Safe 'n Easy

4-H Motorcycle Manual and Leader's Guide

An Advanced Unit of the 4-H Automotive Program

CO 604
## CONTENTS

### Members' Section

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Introduction to Safety</td>
<td>3</td>
</tr>
<tr>
<td>II. Motorcycle Controls and Protection</td>
<td>4</td>
</tr>
<tr>
<td>III. Getting Set to Ride</td>
<td>8</td>
</tr>
<tr>
<td>IV. The Fundamentals of Motorcycling</td>
<td>11</td>
</tr>
<tr>
<td>V. Basic Street Riding</td>
<td>15</td>
</tr>
<tr>
<td>VI. Increasing Your Riding Skills</td>
<td>22</td>
</tr>
<tr>
<td>VII. Getting To Know Your Motorcycle</td>
<td>29</td>
</tr>
</tbody>
</table>

### Leader's Section

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>34</td>
</tr>
<tr>
<td>Forming a Club</td>
<td>34</td>
</tr>
<tr>
<td>Members and Bikes</td>
<td>34</td>
</tr>
<tr>
<td>Insurance and Liability</td>
<td>35</td>
</tr>
<tr>
<td>4-H Automotive Program</td>
<td>35</td>
</tr>
<tr>
<td>Meetings</td>
<td>36</td>
</tr>
<tr>
<td>Skill Activities and Games</td>
<td>36</td>
</tr>
<tr>
<td>Meeting Outline and Activities</td>
<td>38</td>
</tr>
<tr>
<td>Skill Games</td>
<td>42</td>
</tr>
<tr>
<td>Resource Materials and Organizations</td>
<td>47</td>
</tr>
</tbody>
</table>

## Acknowledgements

This educational material has been prepared for 4-H use by the National 4-H Automotive Task Force composed of representatives of SEA-Extension, U. S. Department of Agriculture; the Cooperative Extension Service of the State Land-Grant Universities; the National Safety Council; donor representatives; and the National 4-H Council. Special thanks are extended to the Firestone Tire and Rubber Company for financial and technical assistance. This material is published by the National 4-H Council, 150 N. Wacker Drive, Chicago, Illinois 60606.

Special appreciation for technical assistance is given to Neil Tolhurst and Judy Kasper of the Motorcycle Safety Project at Northern Illinois University; the Motorcycle Safety Foundation; the Driver Improvement Department and the Youth Department of the National Safety Council; Pat Lewis, 4-H Specialist in Agricultural Engineering at Oklahoma State University; and Charles M. Thomas, Assistant 4-H Leader at the University of Idaho.
I. INTRODUCTION TO SAFETY

A motorcycle is one of the most pleasant things in the world. For a knowing rider, a motorcycle leans into curves as he leans, accelerates as he opens the throttle, and stops on a dime as he brakes. For a knowing rider, one’s body and bike become balanced extensions of each other. As the rider becomes more watchful and alert, the machine becomes more responsive and more precisely controlled. A safe, successful motorcycle trip can feel as satisfying as a beautiful day of sailing on open water. Most of all, learning to operate a motorcycle properly can give you a keen sense of accomplishment and can become one of the most satisfying things you will ever do. An experienced rider finds that cycling comes easy when he knows his machine and how it will react to various road situations. He knows that cycling comes easy when he follows the common-sense rules of safety. Safe’n easy. It’s the only way to go.

Yet every day inexperienced, unknowing motorcycle riders take ill-fated chances and wind up as grim statistics. Close to one hundred fifty thousand motorcycle accidents happen each year, and of these, over four thousand result in the death of the rider. According to one study, over 20% of all accidents involve new riders out for their first or second time. In addition, over 60% of each year’s accidents involve riders with less than one year of experience, and over half of all rider accidents involve people between sixteen and twenty years old. Most of these young people never had proper instruction in motorcycling, and for this reason lacked the skills of basic street riding that may have prevented their crash.

