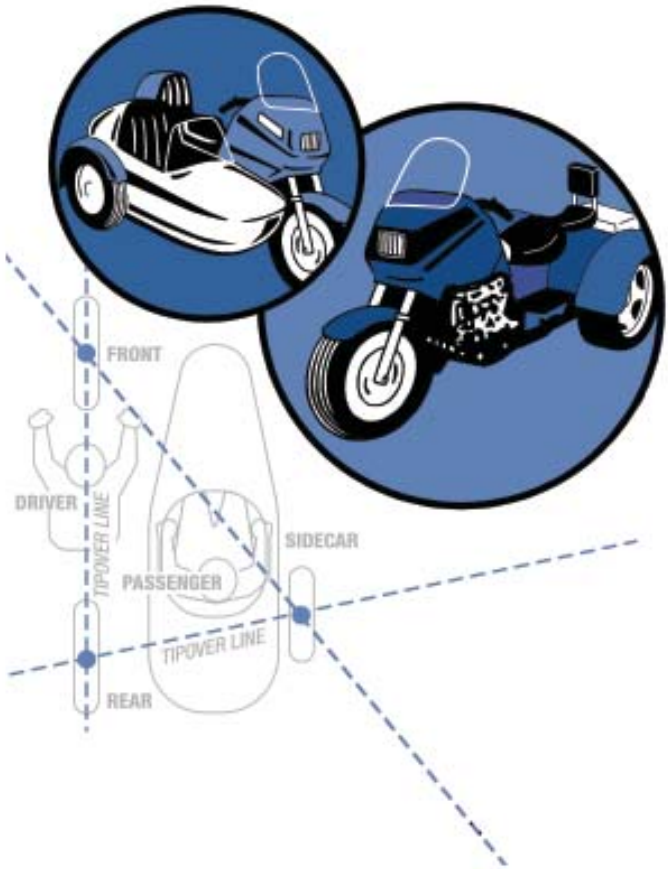
DEPARTMENT OF LICENSING

Sidecar/Trike Operator Manual



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WASHINGTON MOTORCYCLE SAFETY PROGRAM

PREPARING TO RIDE

RIDE WITHIN YOUR ABILITIES

BEING IN SHAPE TO RIDE

EARNING YOUR LICENSE

This motorcycle operator's manual was developed through the joint cooperation of the Evergreen Safety Council.

Printed and distributed by the Washington State Department of Licensing.

"Sharing the road" means "getting along" not "getting ahead." On today's highways there are many new three-wheel operators and even more automobile drivers who are not used to sharing the road with each other. The key to safe mixing in traffic is understanding and cooperation.

Making this a reality requires motorists actively looking for and granting cyclists their space on the highway, coupled with motorcyclists operating within the rules of the road. These driving attitudes by both motorcyclists and other highway users will make Washington's highways safer for everyone.

WASHINGTON MOTORCYCLE SAFETY PROGRAM

The Washington Motorcycle Safety Program (WMSP) was created in 1983. Training courses are sponsored by local organizations, approved and administered by the Washington State Department of Licensing, and recognized nationally by the Evergreen Safety Council. The program is funded by motorcycle and three-wheel endorsement fees.

The Motorcycle Safety Program's goal is to provide quality motorcycle rider training for new and experienced riders.

Who needs motorcycle safety education?

Motorcycling and three-wheeling is fun and exciting. There is nothing like seeing the world from behind the handlebars of your own motorcycle or three-wheeler, but you need to know what you are doing. Unfortunately, many riders teach themselves or rely on tips from friends. Even after several years of riding, many do not have the skills they need to avoid a collision.

So, if you're thinking about buying a motorcycle or three-wheeler for the first time, or even if you've been riding for a while, think about rider education now!

How are new riders trained?

The skills needed to safely operate sidecar-equipped motorcycles and trikes, while similar in some aspects, are different from those skills needed for two-wheeled motorcycles.

The WMSP uses the Sidecar/Trike Education Program developed by the Evergreen Safety Council. This course is available for participants on their own machines. Automotive-based trikes do not qualify for the training.

The sidecar/trike training gives new riders the strategies they need when they are on the street by providing:

- Hands-on riding experience on a protected, off-street range.
- Complete textbook and classroom instruction on riding techniques, protective gear, selecting a sidecar/trike, buying insurance and motorcycle maintenance.
- Instruction by skilled riders who are certified by the WMSP and the Evergreen Safety Council.

If you are under 18 years of age you must complete a Sidecar/Trike Safety Education course before applying for the endorsement to your basic license.

Added benefits...

Students who have satisfactorily completed the Sidecar/Trike Education Program will be given a 180 day waiver from the Department of Licensing written and skills exams.

Where can I find a course?

You can find the Sidecar/Trike Education Program nearest you by calling toll-free 1-800-962-9010 or go on line to www.dol.wa.gov/ds/wmsp.htm.

What will the course cost?

The Sidecar/Trike Education Program designed for novice or inexperienced riders provides a minimum of 16 hours of instruction. All courses cost $100 for Washington State residents age eighteen and over and for military personnel of any age and $50 for Washington State residents under the age of eighteen. Nonresidents will pay the full cost of each course.

Instruction permit

When learning to operate a trike or sidecar rig on the public highways, you must have an instruction permit. The permit is valid for 90 days and may be renewed once.

To apply for this permit, you must be at least 16 years of age, have a valid Washington State driver license, and pass a written test.

When learning to ride under a permit, you cannot carry passengers or ride a trike/sidecar rig during the hours of darkness.

Motorcycle and three-wheeler endorsements

To successfully obtain a motorcycle, three-wheel, or both endorsement, you must pass the written and skills tests. If you wish to obtain endorsements for both motorcycle and three-wheel, separate tests are required. This manual will prepare you for the written Sidecar/Trike exam. Please see the Motorcycle Operator Manual to prepare for the motorcycle written exam.

After obtaining a passing score on the written examination(s), you may make an appointment to take the skill test(s). The vehicle used for the test must be in safe and legal condition.

When both written and skill tests have been passed, you will be eligible for the endorsement needed to your Washington State driver license.

Fees

If you have never had a motorcycle, three-wheel, or both endorsement but wish to obtain one, you are required to pay an application fee of $5 for each endorsement you choose in addition to a motorcycle endorsement fee of $20.

When you renew your driver license, the Department of Licensing will collect a $25 endorsement renewal fee for either endorsement code in addition to the regular driver license renewal fee. The endorsement renewal fee will not be charged if you have the endorsement removed at the time your driver license is renewed.

The endorsement fee is used to implement and promote motorcycle and three-wheel operator training programs throughout the state. It supports the Department of Licensing motorcycle/three-wheel licensing function, which includes costs relating to endorsements, examinations, awareness programs and publication of this manual.

Equipment requirements

Three-wheelers are required to meet the same requirements as motorcycles listed below:

Washington State law requires that a trike/sidecar be equipped with two rearview mirrors. They must be mounted on the left and right sides of the rig to give the rider a clear view of at least 200 feet (60.9 meters) to the rear.

The rig must have a muffler in good working order. It must prevent excessive or unusual noise. Muffler cutouts, bypasses or similar devices are illegal. Changing the exhaust system to amplify the noise is also illegal.

Raising the handlebars to a level more than 30 inches (76.2 centimeters) above the level of the seat is also against the law. The operator must ride upon the permanent or regular seat and passengers cannot be carried, unless the motorcycle is designed to carry more than one person. The passenger must have footrests. No one can ride on a motorcycle with both feet on the same side of the machine.

