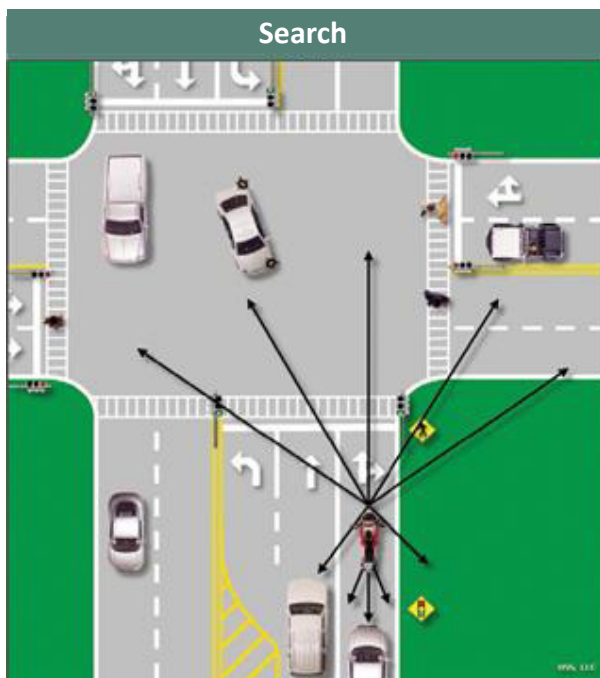
SEESM – A simple, three-step and powerful strategy – is to **Search, Evaluate, Execute**. It is the strategy to help you understand what is going on in traffic and to be constantly planning and

implementing a course of action. Let's examine each of these steps.

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Search

Aggressively searching as far ahead as possible, to the sides and behind, to identify potential hazards and escape routes, may help to avoid a crash.



When searching ahead you should search for:

- **Road and surface characteristics** – Potholes, bridge gratings, railroad tracks, debris, curves, slippery surfaces, etc., may influence your riding strategy.



- **Traffic control markings and devices** – Look for traffic signals and signs to help you know what to expect ahead.
- **Other roadway users** – Watch for vehicles in front of you traveling in the same direction, those behind you, vehicles traveling in the opposite direction, those entering and leaving the roadway and turning. Pedestrians also can cross your path of travel or reduce your escape route options.

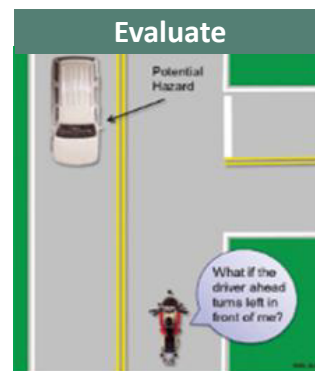
While it's most important to keep track of what's happening ahead, you can't afford to ignore situations behind. Knowing what's going on behind will help you make a safe decision about how to handle trouble ahead. To search behind:

- **Check your mirrors** – Frequent mirror checks should be part of your normal searching routine. Make a special point of using your mirrors when you are stopped at an intersection, before you change lanes and before you slow down.
- **Use head checks** – Checking your mirrors is not enough. Motorcycles have "blind spots" like cars. Before you change lanes, turn your head and look to the side for other vehicles. Only by knowing what is happening all around you, are you fully prepared to deal with it.

Evaluate

Once you have identified the hazard(s), the next step is to quickly determine if they could affect you. Ask yourself, "what if?" Think about how hazards can interact to create risk for you.

Anticipate potential problems and have a plan to reduce or eliminate the risk. Think about your time and space requirements in order to maintain a



margin of safety. You must leave yourself time to react if a dangerous situation occurs.

Execute

Carry out your decision. What are you going to do and how are you going to do it?

To create more space and minimize harm from any hazard:

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



Apply the SEE strategy to give yourself time and space. It works anywhere and can help to ensure your safety and the safety of others.

Intersections

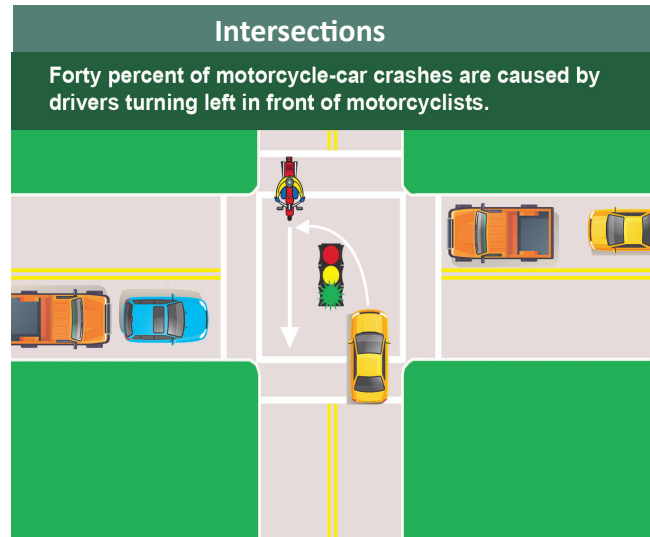
The greatest potential for crashes is at intersections. Cars that turn left in front of you are the biggest dangers. Your use of SEE at intersections is critical.

Increase your chances of being seen at intersections. Ride with your headlight on in a lane position that provides the best view of oncoming traffic. 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.

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

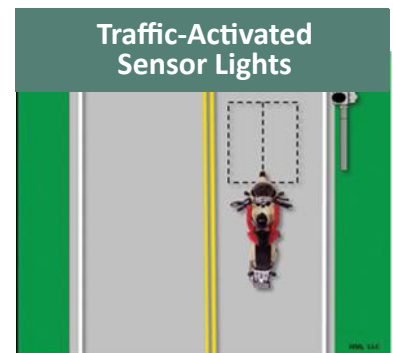


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Traffic-Activated Sensor Lights

Traffic-activated sensor lights can be troublesome for motorcyclists since the sensor may not detect your presence.

To ensure the best chance of being detected, stop where the sensors are located. They are usually visible in the road surface.



Space Management

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

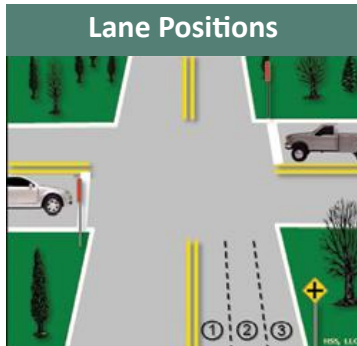
Increasing the following distance between vehicles will provide you with:

- Time to react.
- Space to maneuver.

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

Lane Positions

In some ways the size of the motorcycle can work to your advantage. Each traffic lane gives a motorcycle 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 wind blast 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.

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

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

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 two 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 toll booths.

Following Another Vehicle

Motorcycles need as much distance to stop as cars. It is recommended that new 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 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."

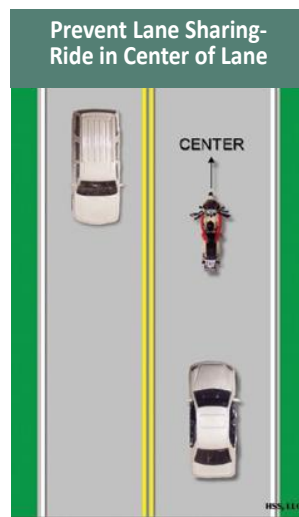
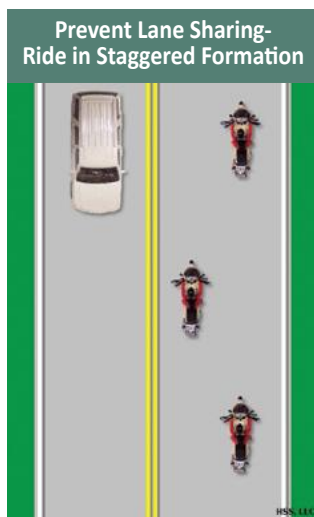
Being Followed

When you speed up to lose someone following too closely, you only 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.

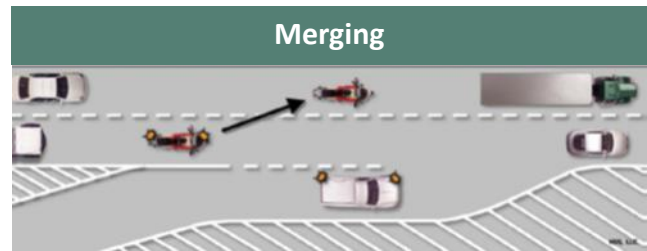
Lane Sharing

Vehicles and motorcycles need a full lane to operate safely. Do not share lanes with other vehicles. Lane sharing can leave you vulnerable to the unexpected and reduces your space cushion. You should ride in a staggered formation when following other motorcycles and position the motorcycle in the center of the travel lane, if weather and roadway conditions permit, to discourage motorists from attempting to squeeze by the motorcycle. Do not ride between rows of stopped or moving motor vehicles. This 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.

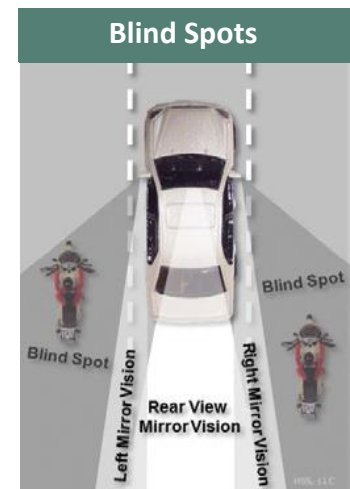


Vehicles Alongside

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 SEE and plan an escape route. In the illustration that follows, the first box shows a rider who has three escape routes open, should the rider need to take an alternate path. The second box shows a rider who has not planned an escape path. The rider is not positioned to take an alternate path of travel, which leaves the rider vulnerable to potential hazards.