The rig must have a workable horn, which can be heard for a distance of at least 200 feet (60.9 meters).

Motorcycles must be equipped with at least one headlight, but not more than two, and one taillight. The lights must be in use whenever the motorcycle is operated on the public roadway.

The operator must wear glasses, goggles or face shield, unless the motorcycle is equipped with a windshield.

Passengers under five years of age are not allowed on motorcycles or motor-driven cycles.

All riders must wear a protective helmet, which conforms to rules adopted by the U.S. Department of Transportation. Your helmet must be equipped with either a neck or chin strap, which is fastened properly and securely.

PREPARING TO RIDE

What you do before you start a trip goes a long way toward determining whether or not you'll get where you want to go safely. Before taking off on any trip, a safe operator makes a point to:

- wear the right gear.
- become familiar with the three-wheeler.
- check the three-wheeler equipment.
- be a responsible operator.

WEAR THE RIGHT GEAR

When you ride, your gear is "right" if it protects you. In any collision, you have a far better chance of avoiding serious injury if you wear:

- ***an approved helmet.***
- ***face or eye protection.***
- ***protective clothing.***

Helmet use

Collisions are not rare events — particularly among beginning operators. And one out of every five motorcycle collisions result in head or neck injuries. Head injuries are just as severe as neck injuries — and far more common. Collision analyses show that head and neck injuries account for a majority of serious and fatal injuries to motorcyclists. Research also shows that, with few exceptions, head and neck injuries are reduced by the proper wearing of an approved helmet. The ultimate purpose of a motorcycle helmet is to protect a rider's brain tissue from injury.

Washington State law requires every motorcyclist and three-wheel operator to wear a helmet approved by the U.S. Department of Transportation.

Here are some facts about helmets:

- An approved helmet lets you see as far to the sides as necessary. A study of more than 900 motorcycle collisions, where 40% of the operators wore helmets, did not find even one case in which a helmet kept an operator from spotting danger.
- Most collisions happen on short trips (less than five miles long), just a few minutes after starting out.
- Most operators are riding slower than 30 mph when a collision occurs. At these speeds, helmets can cut both the number and the severity of head injuries by half.

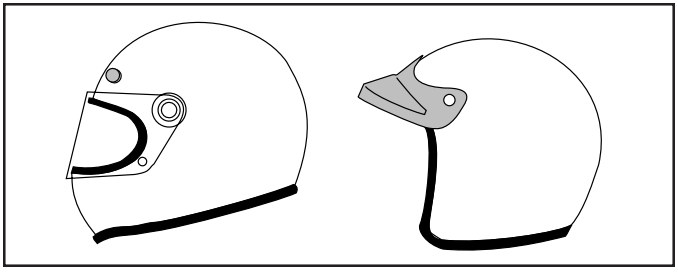
No matter what the speed, helmeted operators are three times more likely to survive head injuries than those not wearing helmets at the time of the collision.

Helmet selection

There are two primary types of helmets, providing two different levels of coverage: three-quarter and full face.

Whichever style you choose, you can get the most protection by making sure that the helmet:

- meets U.S. Department of Transportation (DOT) and state standards. Helmets with a label from the Snell Memorial Foundation give you an added assurance of quality.
- fits snugly, all the way around.
- has no obvious defects such as cracks, loose padding or frayed straps.
- is securely fastened on your head when you ride.



Eye and face protection

A plastic shatter-resistant face shield is the best eye protection and can help protect your whole face in a collision. It also protects you from wind, dust, dirt, rain, insects, and pebbles thrown up from cars ahead. These problems are distracting and can be painful. If you have to deal with them, you can't devote your full attention to the road.

Goggles protect your eyes, though they won't protect the rest of your face like a face shield. A windshield is not a substitute for a face shield or goggles. Most windshields will not protect your eyes from the wind. Neither will eyeglasses or sunglasses. Glasses won't keep your eyes from watering, and they might blow off when you turn your head while riding.

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.

Tinted eye protection should not be worn at night or any other time when little light is available.

Clothing

The right clothing protects you in a collision. It also provides comfort, as well as protection from heat, cold, debris, and hot and moving parts of the three-wheeler.

- ***Jacket and pants*** should cover arms and legs completely. They should fit snugly enough to keep from flapping in the wind, yet loosely enough to move freely. Leather offers the most protection. Sturdy synthetic material provides a lot of protection as well. Wear a jacket even in warm weather to prevent dehydration. Many are designed to protect without getting you overheated, even on summer days.
- ***Boots or shoes*** should be high and sturdy enough to cover your ankles and give them support. Soles should be made of hard, durable slip resistant material. Keep heels short so they do not catch on rough surfaces. Tuck laces in so they won't catch on your three-wheeler.
- ***Gloves*** allow a better grip and help protect your hands in a collision. Your gloves should be made of leather or similar durable material.

In cold or wet weather, your clothes should keep you warm and dry, as well as protect you from injury. You cannot control a three-wheeler well if you are numb. Riding for long periods in cold weather can cause severe chill and fatigue. A winter jacket should resist wind and fit snugly at the neck, wrists, and waist. Good-quality rain suits designed for motorcycle riding resist tearing apart or ballooning up at high speeds.

Protection from the weather is an important part of being mentally prepared to ride and this protection is needed in all weather conditions. A condition known as hypothermia, the lowering of body temperature, can take place on a "nice" day as well as a cold one. If the outside temperature is 65 degrees and a rider is moving at 55 mph, the wind chill is approximately 33 degrees. Hypothermia causes uncontrollable shivering, reduced reaction times, and often leads to a rider's concentrating on the cold and losing focus on the traffic situation.

Test Yourself

1. A plastic shatter-resistant face shield:
   A. is the best eye protection.
   B. only protects your eyes.
   C. helps protect your whole face.
   D. does not protect your face as well as goggles.

KNOW YOUR THREE-WHEELER

There are plenty of things on the highway that can cause you trouble. Your three-wheeler should not be one of them. To make sure that your three-wheeler won't let you down:

- Read the owner's manual first.
- Start with the right three-wheeler for you.
- Be familiar with the three-wheeler controls.
- Check the three-wheeler before every ride.
- Keep it in safe riding condition between rides.
- Avoid add-ons and modifications that make your three-wheeler harder to handle.

Operating differences between two and three wheeled motorcycles

It is important to understand some of the differences between two-wheeled motorcycles and those with three wheels.

- The likelihood of a three-wheeler tipping over is less than a two-wheel motorcycle.
- With all three wheels on the ground, a trike or sidecar equipped motorcycle steers differently from a two-wheeled motorcycle.

Even among three-wheelers, there are variations. Trikes generally have more braking power on the rear wheels.

The right three-wheeler for you

First, make sure your three-wheeler is right for you. It should "fit" you. You should be able to operate all controls, including full handlebar movement, with no upper body movement that may affect overall control.

At minimum, your street-legal trike/sidecar should have:

- ***Headlight, taillight and brake light.***
- ***Front and rear brakes.***
- ***Turn signals.***
- ***Horn.***
- ***Two mirrors.***

Borrowing and lending

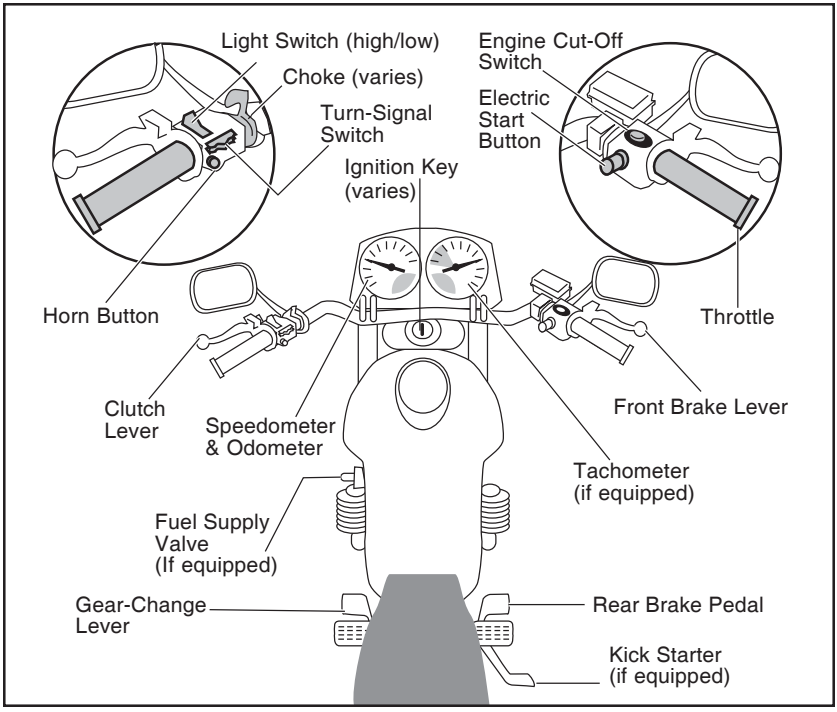
Borrowers and lenders of three-wheelers, beware. Collisions are fairly common among beginning operators — especially in the first months of riding. Operating an unfamiliar three-wheeler adds to the problem. If you borrow a three-wheeler, get familiar with it in a controlled area. And if you lend your three-wheeler to friends, make sure they are licensed and know how to ride before allowing them out into traffic.

No matter how experienced you may be, ride extra carefully on any three-wheeler that's new or unfamiliar to you. More than half of all collisions occur on motorcycles ridden by the operator for less than six months.

Get familiar with the three-wheeler controls

Make sure you are completely familiar with the three-wheeler before you take it out on the street. Be sure to review the owner's manual. This is particularly important if you are riding a borrowed three-wheeler. If you are going to use an unfamiliar three-wheeler:

- Make all the checks you would on your own three-wheeler.
- Find out where everything is, particularly the turn signals, horn, headlight switch, fuel-control valve, and engine cutoff switch. Find and operate these items without having to look for them.
- Know the gear pattern. Work the throttle, clutch, and brakes a few times before you start riding. All controls react a little differently.
- Ride very cautiously and be aware of surroundings. Accelerate gently, take turns more slowly, and leave extra room for stopping.



Check your three-wheeler

A three-wheeler needs more frequent attention than a car. A minor technical failure in a car seldom leads to anything more than an inconvenience for the driver.

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

Before mounting the three-wheeler make the following checks:

- ***Tires*** — Check the air pressure, general wear and tread.
- ***Fluids*** — Oil and fluid levels. At a minimum, check hydraulic fluids and coolants weekly. Look under the three-wheeler for signs of an oil or gas leak.
- ***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.

Once you have mounted the three-wheeler, complete the following checks before starting out:

- ***Clutch and throttle*** — Make sure they work smoothly. The throttle should snap back when you let go. The clutch should feel tight and smooth.
- ***Mirrors*** — Clean and adjust both mirrors before starting. It's difficult to ride with one hand while you try to adjust a mirror. Adjust each mirror so you can see the lane behind and as much as possible of the lane next to you. 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 levers one at a time. Make sure each one feels firm and holds the motorcycle when the brake is fully applied.
- ***Horn*** — Try the horn. Make sure it works.

In addition to the checks you should make before every trip, check the following items at least once a week: Wheels, cables, fasteners, and fluid checks. Follow your owner's manual to get recommendations.

Test Yourself

2. More than half of all collisions:
   A. occur at speeds greater than 35 mph.
   B. happen at night.
   C. are caused by worn tires.
   D. involve operators who have ridden their motorcycles less than six months.

KNOW YOUR RESPONSIBILITIES

"Accident" implies an unforeseen event that occurs without anyone's fault or negligence. Most often in traffic, that is not the case. In fact, most people involved in a collision can usually claim some responsibility for what takes place.

Consider a situation where someone decides to try to squeeze through an intersection on a yellow light turning red. Your light turns green. You pull into the intersection without checking for possible latecomers. That is all it takes for the two of you to tangle. It was the driver's responsibility to stop. And it was your responsibility to look before pulling out. Neither of you held up your end of the deal. Just because someone else is the first to start the chain of events leading to a collision, it doesn't leave any of us free of responsibility.

As a operator you can't be sure that other operators will see you or yield the right of way. To lessen your chances of a collision occurring:

- ***Be visible*** — wear proper clothing, use your headlight, ride in the best lane position to see and be seen.
- ***Communicate your intentions*** — use the proper signals, brake light, and lane position.
- ***Maintain an adequate space cushion*** — following, being followed, lane sharing, passing and being passed.
- ***Scan your path of travel*** 12 seconds ahead.
- ***Identify and separate*** multiple hazards.
- ***Be prepared to act*** — remain alert and know how to carry out proper collision-avoidance skills.

Blame doesn't matter when someone is injured in a collision. There is rarely a single cause of any collision. The ability to ride aware, make critical decisions, and carry them out separates responsible operators from all the rest. Remember, it is up to you to keep from being the cause of, or an unprepared participant in, any collision.

RISK AWARENESS

Risk awareness is an important component of operator responsibilities. While preparation and practice will reduce the risk, there is no way to remove all risk from operating a three-wheeler. The operator is exposed to the environment, potential hazards and greater possibility of injury in an accident.

It is possible to reduce risk by:

- wearing protective gear to combat the elements.
- communicating your intentions.
- maintaining a space cushion.
- applying a mental strategy.

All of these will be discussed in the following section.

RIDE WITHIN YOUR ABILITIES

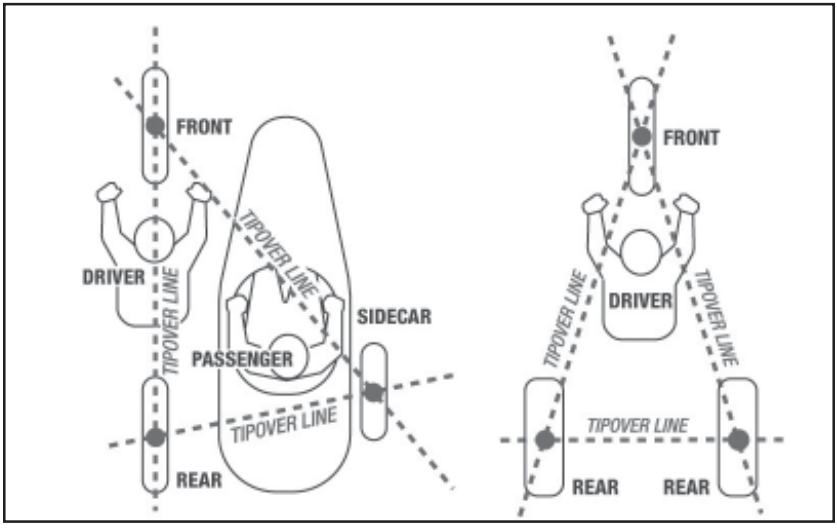
This manual cannot teach you how to control direction, speed, or balance. That's something you can learn only through practice. But control begins with knowing your abilities and riding within them along with knowing and obeying the rules of the road.