QUICK TIPS



PRETEND YOU ARE INVISIBLE

If you ride a motorcycle, you know that out on the road you might as well be transparent, because car drivers often look right past you. They might notice the car or truck behind you, but *you*, in all your "narrowness," may not register in the visual cortex of even the most alert drivers.

That's why an oncoming car driver might turn left in front of you at an intersection.



That's also why a driver in the next lane, even if they turn and look in your direction before changing lanes, might veer into your lane.



Sadly, drivers might behave this way even when they're not distracted by their cell phone, GPS, satellite radio, or other form of in-car infotainment. So how do you compensate for being "invisible" to drivers?

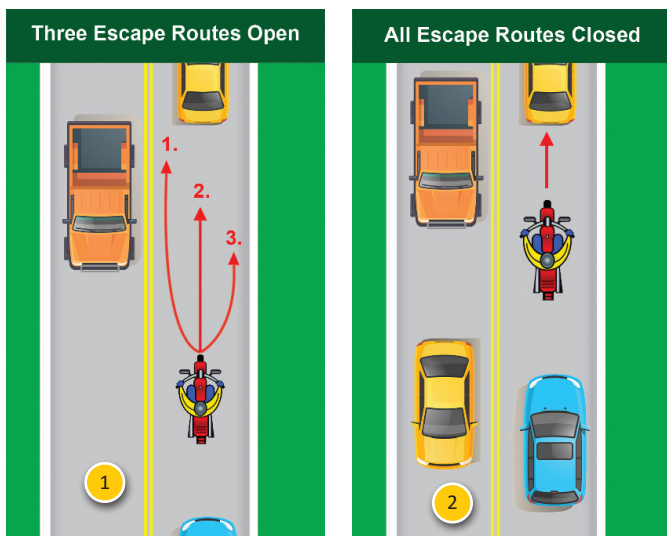
Be as conspicuous as possible. Wear bright clothing and a light-colored helmet. Always have your headlight on, and use your high beam or an aftermarket headlight modulator during the day (where allowed).

Take an approved rider training course. Learn how to maneuver your motorcycle in normal and emergency situations, and practice braking and swerving maneuvers often. Also understand that safe riding depends as much on the mental skills of awareness and judgment as it does on the physical skill of maneuvering the machine; respond early to possible hazards instead of having to react instantly to an emergency.

Pretend you're invisible. If you assume others on the road *can't* see you, and any car that *can* hit you *will* hit you, you will tend to ride in a hyper-aware mindset and learn to notice every detail in your surroundings. In other words, you will take extra responsibility for your safety and ride defensively. You will vary your speed and lane position to place yourself in the best spot on the road to avoid collisions, plan escape paths in case a driver violates your right-of-way, cover your brake controls to quicken your reactions, use your horn to alert a driver who doesn't notice you, and always ride within your limits.

CAR DRIVERS ONLY SEE WHAT THEY EXPECT TO SEE, AND MOST DON'T EXPECT YOU TO BE PART OF THE TRAFFIC MIX. RIDE WITH THE RIGHT SKILLS, STRATEGIES, AND ATTITUDE. BE SEEN – BE SAFE.

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Maintain an Escape Route	
<p>1 In heavy traffic; maintain a large space cushion and leave three escape routes open for maneuvering quickly.</p>	<p>2 If the yellow car ahead of the motorcyclist stops suddenly, the motorcyclist has no space to react and avoid danger.</p>

Increasing Conspicuity

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 most drivers are not looking for motorcycles. More likely, they are looking through the narrow, two-wheeled silhouette in search of cars 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 seem 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 cycle.



Being seen is your responsibility!

Bright colors and reflective materials are the best choices for keeping you visible to surrounding traffic both day and night.

Clothing

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.

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

Headlight

The best way to help others see your motorcycle is to keep the headlight on – at all times (new motorcycles sold in the USA since 1978 automatically have the headlights on when running). Studies show that, during the day, a motorcycle with its light on is twice as likely to be noticed. Also use your low beams at night and in fog.



Signal

The signals on a motorcycle are the same as those on a car. They tell others what you plan to do. Use them anytime you plan to change lanes

or turn. Use them even when you think no one else is around. Due to a rider's added vulnerability, signals are even more important. They make you easier to spot.

When you enter a freeway, drivers approaching from behind are more likely to see your signal blinking and make room for you.

Once you turn, make sure your signal is off or a driver may pull directly into your path, thinking you plan to turn again.

Brake Light

Your motorcycle's brake light is usually not as noticeable as the brake lights on a car – particularly when your taillight is on. (The taillight goes on with the headlight.) If the situation will permit, 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 car's, therefore, use it, but don't rely on it. Other strategies may be appropriate along with the horn.

Speed Management

Handling Dangerous Surfaces

- Slippery surfaces.
- Railroad tracks.
- Grooves and gratings.

Slippery Surfaces

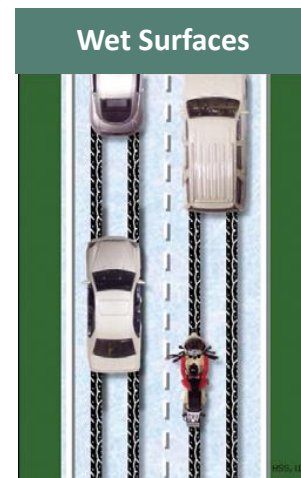
On slippery surfaces, you should use added caution. Motorcycles handle better when ridden on surfaces with good traction. Maintaining balance and cycle control are difficult on slippery surfaces.

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 when 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, gentle pressure on the rear brake.

Surfaces that provide less traction include:

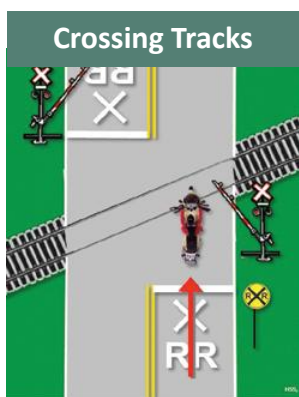
- **Wet surfaces**– Particularly just after it starts to rain and before surface oil washes to the side of the road. When it starts to rain, ride in the tire tracks left by cars and avoid pooled water and highway ruts. Often, the left tire track will be the best position, depending on traffic and other road conditions as well.



- **Ice or snow 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 wood can be very treacherous when wet.
- **Dirt and gravel** – On curves and ramps leading to and from highways, dirt and gravel can collect along the sides of the road. 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 motorcycle with proper footing is important to maintain your balance when stopped.

Railroad Tracks, Trolley Tracks and Pavement Seams

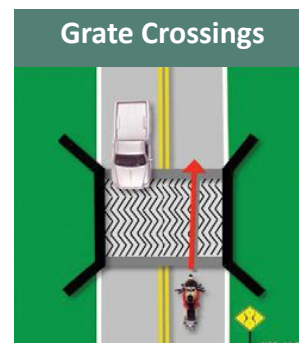
Usually it is safer to ride straight within your lane to cross tracks. Turning to cross tracks at a 90-degree angle or parallel path can be more dangerous – your path may carry you into another lane of traffic.



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 an angle of at least 45 degrees. Then, make a quick, sharp turn. Edging across could catch your tires and throw you off balance.

Grooves and Gratings

Riding over rain grooves or bridge gratings may cause your motorcycle to weave. Maintain a steady speed and ride straight across. Crossing at an angle forces riders to zigzag to stay in the lane.



Test Your Knowledge

1. The greatest potential for conflict between you and other traffic is:

- A. On the expressway.
- B. At intersections.
- C. When riding in a group.

2. Usually a good way to handle tailgaters is to:

- A. Change lanes and let them pass or slow down to allow for more space.
- B. Speed up to put distance between you and The tailgater.
- C. Ignore them.

3. When it starts to rain it is usually best to:

- A. Ride in the center of the lane.
- B. Ride on the right side of the lane.
- C. Ride in the tire tracks left by cars.

4. The best way to help others see your motorcycle is to:

- A. Keep the headlight on.
- B. Use eye contact.
- C. Honk your horn.

- 1. B – page 37, Intersections,
- 2. A – page 38-39, Being Followed,
- 3. C – page 42, Slippery Surfaces,
- 4. A – page 41, Increasing Conspicuity



QUICK TIPS: General Guidelines For Riding A Motorcycle Safely

Be visible:

- Remember that motorists often have trouble seeing motorcycles.
- Make sure your headlight works and is on day and night.
- Use reflective strips or decals on your clothing and on your motorcycle.
- Avoid riding in the blind spots of cars and trucks.
- If possible, flash your brake light when you are slowing down and before stopping.
- Have an escape route in case a motorist doesn't see you and violates your right-of-way.

Dress for safety:

- Wear a quality helmet and eye protection. A full-face helmet provides the best protection.
- Wear leather or other sturdy, protective clothing (jacket and pants); over-the-ankle boots; and gloves.
- Bright clothing and a light-colored helmet increase the chances of being seen.
- Dress for a crash as well as for the ride.

Apply effective mental strategies:

- Constantly search the road for changing conditions. Use the Search-Evaluate-Execute strategy (**SEE**) to assess and respond to hazards before you have to react to an emergency.
- Give yourself space and time as you search for traps and escape paths.
- Give other motorists time and space to respond to you.
- Use lane positioning to see and be seen.
- Search for vehicles that may turn across your path, especially at intersections.
- Use your turn signals for all turns and lane changes.
- Ride as if you're invisible.
- Don't ride when you are tired or under the influence of alcohol or other drugs.
- Know and follow the rules of the road.

Know your bike and how to use it:

- Study your motorcycle's owner's manual and make a habit of doing a pre-ride check.
- Visit msf-usa.org to take one of our online courses or review the wealth of information in our library.
- Get formal hands-on training and take refresher courses. Call 800.446.9227 or visit msf-usa.org to locate a Motorcycle Safety Foundation *RiderCourse*SM near you.
- Develop your riding techniques before venturing into traffic, especially emergency braking and swerving maneuvers. Practice often to keep your skills sharp.
- Corner within your skill limits. Aggressive cornering is a major cause of crashes.
- Know how to handle your bike in adverse conditions such as wet or sandy roads, high winds, and uneven surfaces.

Remember: Be mindful of collision traps and escape paths. People driving cars often don't notice motorcycles. Ride within your skill level and situational limits.

Roadway Management



On the road situations change constantly. 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 SEE —Search, Evaluate and Execute.

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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 react 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 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 against the tank and your eyes up, looking well ahead. Good riding posture will help you stop the motorcycle in a straight line.

This Section Covers

- Crash Avoidance
- Cornering

- If the front wheel locks up, release pressure on the front brake lever to get the tire rolling, then immediately reapply with controlled gradual pressure.
- If the rear wheel locks up, keep it locked until you have come to a complete stop. Maintain pressure on the rear brake pedal and keep your knees against the tank and your eyes up. You can still bring the motorcycle to a controlled stop in a straight line if the rear wheel locks up.

Stopping Quickly in a Curve

If you must stop quickly while turning or riding in a curve, the best 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, 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” 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.

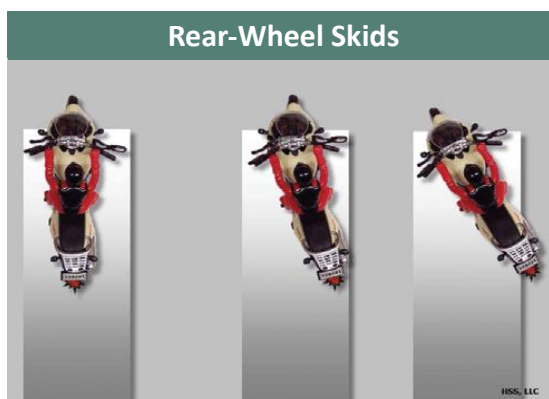
Handling Skids

Sometimes a skid cannot be avoided. Here’s what to do:

- **Front-Wheel Skids** – If the front wheel locks, release the front brake immediately and

completely. Reapply the brake smoothly. 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.

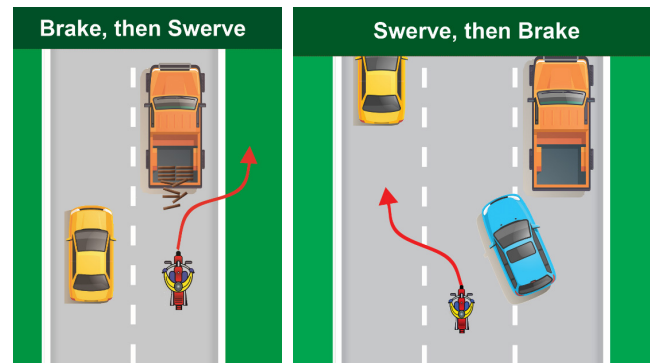
- **Rear-Wheel Skids** – A skidding rear wheel is a dangerous condition, caused by too much rear brake pressure, which can result in a violent crash and serious injury or death. If the rear wheel is skidding, keep the rear brakes applied and the front tire pointed straight ahead, until you have come to a complete stop. Do not release the rear brake.



Swerving

Swerving to avoid a crash may be appropriate if stopping isn't a solution. A swerve is any sudden change in direction. Be sure you have enough time and space to swerve. It can be two quick turns or a rapid shift to the side. To swerve:

- Apply firm pressure to the handgrip located on the side you want to turn. This will cause the motorcycle to lean quickly. The sharper the turn, 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.



Car and truck images credited to Maxim Popov@123RF.com

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

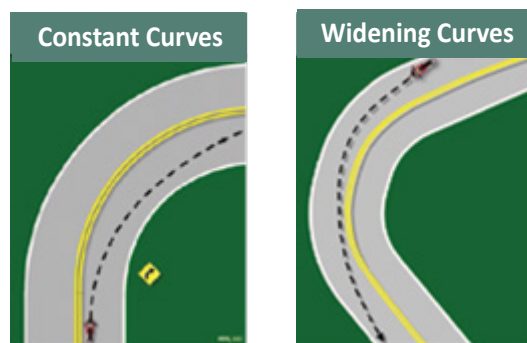
Cornering in a Curve

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, press, roll – applies to all curves.

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

If traffic is present:

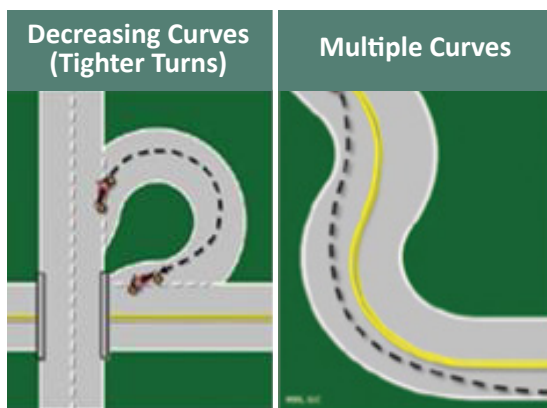
- Move to the center of your lane before entering a curve – and stay there until you exit. This permits you to spot approaching traffic and adjust for traffic “crowding” the center line or debris blocking part of your lane.



If no traffic is present:

- Start at the outside of a curve to increase your line of sight.
- 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 as 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.

Test Your Knowledge

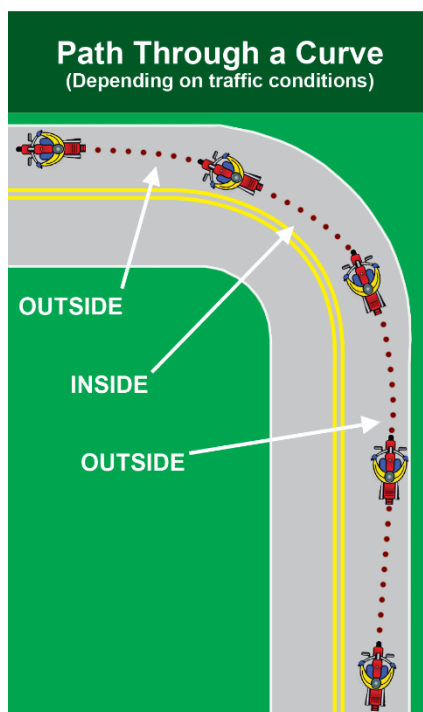
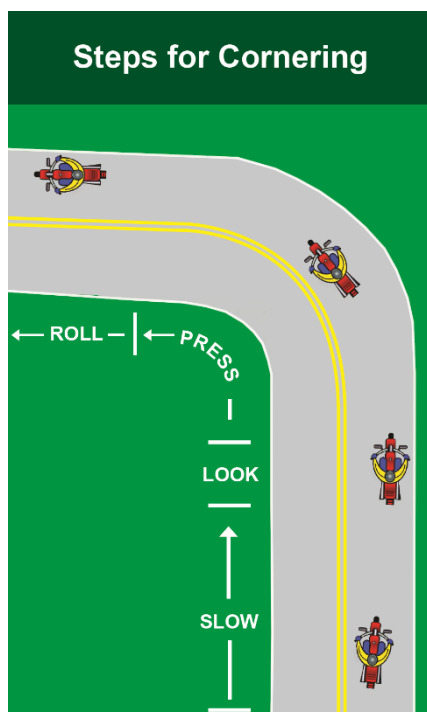
1. The best way to stop quickly is to:

- A. Use the front brake only.
- B. Use the rear brake first.
- C. Use both brakes at the same time.

2. Where should you position your motorcycle when entering a curve if traffic is present?

- A. The outside of the curve.
- B. The inside of the curve.
- C. The center of the curve.

- 1. C – page 45, *Stopping Quickly*
- 2. C – page 46, *Cornering in a Curve*



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 traveling on crowned roads because ground clearance is reduced and the lean angle available will be less than on a flat road.

Crowned Roads



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, brake lightly in a straight line. If you encounter long stretches

This Section Covers

- Crowned Roads
- Work Zones
- Tire Failure
- Animals
- Wind

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 the difference in height between lanes that have been repaved and those awaiting to be paved – crossing into the higher lane 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. If the motorcycle starts handling differently, it may be a tire failure. This can be dangerous. You must be able to tell from the way the motorcycle reacts. If one of your tires suddenly loses air, react 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.