BASIC VEHICLE CONTROL

Tip over lines

It is possible when operating a three-wheeler to have only two wheels contacting the ground. This condition exist whenever weight is transferred outside what are known as "tip over lines." The figure below illustrates the tip over line on trikes and sidecar equipped motorcycles.

It is important to remember to carry loads on a three-wheeler within the tip over lines to increase stability. A trike is designed to keep all three wheels on the ground at all times. **A sidecar equipped motorcycle however may operate at times, with practice and experience, with complete control on only the two motorcycle tires.**



Body position

To control a three-wheeler:

- ***Posture*** — Sit so you can use your arms to steer the three-wheeler rather than to hold yourself up.
- ***Seat*** — Sit far enough forward so that arms are slightly bent when you hold the handlegrips. Bending your arms permits you to turn the handlebars without having to stretch.
- ***Hands*** — Hold the handlegrips firmly to keep your grip over rough surfaces. Start with your right wrist flat. This will help you keep from accidentally using too much throttle. Also, adjust the handlebars so your hands are even with or below your elbows. This permits you to use the proper muscles for precision steering.
- ***Knees*** — Keep your knees against the gas tank to help you keep your balance as the three-wheeler turns.
- ***Feet*** — Keep your feet firmly on the footpegs. Don't drag your feet. If your foot catches on something, you can be injured. Keep your feet near the controls so you can get to them fast if needed. Also, don't let your toes point downward — they may get caught between the road and the footpegs.

Unique to three-wheelers is the need to adjust your upper body position during cornering. It is necessary to lean in the direction you intend to turn to avoid raising the inside wheel and, possibly, flipping over. Leaning like this is sometimes referred to as hanging off. This will be very important with a sidecar equipped motorcycle if the sidecar has no weight in it.

Shifting gears

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

Shift down through the gears with the clutch as you slow or stop. Remain in first gear while you are stopped so that you can move out quickly if you need to.

Make certain you are riding slowly enough when you shift into a lower gear. If not, the three-wheeler will lurch, and the rear wheel may skid. When riding downhill or shifting into first gear you may need to use the brakes to slow enough before downshifting safely. Work towards a smooth, even clutch release, especially when downshifting.

It is best to change gears before entering a turn. However, sometimes shifting while in the turn is necessary. If so, remember to do so smoothly. A sudden change in power to the rear wheel can cause a skid.

Braking

Your three-wheeler has two brakes: one each for the front and rear wheels. Use both of them at the same time. During braking, the front brake becomes more effective as the weight of the three-wheeler transfers forward. While the rear brake provides the most power on trikes (sidecar equipped motorcycles front brake provides the most power), the front brake is safe to use if you use it properly.

Remember:

- Use both brakes *every time* you slow or stop. Using both brakes for even "normal" stops will permit you to develop the proper habit or skill of using both brakes properly in an emergency. For a complete stop, roll off the throttle, squeeze the clutch and front brake simultaneously while pressing down on the rear. Grabbing at the front brake or jamming down on the rear can cause the brakes to lock resulting in control problems.
- Ideally, braking should be completed before entering a turn. Although using both brakes in a turn is possible, it should be done very carefully. Motorcycle and three-wheeler tires have a limited amount of traction or "grip" on the road. Traction is greater when the tire is rolling versus skidding or "slipping."

When turning the three-wheeler some of the traction is used for cornering. Less traction is available for stopping. A skid can occur if you apply too much brake. Also, using the front brake incorrectly on a slippery surface may be hazardous. Use caution and *squeeze* the brake lever, never grab.

- An important fact to remember when slowing a sidecar equipped motorcycle – when speed increases from 30 to 40 mph the kinetic energy or momentum increases by 100%. The sidecar *greatly* increases the braking forces needed over that needed for a two-wheeler.

Turning

Operators often try to take curves or turns too fast. When they can't hold the turn, they end up crossing into another lane of traffic or going off the road. They may overreact and brake too hard, causing a skid and loss of control. Approach turns and curves with caution.

When approaching a turn at speed, keep your head up and look through each turn to where you want the rig to go:

1. Concentrate on pointing the front wheel in the direction you want the three-wheeler to go.
2. Roll off the throttle before entering the turn.
3. Apply the brakes enough to slow the three-wheeler to a speed you can safely ride through the turn, then release before the turn.
4. Lean your body into the turn.
5. Steer the front wheel towards the turn.
6. Before you enter the corner, roll on the throttle to pull the outfit through the turn.

With a sidecar:

- When accelerating, compensate for yaw by steering towards the left.
- When decelerating, compensate for yaw by steering to the right.

*yaw is veering to the left or right.

Hills

When riding uphill on a three-wheeler, some weight will shift to the rear causing the front to be lighter. This weight shift means there is less traction on the front tire for steering and braking.

Riding downhill means that gravity increases the amount of braking force required to stop or slow the three-wheeler. It is important to slow even earlier for cornering or stopping.

Test Yourself

3. When riding, you should:
   A. turn your head and shoulders to look through turns.
   B. keep your arms straight.
   C. keep your knees away from the gas tank.
   D. turn just your head and eyes to look where you are going.

KEEPING YOUR DISTANCE

The best protection you can have is distance — a "cushion of space" — all around your three-wheeler. If someone else makes a mistake, distance permits you:

- ***Time to react.***
- ***Space to maneuver.***

You create this "space cushion" by adjusting your speed, position, and/or direction.

Following another vehicle

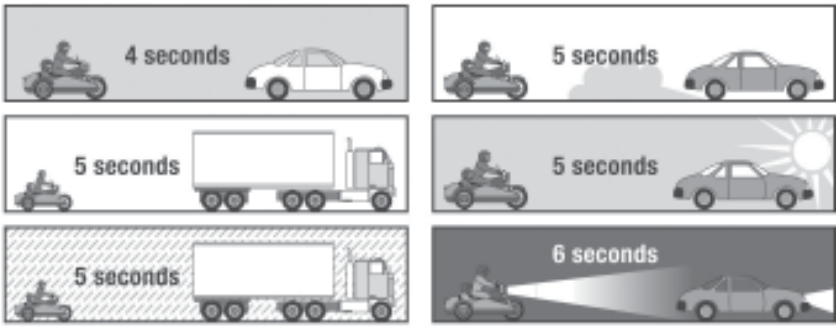
"Following too closely" is a major factor in collisions caused by motorcyclists. In traffic, three-wheelers need as much distance to stop as cars. Normally, *a minimum of three seconds* distance should be maintained behind the vehicle ahead.

To gauge your following distance:

- Pick out a marker, such as a pavement marking or lamppost, on or near the road ahead.
- When the rear bumper of the vehicle ahead passes the marker, count off the seconds: "one-thousand-one, one-thousand-two, one-thousand-three."
- If you reach the marker before you reach "three," you are following too closely.

A three-second following distance leaves a minimum amount of space to react, but not stop if the driver ahead stops suddenly. It also permits a better view of potholes and other hazards in the road.