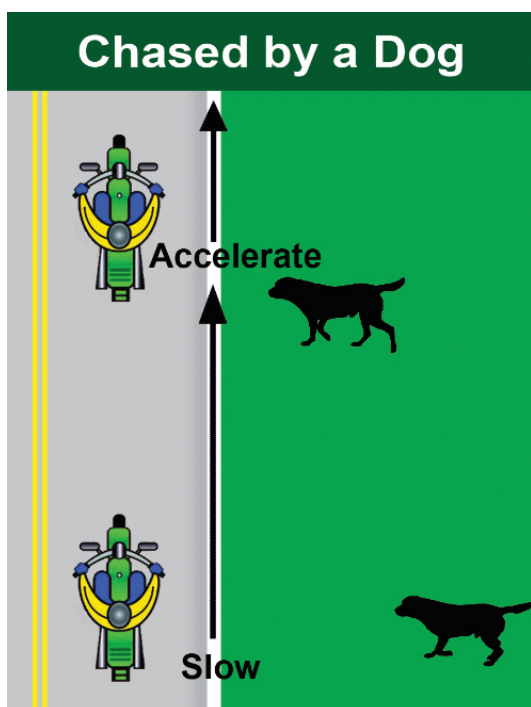
If either tire goes flat while riding:

- Hold handgrips firmly, ease off the throttle and keep a straight course.

- If braking is required, however, gradually apply the brake of the tire that isn't flat if you are sure which one it is.
- When the motorcycle slows, edge to the side of the road, squeeze the clutch and stop.

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 it will make controlling the motorcycle difficult.



Dog images credited to Majivecka©123RF.com

When chased by a dog:

1. Slow down,
2. Downshift and
3. Accelerate out of the dog's reach.

Motorcycles and Deer

Vehicle-deer crashes can happen at any time of the year. Because motorcyclists are especially vulnerable in these types of crashes, riders are advised to:

- Be alert for deer whenever you ride. Deer crashes happen in urban, suburban and rural areas.
- Slow down. Decreasing speed gives you more time to spot an animal and react.
- Cover the brakes to reduce reaction time.
- Use high beam headlights and additional driving lights when possible.
- If riding in a group, spread out riders in a staggered formation. If one rider hits a deer, this will lessen the chance that other riders will be involved.
- Wear protective gear at all times.

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 SEE 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, the only reliable action is to stop before reaching it. Then wait until the animal leaves or move past the animal at a walking speed.

Wind

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

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. When riding over scored or grooved pavement in a work zone:

- A. Look down to see changes in the road surface.
- B. Keep your head and eyes up.
- C. Stay to the left side of the lane.

2. If you are chased by a dog:

- A. Stop until the animal loses interest.
- B. Approach the animal slowly and then speed up.
- C. Swerve around the animal.

1. B – page 48, Work Zones

2. B – page 49, Animals

Passengers, Cargo and Group Riding



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

This Section Covers

- Carrying Passengers and Cargo
- Group Riding

Carrying Passengers and Cargo

Riding on seat of . . . motorcycle . . . number of persons . . .

(1) . . . [a motorcycle operator must ride] . . . upon and astride a permanent and regular seat attached to that vehicle.

(2) A . . . motorcycle [or moped] shall not be used to carry more persons at one time than the number for which it is designed and equipped.

MCL 257.658(1)(2).

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

Seats and footrests . . .

. . . a motorcycle shall be equipped with adequate seats and [securely attached] foot rests or pegs for each designated seating position. A passenger shall not ride on a motorcycle unless his or her feet can rest on the assigned foot rests or pegs . . . this requirement does not apply to a person [with] a permanent physical disability.

MCL 257.658a(1).

Carrying package[s] . . .

[A moped or motorcycle operator] shall not carry any package, bundle or article that prevents the driver from keeping both hands upon the handlebars of the vehicle.

MCL 257.661.

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, check the air pressure of both tires and adjust the suspension settings to compensate for the lower rear of the motorcycle. Refer to the owner's manual for more information.

When carrying a passenger, your motorcycle should have:

- A seat large enough to hold both of you. The passenger should be seated behind you and should sit as far forward as possible. No passenger regardless of age should be seated in front of you.
- Footrests for the passenger to prevent them from falling off and pulling you off, too.
- Secure hand strap or solid handholds for the passenger to hold onto. The passenger can also hold onto your waist, hips or belt.

When riding with passengers:

- 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 cycle.

Instructing Passengers

Your passenger should wear the same protective gear as you. As a routine practice,

instruct your passenger on cycling basics prior to starting their trip. Even if your passenger is a motorcycle rider, provide complete instructions before you start.

Tell your passenger to:

- Get on the motorcycle only after you have started the engine.
- Keep both feet firmly planted on the cycle'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.
- Stay directly behind you and 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 cycle is in operation.

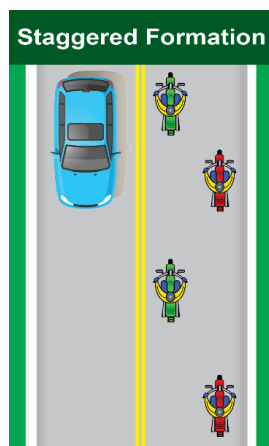
Also, tell your passenger to tighten his or her hold when you:

- Approach surface problems.
- Are about to start from a stop.
- Are about to turn sharply or make a sudden move.

Group Riding

Riding with others is one of the many great experiences of motorcycling.

Responsible riders do so in a manner that neither endangers nor interferes with the free flow of traffic, riding with other cyclists can help to increase rider visibility and safety. Concentration and communication are essential to group riding. You should gain some riding experience before riding in a group.



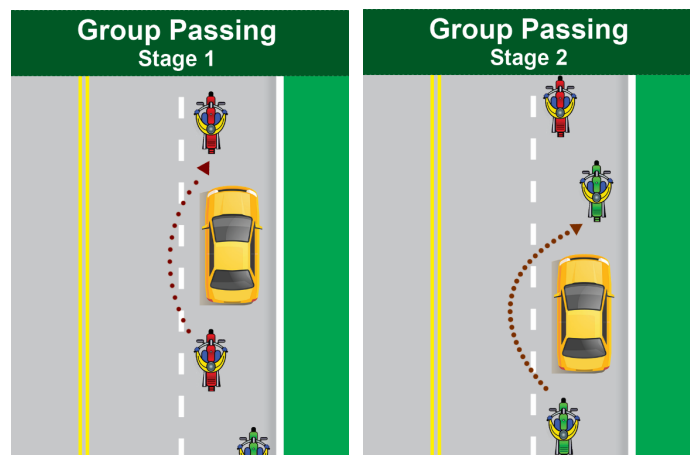
Car and truck images credited to Maxim Popov©123RF.com

To enhance safety and reduce the risk of injury when riding in groups you should:

- Plan ahead.
- Keep the group small.
- Keep your distance.
- Ride in staggered formation – don't pair up.
- Move into single-file formation when riding curves, turns, or entering or leaving a highway.

Passing in a Group

- Riders in a staggered formation should pass one at a time. If being passed while riding in a group, maintain your lane position.
- First, the lead rider should pull out and pass when it is safe. After passing, the leader should return to correct formation position to open up space for rider number two and ride at passing speed.
- 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.



Car and truck images credited to Maxim Popov©123RF.com



QUICK TIPS: Guidelines For Riding With A Passenger On Your Motorcycle

Legal Considerations

1. All state laws and requirements for carrying a passenger must be followed.
2. Some states have specific equipment requirements. Examples: the motorcycle must have passenger footrests, passengers must be able to reach the footrests, and a motorcycle must have a separate seating area for a passenger.
3. The decision to carry a child, assuming all safety and legal factors have been considered, is left to the parent or guardian. Ensure that the child is mature enough to handle the responsibilities, tall enough to reach the footrests, wears a properly fitted helmet and other protective gear, and holds onto you or the passenger hand-holds. Check your state's laws; a few states have set minimum ages for motorcycle passengers.

Operator Preparation

1. Passengers should be considered as a second “active” rider so they can help ensure that safety and procedural operations are correctly followed.
2. A passenger will affect the handling characteristics of a motorcycle due to the extra weight and independent motion.
3. A passenger tends to move forward in quick stops and may “bump” your helmet with theirs.
4. Starting from a stop may require more throttle and clutch finesse.
5. Braking procedures may be affected. Braking sooner and/or with greater pressure may be required.
6. More weight over the rear tire may increase the usefulness and stopping power of the rear brake, especially in quick stop situations.
7. Riding on a downgrade will cause braking distance to increase compared to a flat surface.
8. Extra caution is called for in a corner because of the extra weight. Cornering clearances may be affected.
9. More time and space will be needed for passing.
10. The effects of wind, especially side wind, may be more pronounced.

Motorcycle Preparation

1. The motorcycle must be designed to accommodate a passenger.
2. The motorcycle owner's manual should be reviewed for manufacturer's tips about motorcycle setup as well as any related operational recommendations.
3. The motorcycle's suspension and tire pressure may need adjustment.
4. Care should be taken to not exceed the weight limitations specified in the owner's manual.

Passenger Preparation

1. Passengers should be tall enough to reach the footrests and mature enough to handle the responsibilities.
2. Passengers should wear proper protective gear.
3. Passengers should receive a safety briefing (see #7 below).
4. Passengers should consider themselves a second operator and share responsibility for safety.