A larger cushion of space is needed if your three-wheeler will take longer than normal to stop. For example, if the pavement is slippery, if you cannot see through the vehicle ahead, if it is dark, when the weather gets worse, or if traffic is heavy, open up a following distance greater than three seconds.



Keep well behind the vehicle ahead even when you are stopped. This will make it easier to get out of the way if someone bears down on you from behind. It will also give you a cushion of space if the vehicle ahead starts to back up for some reason.

Being followed

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

The way to handle tailgaters is to get away from them. 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 develops ahead.

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

1. Ride 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.
2. 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.
3. Ride through the blind spot as quickly as possible.
4. Signal again, and complete mirror and head checks before returning to your original lane and then cancel signal.

Remember, passes must be completed within posted speed limits, and only where permitted. Know your signs and road markings!

Being passed

When you are being passed from behind or by an oncoming vehicle, maintain your lane position and speed. Avoid being hit by:

- ***The other vehicle*** — A slight mistake by you or the passing driver could cause a sideswipe.
- ***Extended mirrors*** — Some drivers forget that their mirrors hang out farther than their fenders.

- ***Objects thrown from windows*** — Even if the driver knows you're there, a passenger may not see you and might toss something on you or the road ahead of you.
- ***Blasts of wind from larger vehicles*** — They can affect your control. You have more room for error if you are in the middle portion when hit by this blast than if you are on either side of the lane.

Lane sharing

Cars and three-wheelers need a full lane to operate safely. Lane sharing is prohibited.

Drivers are most tempted to do this:

- In heavy, bumper-to-bumper traffic.
- When they want to pass you.
- When you are preparing to turn at an intersection.
- When you are getting in an exit lane, or leaving a highway.

Merging cars

Drivers on an entrance ramp may not see you on the highway. Give them plenty of room. Change to another lane if one is open. If there is no room for a lane change, adjust speed to open up space for the merging driver.

Cars alongside

Do not ride next to cars or trucks in other lanes if you do not have to. You might be in the blind spot of a car in the next lane, which could switch into your lane without warning. Cars in the next lane also block your escape if you come upon danger in your own lane. Speed up or drop back to find a place clear of traffic on both sides.

Freeway riding

To reduce your risk while riding on the freeway it is important to maintain a speed that is equal to the other traffic's speed, keep looking well ahead and all around including behind you and maintain a space cushion.

Test Yourself

4. Usually, a good way to handle tailgaters is to:
   A. change lanes and let them pass.
   B. use your horn and make obscene gestures.
   C. speed up to put distance between you and the tailgater.
   D. ignore them.

RIDING STRATEGY

Good experienced riders remain aware of what is going on around them. It is critical that operators identify and plan for hazards because they usually have about two seconds to react to a hazard. They improve their riding strategy by using a five-step process to make appropriate judgments, and apply them correctly in different traffic situations. Good riders:

- ***Search ahead***
- ***Locate hazards***
- ***Anticipate***
- ***Decide***
- ***Use evasive action***

Let's examine each of these steps.

Search ahead

Search aggressively ahead, to the sides, and behind to avoid potential hazards even before they arise. How assertively you search, and how much time and space you have, can eliminate or reduce harm. Focus even more on finding potential escape routes in or around intersections, shopping areas, schools and construction zones.

Search for:

- Oncoming traffic that may turn left in front of you.
- Traffic coming from the left and right.
- Traffic approaching from behind.
- Hazardous road conditions.

Be especially alert in areas with limited visibility. Visually "busy" surroundings could hide you and your three-wheeler from others.

Locate hazards

Locate hazards and potential conflicts.

- Vehicles and other three-wheelers — may move into your path and increase the likelihood of a collision.
- Pedestrians and animals — are unpredictable, and make short, quick moves.
- Stationary objects — potholes, guard rails, bridges, roadway signs, hedges, or trees won't move into your path but may influence your riding strategy.

Anticipate

Consider speed, distance, and direction of hazards to anticipate how they may affect you. Cars moving into your path are more critical than those moving away or remaining stationary.

Predict where a collision may occur. Completing this "what if . . .?" phase to estimate results of contacting or attempting to avoid a hazard depends on your knowledge and experience.

Decide

Decide what you need to do based on your prediction.

The mental process of determining your course of action depends on how aggressively you searched. The result is your action and knowing which strategy is best for the situation. You want to eliminate or reduce the potential hazard. You must decide when, where, and how to take action. Your constant decision making tasks must stay sharp to cope with constantly changing traffic situations.

The decisions you make can be grouped by the types of hazards you encounter.

- Single hazard
- Two hazards
- Multiple hazards

Evasive action

Carry out your decision.

To create more space and minimize harm from any hazard:

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

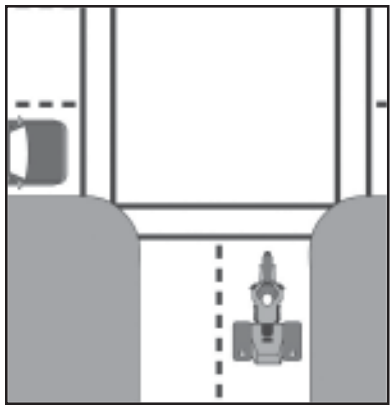
Apply the old adage “one step at a time” to handle two or more hazards. Adjust speed (slow) to permit two hazards to separate while looking farther ahead. Then deal with them one at a time as single hazards. Decision making becomes more complex with three or more hazards. Weigh consequences of each and give equal distance to the hazards.

In potential high risk areas, such as intersections, shopping areas, school and construction zones, cover the clutch and both brakes to reduce the time you need to react.

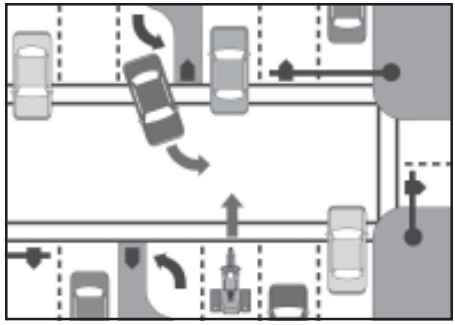
Test Yourself

5. To reduce your reaction time, you should:
   A. ride slower than the speed limit.
   B. cover the clutch and the brakes.
   C. shift into neutral when slowing.
   D. pull in the clutch when turning.

INTERSECTIONS



The greatest potential for conflict between you and other traffic is at intersections. Two-thirds of all multiple vehicle accidents involving motorcycles are the result of other drivers taking the motorcyclists’ right-of-way. An intersection can be in the middle of an urban area or at a driveway on a residential street — anywhere traffic may cross your path of travel. Over one-half of motorcycle/car collisions are caused by drivers entering a rider’s right-of-way. Cars that turn left in front of you, including cars turning left from the lane to your right, and cars on side streets that pull into your lane, are the biggest dangers. Your use of the five step mental process described above at intersections is critical.



There are no guarantees that others see you. Never count on "eye contact" as a sign that a driver will yield. Too often, a driver looks right at a motorcyclist and still fails to "see" him. The only eyes that you can count on are your own. If a car can enter your path, assume that it will. Good riders are always "looking for trouble" — not to get into it, but to stay out of it.

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 three-wheeler that permits you to take evasive action.

As you approach the intersection, select a lane position to increase your visibility to the driver. Cover the clutch and both brakes to reduce reaction time.