General Safety Considerations

1. You need to be experienced in the motorcycle's operation and have a safety-oriented attitude before taking on the added responsibility of carrying a passenger.
2. Practice low-speed clutch/throttle control as well as normal and emergency braking in a low-risk area like an open parking lot, with a passenger.
3. Use caution in cornering and develop cornering skills over time to ensure passenger comfort and safety.
4. Use caution in corners as clearance may be affected.
5. Use MSF's Search, Evaluate, Execute strategy (**SEE_{SM}**) to increase time and space safety margins.
6. Allow time for a passenger to adjust to the sense of speed and the sensation of leaning; speeds should be conservatively safe and reasonable until a passenger acclimates to the proper riding techniques.
7. Ensure passengers follow safety procedures:
 - a. Complete personal protective gear is properly in use.
 - b. Hold operator's waist or hips, or motorcycle's passenger hand-holds.
 - c. Keep feet on footrests at all times, including while stopped.
 - d. Keep hands and feet away from hot or moving parts.
 - e. When in a curve, look over the operator's shoulder in the direction of the turn.
 - f. Avoid turning around or making sudden moves that might affect operation.
 - g. If crossing an obstacle, stand on the pegs with the knees slightly bent and allow the legs to absorb the shock upon impact.
8. Allow more time for passing.
9. Be ready to counter the effects of wind.
10. Avoid extreme speeds and dramatic lean angles.
11. Be ready for a passenger "bump" with their helmet or with their whole body sliding forward during hard braking.
12. Have the passenger mount after the motorcycle's stand is raised and the motorcycle is securely braced. Hold the front brake lever if the surface isn't level.
13. Have the passenger dismount first.
14. Annually complete a **Basic RiderCourse 2 – Skills Practice** with a passenger.
15. Have frequent passengers complete a **Basic RiderCourse** so they can better understand the operator's task.



QUICK TIPS: MSF's Guide to Group Riding

Motorcycling is primarily a solo activity, but for many, riding as a group – whether with friends on a Sunday morning ride or with an organized motorcycle rally – is the epitome of the motorcycling experience. Here are some tips to help ensure a fun and safe group ride:

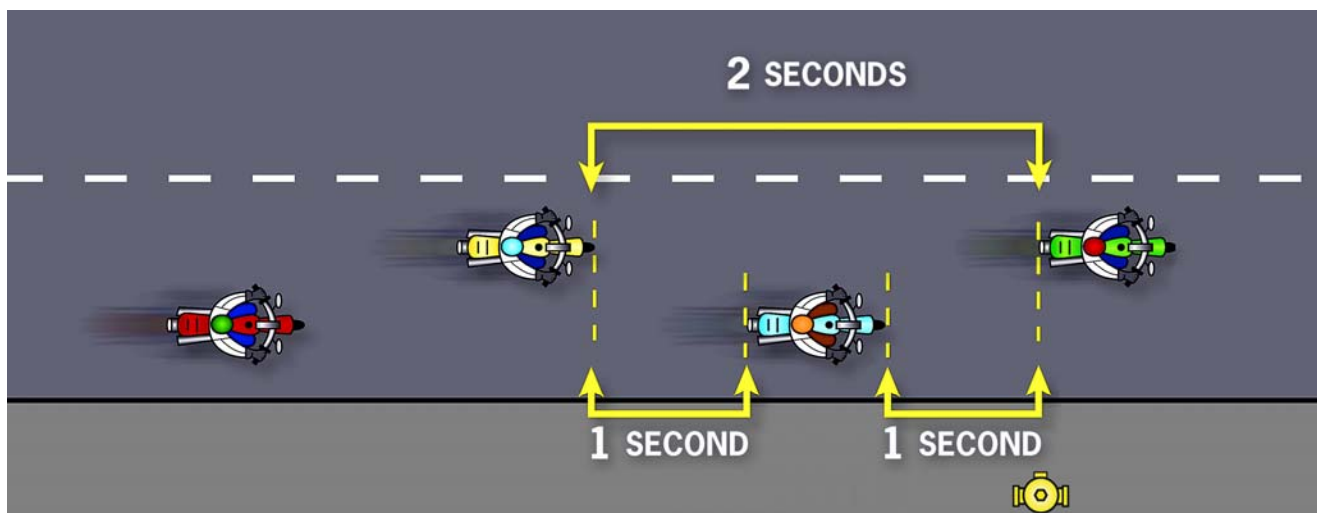
Arrive prepared. Arrive on time with a full gas tank.

Hold a riders' meeting. Discuss things like the route, rest and fuel stops, and hand signals (see diagrams on page 3). Assign a lead and sweep (tail) rider. Both should be experienced riders who are well-versed in group riding procedures. The leader should be aware of each rider's skill level before the ride and monitor the riders during the ride.

Keep the group to a manageable size, ideally five to seven riders. If necessary, break the group into smaller sub-groups, separated by a few seconds, each with a lead and sweep rider.

Ride prepared. At least one rider in each group should have a first-aid kit and full tool kit, and all riders should carry a cell phone, so the group is prepared for any problem that they might encounter.

Ride in formation. The staggered riding formation (see diagram below) allows a proper space cushion between motorcycles so that each rider has enough time and space to maneuver and to react to hazards. The leader rides in the left third of the lane, while the next rider stays at least one second behind in the right third of the lane; the rest of the group follows the same pattern. A single-file formation with a minimum 2-second following distance is preferred on a curvy road, under conditions of poor visibility or poor road surfaces, entering/leaving highways, or other situations where an increased space cushion or maneuvering room is needed.



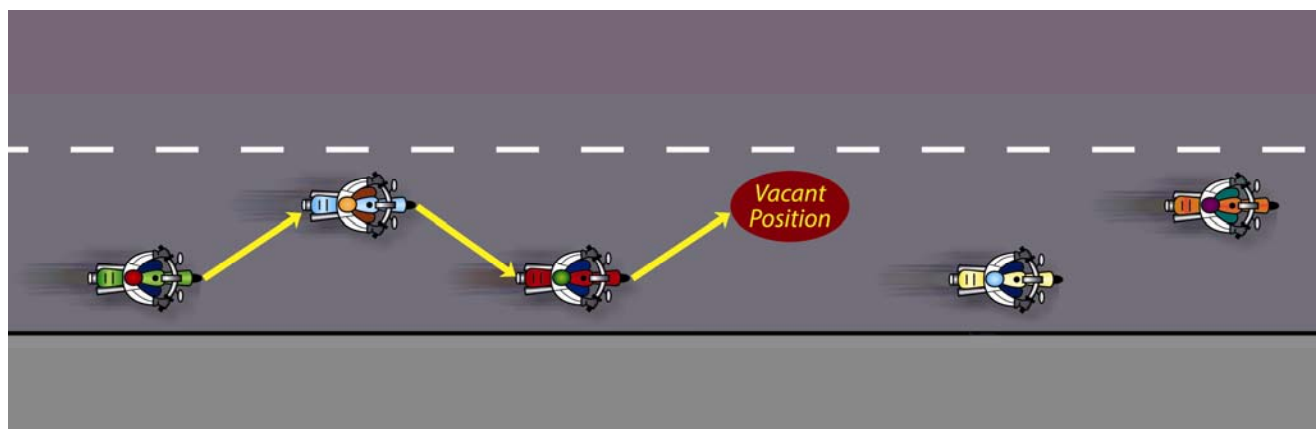
Avoid side-by-side formations, as they reduce the space cushion. If you suddenly needed to swerve to avoid a hazard, you would not have room to do so. You don't want handlebars to get entangled.

Periodically check the riders following using your rear view mirrors. If you see a rider falling behind, slow down so they may catch up. If all the riders in the group use this procedure, the group should be able to maintain a fairly steady speed without pressure to ride too fast to catch up.




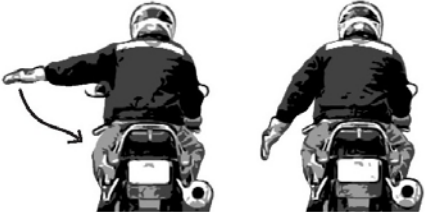



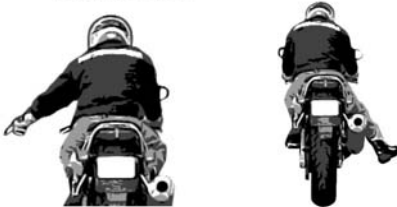






If you're separated from the group, don't panic. Your group should have a pre-planned procedure in place to regroup. Don't break the law or ride beyond your skills to catch up.

For mechanical or medical problems, use a cell phone to call for assistance as the situation warrants.

If a rider leaves during the ride, the rest of the group should re-form the staggered formation by criss-crossing into the next vacant position. Although it would seem more efficient for the column directly behind the missing rider to move up, we do not recommend it because passing another rider within a lane can be risky.



MSF's Guide to Group Riding: Hand Signals

<p>Stop - arm extended straight down, palm facing back</p> 	<p>Single File - arm and index finger extended straight up</p> 	<p>Turn Signal On - open and close hand with fingers and thumb extended</p> 
<p>Slow Down - arm extended straight out, palm facing down</p> 	<p>Double File - arm with index and middle finger extended straight up</p> 	<p>Fuel - arm out to side pointing to tank with finger extended</p> 
<p>Speed Up - arm extended straight out, palm facing up</p> 	<p>Hazard in Roadway - on the right, point with right foot; on the left, point with left hand</p> 	<p>Refreshment Stop - fingers closed, thumb to mouth</p> 
<p>You Lead/Come - arm extended upward 45 degrees, palm forward pointing with index finger, swing in arc from back to front</p> 	<p>Highbeam - tap on top of helmet with open palm down</p> 	<p>Comfort Stop - forearm extended, fist clenched with short up and down motion</p> 
<p>Follow Me - arm extended straight up from shoulder, palm forward</p> 	<p>Pull Off - arm positioned as for right turn, forearm swung toward shoulder</p> 	

Test Your Knowledge

1. Passengers should:

- A. Look over the motorcycle operator's shoulder in the direction of the turn or curve.
- B. Never hold onto the rider.
- C. Sit as far back as possible.