Reduce your speed as you approach an intersection. After entering the intersection, move away from oncoming vehicles preparing to turn. Do not change speed or position radically. The driver might think that you are preparing to turn. You may be able to predict whether an oncoming car is about to turn left in front of you by looking at the top of the car's front tire.

Blind intersections

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

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

Passing parked cars

When passing parked cars, stay toward the left of your lane. You may avoid problems caused by doors opening, drivers getting out of cars, or people stepping from between cars.

A bigger problem can occur if the driver pulls away from the curb without checking for traffic behind. Even if he does look, he may fail to see you. In either event, the driver might cut into your path. Slow down or change lanes to make room for someone cutting in.

Cars making a sudden U-turn are the most dangerous. They may cut you off entirely, blocking the whole roadway and leaving you with no place to go. Since you can't tell what a driver will do, slow down and get the driver's attention. Sound your horn and continue with caution.

Test Yourself

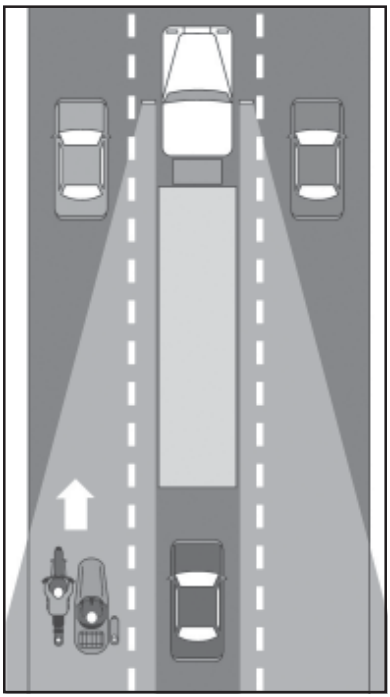
6. Making eye contact with other drivers:
   A. is a good sign that they see you.
   B. is important when approaching an intersection.
   C. doesn't mean that the driver will yield.
   D. decreases your chances of being involved in a collision.

INCREASING CONSPICUITY

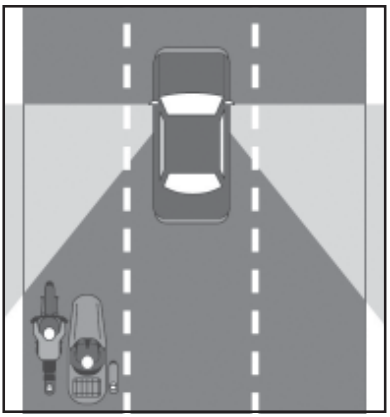
In collisions with motorcyclists, drivers often say that they never saw the motorcycle. From ahead or behind, a three-wheeler's outline may be much smaller than a car's. Also, it's hard to see something you are not looking for, and most drivers are not looking for three-wheelers. More likely, they are looking *through* the 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. Smaller vehicles 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.



The larger the vehicle, the bigger the blind spot.



Ride clear of traffic on both sides.

Clothing

Most collisions occur in broad daylight. Wear bright colored clothing to increase your chances of being seen.

Bright orange, red, yellow or green jackets or vests are your best bets for being seen. Your helmet can do more than protect you in a collision. Brightly colored helmets can help others see you.

Any bright color is better than drab or dark colors. Retroreflective, bright colored clothing (helmet and jacket or vest) is best.

Retroreflective material on a vest and on the sides of the helmet will help drivers coming from the side spot you. Retroreflective material can also be a big help for drivers coming toward you or from behind.

Headlight

The best way to help others see your three-wheeler is to keep the headlight on — ***at all times***. Studies show that, during the day, a motorcycle with its light on is twice as likely to be noticed. Use of the high beam during the day increases the likelihood that oncoming drivers will see you. Use low beam at night and in cloudy weather.

Signals

The signals on a three-wheeler may be similar to those on a car. They tell others what you plan to do. However, due to a rider's added vulnerability, signals are even more important. Use them anytime you plan to change lanes or turn. Use them even when you think no one else is around. It's the car you don't see that's going to give you the most trouble. Your signal lights also make you easier to spot. That's why it's a good idea to use your turn signals even when what you plan to do is obvious.

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

Turning your signal light on before each turn reduces confusion and frustration for the traffic around 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. Use your signals at every turn so drivers can react accordingly. Don't make them guess what you intend to do.

Brake light

Your three-wheeler's brake light is usually not as noticeable as the brake lights on a car — particularly when your taillight is on. (It 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 (turning off a high-speed highway).
- You slow where others may not expect it (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.

Using your mirrors

While it's most important to keep track of what's happening ahead, you can't afford to ignore situations occuring behind. Traffic conditions change quickly. Knowing what's going on behind is essential for you to make a safe decision about how to handle trouble ahead.

Frequent mirror checks should be part of your normal scanning routine. Make a special point of using your mirrors:

- ***When you are stopped at an intersection.*** Watch cars coming up from behind. If the driver isn't paying attention, he could be on top of you before he sees you.
- ***Before you change lanes.*** Make sure no one is about to pass you.
- ***Before you slow down.*** The driver behind may not expect you to slow, or may be unsure about where you will slow. For example, you signal a turn and the driver thinks you plan to turn at a distant intersection, rather than at a nearer driveway.

Some three-wheelers have rounded (convex) mirrors. These provide a wider view of the road behind than do flat mirrors. They also make cars seem farther away than they really are. If you are not used to convex mirrors, get familiar with them. *(While you are stopped, pick out a parked car in your mirror. Form a mental image of how far away it is. Then, turn around and look at it to see how close you came.)* Practice with your mirrors until you become a good judge of distance. Even then, allow extra distance before you change lanes.

Head checks

Checking your mirrors is not enough. Three-wheelers have "blind spots" like cars. Before you change lanes, turn your head, and look to the side for other vehicles.

On a road with several lanes, check the far lane and the one next to you. A driver in the distant lane may head for the same space you plan to take.

Frequent head checks should be your normal scanning routine. Only by knowing what is happening ***all around*** you, are you fully prepared to deal with it.

Horn

Be ready to use your horn to get someone's attention quickly.

It is a good idea to give a quick beep before passing anyone that may move into your lane.

Here are some situations:

- A driver in the lane next to you is driving too closely to the vehicle ahead and may want to pass.
- A parked car has someone in the driver's seat.
- Someone is riding a bicycle or walking in the street.

In an emergency, press the horn button loud and long. Be ready to stop or swerve away from the danger.

Keep in mind that a three-wheeler's horn may not be as loud as a car's, therefore, use it, but don't rely on it. Other strategies may be appropriate along with the horn.

Riding at night

At night it is harder for you to see and be seen. Picking your headlight or taillight out of the car lights around you is not easy for other drivers. To compensate, you should:

- ***Reduce 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.
- ***Increase distance*** — Distances are harder to judge at night than during the day. Your eyes rely upon shadows and light contrasts to determine how far away an object is and how fast it is coming. These contrasts are missing or distorted under artificial lights at night. Open up a six-second following distance or more. And allow more distance to pass and be passed.

- ***Use 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.
- ***Use 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.

Test Yourself

7. Retroreflective clothing should:
   A. be worn at night.
   B. be worn during the day.
   C. not be worn.
   D. be worn day and night.