2. What formation should you form when riding in a group?

- A. Single-file formation.
- B. Side-by-side formation.
- C. Staggered formation.

- 1. A – pages 51-52, *Instructing Passengers*,
- 2. C – page 52, *Group Riding*

Some riders have no problem
being seen
by other drivers.



But you're no superhero.

Stand Out.

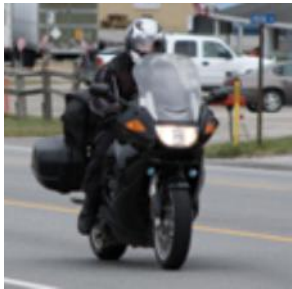
Learn how at www.HighViz.org



Provided for the motorcycle clubs of Minnesota. To obtain a free copy of this poster, visit our Web site at www.motorcyclistsupply.com



Factors Affecting Rider Performance



Riding a motorcycle requires a great amount of mental alertness and physical skill. Sometimes changes in your environment occur, which can affect your visibility. Physical changes may occur as well, which may affect your riding performance. Responsible riders know how to adjust or compensate for factors which 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. It is wise to dress in layers so the layers can be removed as desired. Topping the protective gear with a windproof outer layer can prevent cold air from reaching the skin.

Cold weather significantly lengthens your reaction time. To compensate for the slower reaction time, reduce your speed and increase your following distance and space to the 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

This Section Covers

- Cold Weather
- Extreme Hot Weather
- Night Riding
- Distracted Riding
- Fatigue

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

Extreme Hot Weather

In extreme hot weather, wear protective gear that breathes. It is still important to wear a jacket and 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.

Night Riding

Riding at night 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, particularly on roads you don't know well. This will increase your chances of avoiding a hazard.
- **Increasing Distance** – Distances are harder to judge at night than during the day. Open up a four second following distance or more. And allow more distance to pass and be passed.
- **Using the Car Ahead** – The headlights of the car ahead can give you a better view of the road than even your high beam can. Taillights bouncing up and down can alert you to bumps or rough pavement.
- **Using Your High Beam** – Get all the light you can. Use your high beam whenever you are not following or meeting a car.
- **Be Visible** – Wear 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 an adequate space cushion.

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 to the riding task. You are completely and solely responsible for operating your motorcycle in a safe manner.

Fatigue

Fatigue can affect your control of the motorcycle. To minimize the potential for fatigue:

- **Get a good night's rest** – A good night's rest is important for preventing fatigue.
- **Protect yourself from the elements** – Wind, cold and rain make you tire quickly. Dress warmly. A windshield is worth its cost if you plan to ride long distances.
- **Vary speed and position on seat regularly** – The stimulation resulting from slight changes in speed or in body position will help to overcome the effects of fatigue.
- **Take frequent rest breaks** – Stop and get off the motorcycle every two hours or as needed.
- **Don't use artificial stimulants** – Artificial stimulants often result in extreme fatigue or depression when they start to wear off. Riders are unable to concentrate on the task at hand.

Test Your Knowledge

1. When riding at night:

- A. Use the left portion of the lane to see around other vehicles ahead.
- B. Ride close to the vehicle in front of you to see better with their headlights.
- C. Reduce your speed to increase your chance of avoiding a hazard.

2. To minimize the potential for fatigue:

- A. Turn on the radio.
- B. Take frequent rest breaks.
- C. Drink caffeine.

1. C – page 59, *Night Riding*

2. B – page 60, *Fatigue*

Three-Wheel Vehicles

Many states require a separate license or



endorsement to operate a three-wheel vehicle. You may be required to pass both a written and a skills test.

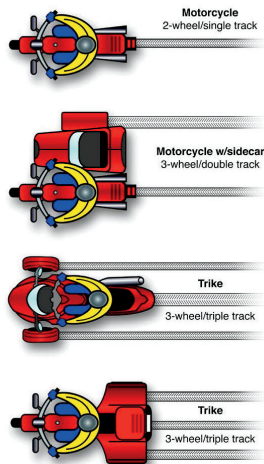
This section contains information that will help you prepare for the written exam for a three-wheel vehicle license or endorsement.

Common Operating Characteristics of Trikes and Motorcycles with a Sidecar

Types of Three-Wheel Vehicles

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

Types of Three-Wheel Vehicles



Differences between Two-Wheel Motorcycles and Three-Wheel Vehicles

A three-wheel vehicle 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 vehicle.

Three-wheel vehicles also steer differently. Since three-wheel vehicles cannot lean, the front wheel must be pointed in the direction you want the vehicle to go.

Be Familiar with Your Vehicle

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

Body Position

Your body position is important for control on a three-wheel vehicle. 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 vehicle to skid and you could lose control.

Hills

When riding uphill on a three-wheel vehicle, 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

This Section Covers

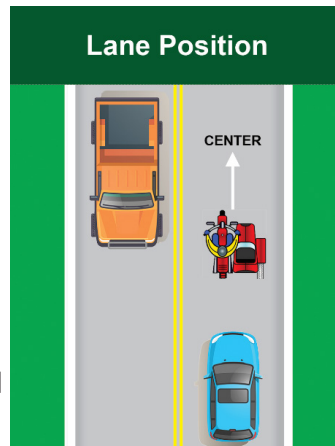
- Common Operating Characteristics of Trikes and Motorcycles with a Sidecar
- Unique Operating Characteristics of Trikes
- Unique Operating Characteristics of a Motorcycle with a Sidecar
- Additional Resources

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 vehicle 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.

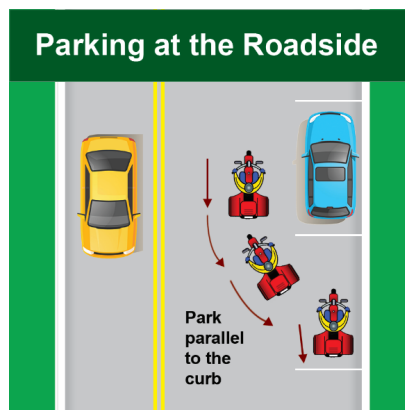


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Lane positioning when riding in groups is also an important consideration. Ride single file and always maintain a safe margin, four seconds minimum, between vehicles.

Parking at the Roadside

Position your vehicle in a parking space so you are parked parallel to the curb. Set the parking brake or leave it in gear to keep it from rolling. Parking parallel to the curb will facilitate pulling away from the curb and entering the lanes of traffic.



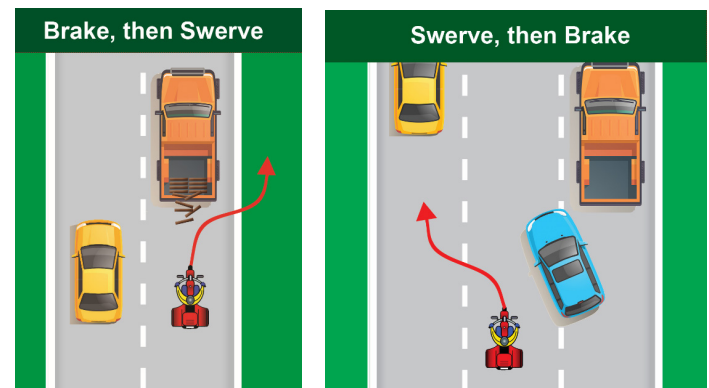
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Swerving

A three-wheel vehicle is not as maneuverable as a two-wheel motorcycle, so 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 without proper training. If you need to avoid a collision the best option may be hard braking.



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Cornering and Curves

When riding through curves, remember to stay 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 Trikes

Turning

Because the weight of a trike is distributed almost equally between the two front or two rear wheels, these vehicles handle the same in left and right turns.

Turning a Trike

- 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 standard trike (one wheel in front, two in the rear) is that the two rear wheels have more braking power. How much varies by trike design. This is because weight does not shift to the front wheel on a trike during hard braking. Most of the weight stays on the rear wheels and makes the rear brakes more effective. The front brakes are more effective on trikes with two wheels in front, one in the rear, where weight is transferred to the front wheels during braking making the front brakes more effective.

Carrying a Passenger and Cargo

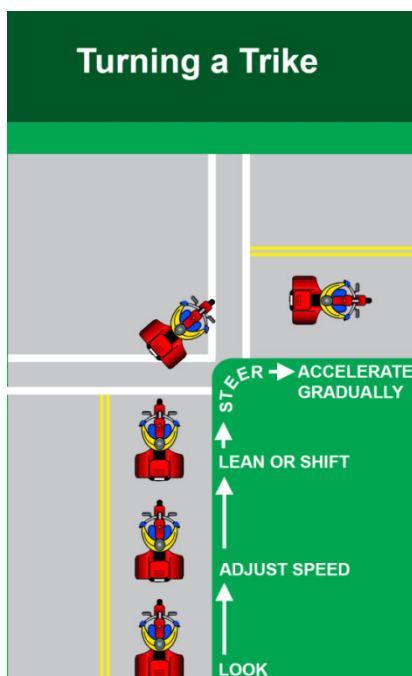
Only skilled, experienced riders should carry passengers or heavy loads. The additional weight of a passenger or cargo will change the handling characteristics of the vehicle.

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.

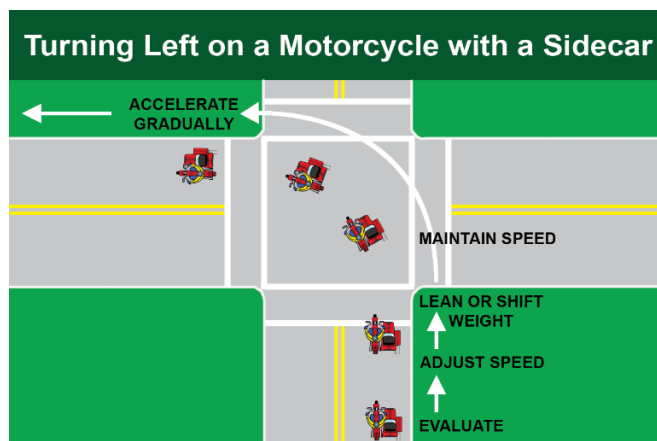
Turning

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

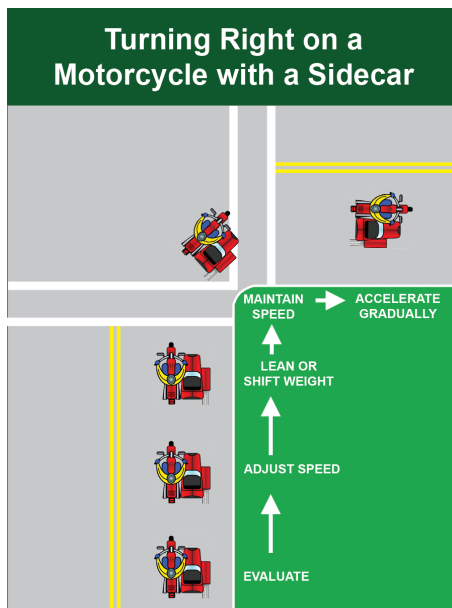
During a left turn, the sidecar acts as a stabilizer, so the sidecar wheel stays on the ground. However, if the turn is taken too sharply or at too great a speed, it may cause the rear wheel of the motorcycle to lift off the ground and the nose of the sidecar to contact the pavement.



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 front wheel skids, ease off some of the pressure to regain steering control. If the rear wheel skids, keep it locked until the vehicle has stopped completely. If the sidecar wheel has a brake, and that wheel starts to skid, you can safely ignore it.

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. And, if the wheels skid, the vehicle will slide toward the road shoulder, not into the opposing lane of traffic.

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 not necessary for the passenger to lean into curves with you. When loaded, your vehicle 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.

Additional Resources for More Information on Three-Wheel Vehicles

Here is a list of additional resources for more information on three-wheel vehicles.

The National Highway Traffic Safety Administration (NHTSA) website:
<http://www.nhtsa.gov/Safety/Motorcycles>

Evergreen Safety Council's website, includes a list of nationally available three-wheel courses:
www.esc.org/step_national_schedule.php

The Sidecar/Trike Education Program student handbook can be purchased from the Evergreen Safety Council at 800-521-0778.

Sidecar Safety Program (SSP), Inc., Driving a Sidecar Outfit: A manual on learning to drive a

motorcycle/sidecar combination, 2nd edition, Copyright 2008. This book is available by contacting the SSP directly at www.sidecarsafety@mail.org.

The Motorcycle Safety Foundation's (MSF) website has information on:

- You and Your 3-wheel Motorcycle: Riding Tips:
http://www.msf-usa.org/downloads/3w_tips.pdf
- MSF 3WBRC training course:
http://www.msfusa.org/downloads/3WBRC_Student_Handbook_2010.pdf

Test Your Knowledge

1. What are two major differences between two-wheel motorcycles and three-wheel vehicles? A three-wheel vehicle:

- A. Is less stable, and is steered by pointing the front wheel in the direction of the turn.
- B. Is more stable, but could tip-over and is steered by pointing the front wheel in the direction of the turn.
- C. Is more stable, but could tip-over and is steered by pointing the **front wheel in the opposite direction of the turn.**

2. When riding a three-wheel vehicle in groups, you should:

- A. Ride single file and maintain a four-second following distance.
- B. Ride in staggered formation and maintain a four-second following distance.
- C. Ride single file and maintain a one-second following distance.

3. When turning a trike, how should you approach the turn?

- A. With your head up and adjusting your speed.
- B. With your head down and accelerating.
- C. With your head down and adjusting your speed.

4. When stopping quickly and the front wheel skids, you should:

- A. Keep it locked until the vehicle has completely stopped.
- B. Ease off some of the pressure to regain steering control.
- C. Hold the handgrips firmly and ease off the throttle.

1.B – page 61, Differences between Two-Wheel Motorcycles and Three-Wheel Vehicles

2. A – page 62, Lane Position

3.A – page 62, Turning a Trike

4. B – page 64, Stopping Quickly

Sample Knowledge Test Questions

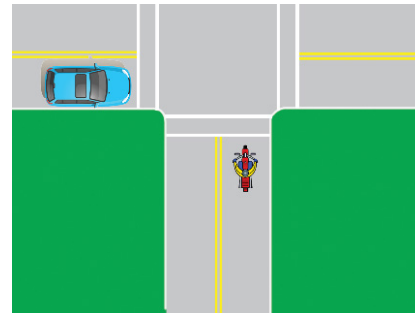
This Section Covers

- Sample Knowledge Test Questions

(Answers are located at the end of this section.)

- It is MOST important to flash your brake light when:
 - You are stopped at an intersection.
 - You will be slowing suddenly.
 - There is a stop sign ahead.
 - Your signals are not working.
- The FRONT brake supplies how much of the potential stopping power?
 - About twenty-five percent.
 - About fifty-percent.
 - Seventy-percent or more.
 - All of the stopping power.
- To swerve correctly:
 - Shift your weight quickly.
 - Turn the handlebars quickly.
 - Press the handgrip in the direction of the turn.
 - Press the handgrip in the opposite direction of the turn.
- If a tire goes flat while riding, and you must stop, it is usually best to:
 - Relax on the handgrips.
 - Shift your weight toward the good tire.
 - Ease off the throttle.
 - Use both brakes and stop quickly.

- The car below is waiting to enter the intersection. It is best to:
 - Make eye contact with the driver.
 - Reduce speed and be ready to react.
 - Maintain speed and position.
 - Maintain speed and move right.



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Answers to Sample Knowledge Test Questions

- 1-B, answer on page 42, Increasing Conspicuity, Brake Light
 2-C, answer on page 32, Stopping
 3-C, answer on page 46, Swerving
 4-C, answer on page 48, Tire Failure
 5-B, answer on page 37, Intersections

Optional Content



This section contains supplementary information that may be useful when learning how to ride a motorcycle.

Refer to your motorcycle owner's manual for additional information.

Motorcycle Controls

It is important to read your motorcycle owner's manual to learn where your motorcycle controls are and how to operate them. You should be able to operate them while riding without having to look for them.

Primary 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.

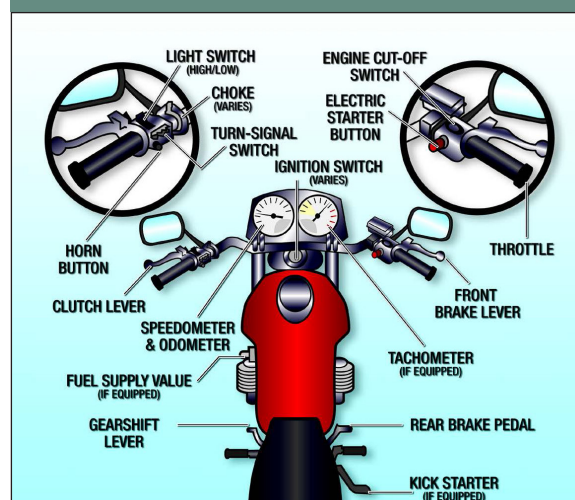
- **Handlebars** – The handlebars are used to initiate and control motorcycle lean, which turns the motorcycle.
- **Throttle** – Is the right handgrip and is operated by rolling the handgrip toward you to increase speed and away from you to decrease speed. When released, the throttle snaps back to an "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 toward the left handgrip, disconnecting power from the rear wheel. To reengage power, slowly release the clutch lever while gently applying throttle.

This Section Covers

- | | |
|--|--|
| <ul style="list-style-type: none"> • Motorcycle Controls • Pre-Ride Check • Passing Parked Vehicles • Parking at Curbs | <ul style="list-style-type: none"> • Passing and Being Passed • Hand Signals • Carrying Loads |
|--|--|

- **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. To shift to a lower gear (downshift), squeeze the clutch lever and then press the gearshift lever. Motorcycle transmissions shift only one gear per each lift or 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, 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 with your right foot.

Motorcycle Controls



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** – 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 the Fuel Supply Valve, turn it 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.
- **Starter** – 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)** – It 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. Most mirrors are convex. Convex mirrors provide a wider view than flat mirrors but make vehicles seem further away than they really are. Adjust them so your shoulder and upper arm are partially visible. This gives you the maximum view to the rear and the side.
- **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.

Pre-Ride Check

If something's wrong with the motorcycle, you'll want to find out about it before you get in traffic. Make a complete check of your motorcycle before every ride.

Before mounting the motorcycle make the following checks:

- **Tires/Wheels** – Keep tires in good condition.
- **Tire Pressure** – Check the tire pressure using a gauge. A tire may be underinflated without a noticeable change in appearance. Motorcycles do not handle properly if the inflation pressure is too low or too high. Check the owner's manual for the right amount.
- **Tire Tread** – Check the tread of the tires. Worn or uneven tread can make the motorcycle hard to handle, particularly on wet pavement.