COLLISION AVOIDANCE AND EVASIVE MANEUVERS

No matter how careful you are, there will be times when you find yourself in a tight spot. Your chances of getting out safely depend on your ability to react quickly and properly. Often, a collision occurs because a rider is not prepared or skilled in collision-avoidance maneuvers.

A study conducted by Dr. Harry Hurt of over 900 motorcycle accidents tell us a lot about potential accidents and what skills were absent from these riders involved. There are some items about when and where these accidents happened that are worth noting:

- About 50% percent of these accidents happened within five miles of home.
- Two-thirds of all multiple vehicle accidents involve drivers taking the motorcyclist right-of-way.
- About 17% of the fatal motorcycle accidents occur at alleys and driveways.
- Only about 10% of motorcycle accidents take place on multi-lane highways. These accidents are most likely to occur near exit or entry lanes.

Knowing when and how to stop or swerve, are two skills critical to avoiding a collision. It is not always desirable or possible to stop quickly to avoid an obstacle. Operators must also be able to swerve around an obstacle. Determining the skill necessary for the situation is important as well.

Studies show that **most collision-involved motorcyclist:**

- Underbrake the front tire and overbrake the rear.
- Did not separate braking from swerving or did not choose swerving when it was appropriate.
- Were untrained riders.

The following information offers some good advice.

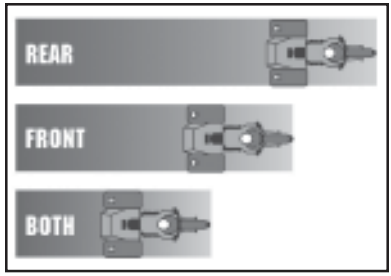
Quick stops

Remember, hard braking in a straight line is the least likely evasive maneuver to result in a tipover.

To stop quickly, apply both brakes at the same time. Don't be shy about using the front brake, but don't "grab" it, either. Squeeze the brake lever firmly and progressively. If the front wheel locks, release the front brake immediately then reapply it firmly. At the same time, press down on the rear brake. If you accidentally lock the rear brake on a good traction surface, keep it locked until you have completely stopped. Even with a locked rear wheel, you can control the three-wheeler on a straightaway *if it is going in a straight line.*

Always use both brakes at the same time to stop.

On vehicles with single wheel drive (generally sidecar equipped motorcycles), rolling off the gas tends to pull the three-wheeler into a swerve or yaw toward the left. Therefore it is best to pull in the clutch on these vehicles while braking.

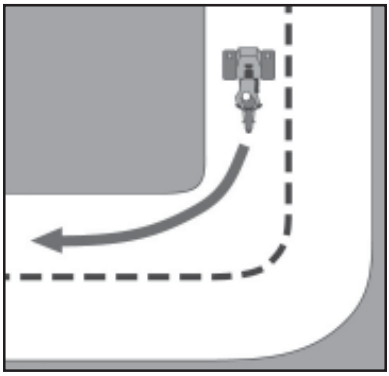


Swerving or turning quickly

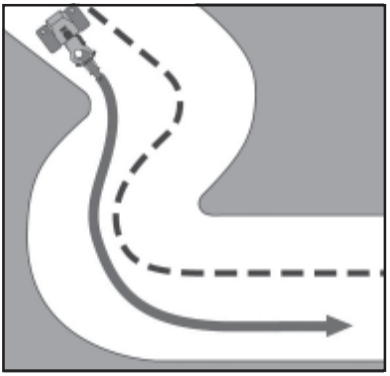
Sometimes you may not have enough room to stop, even if you use both brakes properly. An object might appear suddenly in your path. Or the car ahead might squeal to a stop. The only way to avoid a collision may be to turn quickly, or swerve around it.

A swerve is any sudden change in direction. It can be two quick turns, or a rapid shift to the side. There isn't much time to adjust your body position. If you have been leaning your body into corners normally, this may help to avoid a roll over when swerving with an empty sidecar.

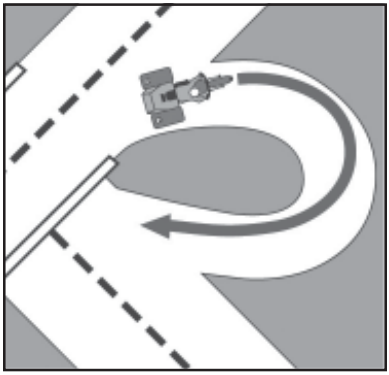
If braking is required, separate it from swerving. Brake before or after — never while swerving.



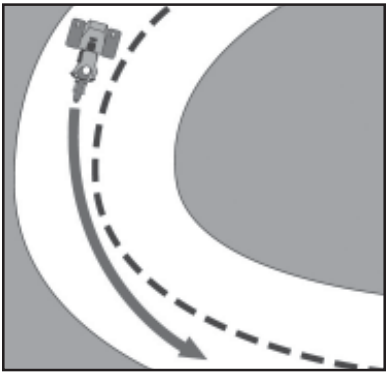
Constant curves



Multiple curves



Decreasing radius curves
(tighter turns)

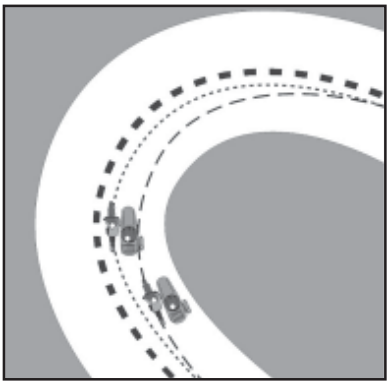


Widening curves

Cornering

A primary cause of single-vehicle collisions is motorcyclists running wide in a curve or turn and colliding with the roadway or a fixed object.

Every curve is different. Be alert to whether a curve remains constant, gradually widens, gets tighter, or involves multiple turns.



Larger radius uses less traction
Smaller radius uses more traction

Ride within your skill level and posted speed limits.

Your best path may not always follow the curve of the road. Change lane position depending on traffic, road conditions and curve of the road. If no traffic is present, start at the outside of a curve to increase your line of sight and the effective radius of the turn. As you turn, move toward the inside of the curve, and as you pass the center, move to the outside to exit. For three-wheelers, following the center of the lane may produce the greatest tipover forces.

Cornering a three-wheeler has unique characteristics that must be considered. First you must keep in mind that a three-wheeler can tip over if it is being turned too sharply when going too fast for the corner. It is essential that the operator slow *before* entering a corner to avoid this. 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. Since the sidecar generally sits on the right side of the motorcycle, left turns are less difficult because the sidecar wheel bears the additional cornering forces or weight. A right hand turn however may cause the sidecar wheel to lift off the ground or "fly" if the corner is taken at too great a speed or taken when braking. This is best avoided by slowing before entering the turn, but can be controlled if the operator understands how to steer a two-wheeled motorcycle.

The change from three-wheel steering to two-wheel steering is called steering reversion. Three-wheeled motorcycles are turned by turning the handlebars in the direction you want to go but two-wheeled turning is accomplished by pushing on the handlebar grip in the direction you want to go or "countersteering." Simply said, if you wish to go left, press or push on the left handgrip and the two-wheeler goes left.

To bring a sidecar that is "flying" or has it's wheel in the air, to the ground, the operator needs to countersteer to the right, "press or push on the right handgrip" and roll off the throttle.

Other unique characteristics of three-wheelers in corners are drifting and sliding. Both of these characteristics are related to tires not holding traction or slipping on the pavement. Sliding is the front tire slipping resulting a loss of steering. Drifting is the slipping of the rear wheel of the motorcycle and/or sidecar wheel. Drifting is unique to sidecar equipped motorcycles. To initiate drifting, the operator rolls on the throttle while applying some front brake while turning. Done carefully, this technique may help to sharpen turns, particularly left turns. Caution must be used attempting to drift in a right turn since too much throttle and/or braking may cause the sidecar to fly.

Test Yourself

8. The best way to stop quickly is to:
   A. use the front brake only.
   B. use the rear brake first.
   C. throttle down and use the front brake.
   D. use both brakes at the same time.

HANDLING DANGEROUS SURFACES

Your chance of falling or being involved in a collision increases whenever you ride across:

- Uneven surfaces or obstacles.
- Slippery surfaces.
- Railroad tracks.
- Grooves and gratings.
- Areas where hazardous road conditions exist. Be alert for signs that read “Motorcycles, use extreme caution.”

Uneven surfaces and obstacles

Watch for uneven surfaces such as bumps, broken pavement, potholes, or small pieces of highway trash.

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

If you have to ride over the obstacle, you should:

- ***Slow down*** as much as possible before contact.
- ***Make sure the three-wheeler is straight.***
- ***Just before contact,*** roll on the throttle slightly to lighten the front end.

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

Slippery surfaces

Three-wheelers handle better when ridden on surfaces that permit good traction. Surfaces that provide poor traction include:

- Wet pavement, particularly just after it starts to rain and before surface oil washes to the side of the road.
- Gravel roads, or where sand and gravel collect.
- Mud, snow, and ice.
- Lane markings, steel plates and manhole covers, especially when wet.

To ride safely on slippery surfaces:

- ***Reduce speed*** — Slow down before you get to a slippery surface to lessen your chances of skidding. Your three-wheeler needs more distance to stop or turn, particularly when riding downhill. And, it is particularly important to reduce speed before entering wet curves.
- ***Avoid sudden moves*** — Any sudden change 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.
- ***The center of a lane*** can be hazardous when wet.
- ***Accelerate prior to uphill sections*** *(gravel and dirt)* and slow by rolling off the throttle as you climb.
- ***Watch for oil spots*** when you put your foot down to stop or park. You may slip and fall.
- ***Dirt and gravel*** collect along the sides of the road — especially on curves and ramps leading to and from highways. Be aware of what's on the edge of the road, particularly when making sharp turns and getting on or off freeways at high speeds.
- ***Rain dries and snow melts faster*** on some sections of a road than on others. Patches of ice tend to crop up in low or shaded areas and on bridges and overpasses. Wet surfaces or wet leaves are just as slippery. Ride on the least slippery portion of the lane and reduce speed.

Cautious riders steer clear of roads covered with ice or snow. If you can't avoid a slippery surface, proceed as *slowly* as possible. Be sure to keep off the brakes. If possible, squeeze the clutch and coast. Attempting this maneuver at anything other than the slowest of speeds could prove hazardous.

Railroad tracks, trolley tracks, and pavement seams

Usually it is safer to ride straight within your lane to cross tracks. Turning to take tracks head-on (at a 90 degree angle) can be more dangerous — your path may carry you into another lane of traffic.

For track and road seams that run parallel to your course, 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 cause abrupt steering inputs.

Grooves and gratings

Riding over rain grooves or bridge gratings may cause a three-wheeler to weave. The uneasy, wandering feeling is generally not hazardous. Relax, maintain a steady speed and ride straight across. Crossing at an angle forces riders to zigzag to stay in the lane. The zigzag is far more hazardous than the wandering feeling.

Test Yourself

9. When it starts to rain it is usually best to:
   A. ride in the center of the lane.
   B. pull off to the side until the rain washes the oil to the side of the road.
   C. riding in the rain requires no different riding strategy.
   D. increase your speed.

MECHANICAL PROBLEMS

You can find yourself in an emergency the moment something goes wrong with your three-wheeler. In dealing with any mechanical problem, take into account the road and traffic conditions you face. Here are some guidelines that can help you handle mechanical problems safely.

Tire failure

You will seldom hear a tire go flat. If the three-wheeler starts handling differently, it may be a tire failure. This can be dangerous. You must be able to tell from the way the three-wheeler reacts. If one of your tires suddenly loses air, 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 three-wheeler may sway from side to side.

If either tire goes flat while riding:

- ***Hold handlegrips firmly,*** ease off the throttle, and keep a straight course. Avoid any abrupt changes in speed or direction.
- ***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 three-wheeler slows,*** edge to the side of the road, squeeze clutch and stop.

Stuck throttle

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

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

Wobble

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

Check for poorly adjusted steering; worn steering parts; a front wheel that is bent, misaligned, or out-of-balance; loose wheel bearings or spokes; and swingarm bearings. If none of these are determined to be the cause, have the three-wheeler checked out thoroughly by a qualified professional.

Trying to "accelerate out of a wobble" will only make the three-wheeler more unstable. Instead:

- Grip the handlebars firmly, but don't fight the wobble.
- Close the throttle gradually to slow down. Do not apply the brakes; braking could make the wobble worse.

- Move your weight as far forward and down as possible.
- Pull off the road as soon as you can to fix the problem.

Test Yourself

10. If your three-wheeler starts to wobble:
    A. accelerate out of the wobble.
    B. use the brakes gradually.
    C. grip the handlebars firmly and close the throttle gradually.
    D. downshift.

Chain problems

A chain that slips or breaks while you're riding could lock the rear wheel and cause your cycle to skid. Chain slippage or breakage can be avoided by proper maintenance.

Slippage — If the chain slips when you try to speed up quickly or ride uphill, pull off the road. Check the chain and sprockets. Tightening the chain may help. If the problem is a worn or stretched chain or worn or bent sprockets, replace the chain, the sprockets, or both before riding again.

Breakage — You'll notice an instant loss of power to the rear wheel. Close the throttle and brake to a stop.

Engine seizure

When the engine "locks" or "freezes" it is usually low on oil. The engine's moving parts can't move smoothly against each other, and the engine overheats. The first sign may be a loss of engine power or a change in the engine's sound. Squeeze the clutch lever to disengage the engine from the rear wheel. Pull off the road and stop. Check the oil. If needed, oil should be added as soon as possible or the engine will seize. When this happens, the effect is the same as a locked rear wheel. Let the engine cool before restarting.

ANIMALS

Naturally, you should do everything you safely can to avoid hitting an animal. If you are in traffic, however, remain in your lane. Hitting something small is less dangerous to you than hitting something big — like a car.

Three-wheelers seem to attract dogs. If you are chased, downshift and approach the animal slowly. As you approach it, accelerate away and leave the animal behind. Don't kick at an animal. Keep control of your three-wheeler, and look to where you want to go.

For larger animals (deer, elk, cattle) brake and prepare to stop, they are unpredictable.

Test Yourself

11. If you are chased by a dog:
    A. kick it away.
    B. stop until the animal loses interest.
    C. swerve around the animal.
    D. approach the animal slowly, then speed up.

FLYING OBJECTS

From time to time riders are struck by insects, cigarettes thrown from cars, or pebbles kicked up by the tires of the vehicle ahead. If you are wearing face protection, it might get smeared or cracked, making it difficult to see. Without face protection, an object could hit you in the eye, face, or mouth. Whatever happens, keep your eyes on the road and your hands on the handlebars. When safe, pull off the road and repair the damage.