- **Rims/Spokes** – Check for bent, loose or damaged rims and spokes.
- **Damage to Tires** – Check for cuts or objects stuck in the tread. Also, check the sidewalls for cracks. A blowout on a motorcycle can be extremely dangerous.
- **Fluids** – Oil and fluid levels. At a minimum, check hydraulic fluids and coolants weekly. Look under the motorcycle for signs of an oil or gas leak. Running out of gas is inconvenient. It can also be dangerous as it makes leaving the road difficult. Lack of oil can damage your engine.
- **Headlights and Taillight** – Check them both. Test your switch to make sure both high and low beams are working.
- **Turn Signals** – Turn on both right and left turn signals. Make sure all lights are working properly.
- **Brake Light** – Try both brake controls and make sure each one turns on the brake light.
- **Controls (levers, cables, throttle)** – Check the condition, operation and routing. Check the cables for kinks or broken strands. If a cable breaks while riding, the motorcycle could become difficult to control and a crash could result.
- **Chain** - Make sure the drive chain is properly adjusted and lubricated. Check the motorcycle owner's manual for information regarding chain adjustment.

Once you have mounted the motorcycle, complete the following checks before starting out:

- **Clutch and Throttle** – Make sure they operate smoothly. The throttle should snap back when released. The clutch should feel tight and smooth.
- **Mirrors** – Clean and adjust both mirrors before riding. It is difficult and dangerous to adjust a mirror while riding. Position both mirrors far enough outward to show about half the lane behind and as much as possible of the lane to the side. When properly adjusted, a mirror may show the edge of

your arm or shoulder – but it's the road behind and to the side that's most important.

- **Brakes** – Try the front and rear brake controls, one at a time. Make sure each one feels firm, not spongy and holds the motorcycle when the brake is fully applied. Check the brake fluid levels. Roll the motorcycle a little and make sure the brakes stop the motorcycle. After starting to ride, slightly apply the brakes and make sure the motorcycle slows. It is important to check the brakes because you must be able to slow down and stop the motorcycle.
- **Horn** – Try the horn. Make sure it works.
- **Fuel Supply Valve (if equipped)** – Make sure the valve is on/open. Your motorcycle may start with fuel still in the lines, but it will stall once the lines are empty.

T-CLOCSSM Inspection Checklist



T CLOCS ITEM	WHAT TO CHECK	WHAT TO LOOK FOR	CHECK OFF	
T-TIRES & WHEELS				
Tires	Condition	Tread depth, wear, weathering, evenly seated, bulges, embedded objects.	Front	Rear
	Air Pressure	Check when cold, adjust to load.	Front	Rear
Wheels	Spokes	Bent, broken, missing, tension, check at top of wheel: "ring" = OK — "thud" = loose spoke.	Front	Rear
	Cast	Cracks, dents.	Front	Rear
	Rims	Out of round/true = 5mm. Spin wheel, index against stationary pointer.	Front	Rear
	Bearings	Grab top and bottom of tire and flex: No freeplay (click) between hub and axle, no growl when spinning.	Front	Rear
	Seals	Cracked, cut or torn, excessive grease on outside, reddish-brown around outside.	Front	Rear
Brakes	Function	Each brake alone keeps bike from rolling.	Front	Rear
	Condition	Check pads and discs for wear.	Front	Rear
C-CONTROLS				
Handlebars	Condition	Bars are straight, turn freely, handgrips and bar ends are secure.		
Levers and Pedal	Condition	Broken, bent, cracked, mounts tight, ball ends on handlebar levers, proper adjustment.		
	Pivots	Lubricated.		
Cables	Condition	Fraying, kinks, lubrication: ends and interior.		
	Routing	No interference or pulling at steering head, suspension, no sharp angles, wire supports in place.		
Hoses	Condition	Cuts, cracks, leaks, bulges, chafing, deterioration.		
	Routing	No interference or pulling at steering head, suspension, no sharp angles, hose supports in place.		
Throttle	Operation	Moves freely, snaps closed, no revving when handlebars are turned.		
L-LIGHTS & ELECTRICS				
Battery	Condition	Terminals; clean and tight, electrolyte level, held down securely.		
	Vent Tube	Not kinked, routed properly, not plugged.		
Headlamp	Condition	Cracks, reflector, mounting and adjustment system.		
	Aim	Height and right/left.		
Tail lamp/brake lamp	Condition	Cracks, clean and tight.		
	Operation	Activates upon front brake/rear brake application.		
Turn signals	Operation	Flashes correctly.	Front left Rear left	Front right Rear right
Switches	Operation	All switches function correctly: engine cut-off, hi/low beam, turn signal.		
Mirrors	Condition	Cracks, clean, tight mounts and swivel joints.		
	Aim	Adjust when seated on bike.		
Lenses & Reflectors	Condition	Cracked, broken, securely mounted, excessive condensation.		
Wiring	Condition	Fraying, chafing, insulation.		
	Routing	Pinched, no interference or pulling at steering head or suspension, wire looms and ties in place, connectors tight, clean.		
O-OIL & OTHER FLUIDS				
Levels	Engine Oil	Check warm on center stand on level ground, dipstick, sight glass.		
	Gear Oil, Shaft Drive	Transmission, rear drive, shaft.		
	Hydraulic Fluid	Brakes, clutch, reservoir or sight glass.		
	Coolant	Reservoir and/or coolant recovery tank — check only when cool.		
	Fuel	Tank or gauge.		
Leaks	Engine Oil	Gaskets, housings, seals.		
	Gear Oil, Shaft Drive	Gaskets, seals, breathers.		
	Hydraulic Fluid	Hoses, master cylinders, calipers.		
	Coolant	Radiator, hoses, tanks, fittings, pipes.		
	Fuel	Lines, fuel valve, carbs.		
C-CHASSIS				
Frame	Condition	Cracks at gussets, accessory mounts, look for paint lifting.		
	Steering-Head Bearings	No detent or tight spots through full travel, raise front wheel, check for play by pulling/pushing forks.		
	Swingarm Bushings	Raise rear wheel, check for play by pushing/pulling swingarm.		
Suspension	Front Forks	Smooth travel, equal air pressure/damping, anti-dive settings.	Left	Right
	Rear Shock(s)	Smooth travel, equal pre-load/air pressure/damping settings, linkage moves freely and is lubricated.	Left	Right
Chain or Belt	Tension	Check at tightest point.		
	Lubrication	Side plates when hot. Note: do not lubricate belts.		
	Sprockets	Teeth not hooked, securely mounted		
Fasteners	Threaded	Tight, missing bolts, nuts.		
	Clips & Cotter Pins	Broken, missing.		
S-STANDS				
Center stand	Condition	Cracks, bent.		
	Retention	Springs in place, tension to hold position.		
Side stand	Condition	Cracks, bent (safety cut-out switch or pad equipped).		
	Retention	Springs in place, tension to hold position.		

Parking at Curbs

If parking in a parallel parking space next to a curb, position the motorcycle at an angle with the rear wheel to the curb. (Note: Some cities have ordinances that require motorcycles to park parallel to the curb.)



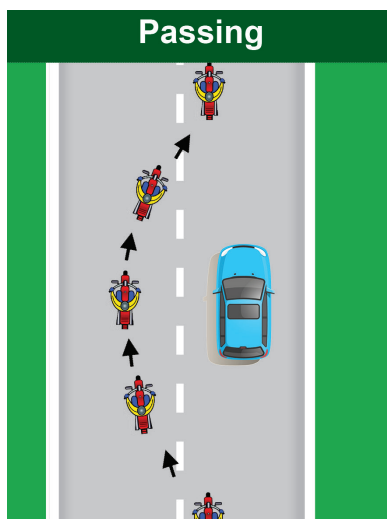
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Passing and Being Passed

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

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.



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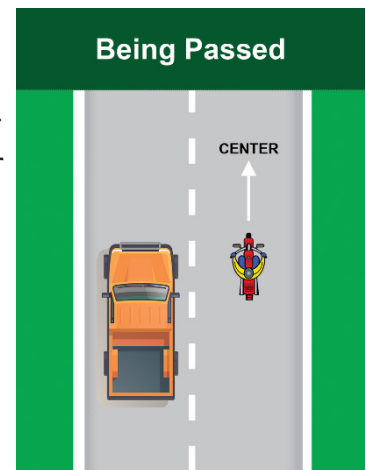
When safe, move into the left lane and accelerate. Select a lane position that doesn't crowd the car you are passing and provides space to avoid hazards in your lane.

Ride through the blind spot as safely and quickly as possible.

Signal again, and complete mirror and head checks before returning to your original lane and then cancel signal.

Being Passed

When you are being passed ride in the center portion of your lane. Riding any closer to the passing vehicle 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.



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Hand Signals

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.



Carrying Loads

Most motorcycles are not designed to carry much cargo. Small loads can be carried safely if positioned and fastened properly.

- **Keep the load low** – Secure loads low to the seat and not against rear seat frames. Fasten loads securely, or put them in saddlebags. Piling loads against aissy bar or frame on the back of the seat changes the motorcycle's center of gravity and disturbs 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 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 cycle 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, causing it to lock up and skid. Rope tends to stretch and knots come loose, permitting the load to shift or fall.

**Dress Smart - Think Smart
Ride Smart**

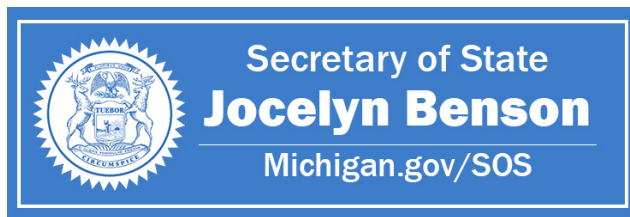


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