Motorcycling takes more skill than driving a car. The inferior skills of the automobile driver are frequently the cause of motorcycle accidents. Yet even with the automobile driver at fault, in most cases the motorcycle rider could have avoided the accident. For a skillful motorcycle rider, watching out for road hazards and potential accidents is as much a part of safe riding enjoyment as learning to shift gears or take high-speed turns. The knowing rider drives defensively and avoids accidents by avoiding the errors of judgement that cause them.

Can I Learn To Ride Without Taking This Course?

You can purchase a motorcycle and, depending upon your local licensing requirements, learn to ride it on your own. Perhaps you have a friend who will teach you. But first, ask yourself realistically if you will indeed get all the instruction you need. Will your friend make you practice on an empty lot until you have the confidence and the skill to drive on the street? Will he teach you how to drive defensively, to spot hazards and potential accidents, and to avoid them? Will your friend remind you always to wear a helmet?

Perhaps your friend will teach you the basic fundamentals of safe riding and keep teaching you while you learn the more advanced skills. This could happen; and if you have such a friend you may count yourself lucky. Most times such a teacher is not to be found.
Usually good information is lacking, and misinformed motorcyclists are plentiful. This misinformation and the poor judgement it produces often become apparent too late.

If you trust your friend to teach you everything you need to know, you may one day find yourself in a skid without being able to correct for it. You may be riding down the highway when your clutch cable breaks, and find yourself completely unable to pull over safely to fix it. You can avoid these experiences, and this course can help show you how.

II. MOTORCYCLE CONTROLS and PROTECTION

You learn to ride a motorcycle by learning how to control it. While riding you must know where the controls are without taking your eyes off the road. In performing almost any maneuver, from a low speed turn to braking in an emergency, you must keep your eyes on the road and find your controls automatically. Finding the controls is something a beginning rider can do. An experienced rider knows where they are!

As you learn the basics of riding, take the time to memorize where the controls are located. Practice reaching for them with your hands and feet while sitting on the motorcycle. The illustration on the next page shows where the controls are located on most motorcycles. Yours may be different, so check the owner’s manual for further locations and instructions. On late-model cycles the controls that make the cycle stop and go are on the RIGHT SIDE (throttle, front brake, rear brake, kick starter or electric starter). The controls used to shift gears are on the LEFT SIDE (clutch lever and gear change lever).
Clutch Lever

Squeezing the clutch lever toward the grip of the left handlebar disengages the clutch, which in turn disconnects the power from the rear wheel. When the motorcycle is in motion, the clutch is used in shifting gears. It also is used to get underway from a standstill and to keep the engine running when you come to a stop in gear.

Throttle

Like an accelerator pedal on a car, the motorcycle throttle controls the supply of gasoline to the engine. It thus controls the speed of the engine measured in revolutions per minute (RPM's). With all the fingers of your right hand around the throttle grip, rotate toward you to increase speed, or away from you to decrease speed. The grip should spring back to idle position if you take your hand away from it.

Brakes

The motorcycle brake system for the front and rear wheels are controlled by a handlebar lever (front) and by a foot pedal (rear). They are operated by the right hand and foot. When stopping the motorcycle, always use both brake systems simultaneously.

Choke

Learn where the choke is and how to turn it on and off. You will also need to develop skill in using the choke - when and how long to use it. A choke is used to start a cold engine, and its use is always discontinued after the engine has warmed up. With some cycles this warm-up time is very short, but on others it may take several minutes before the engine will run smoothly with the choke turned off. You must learn the particular needs of your machine. Experiment with the choke to discover what your engine needs to start easily and run smoothly. Be extra careful about leaving the choke on too long after the engine starts. This can foul the spark plugs and cause the engine (especially a two-cycle one) to die.

Gear-Change Lever

Motorcycle transmissions usually have four or five forward gears and a neutral position. Change gears by disengaging the clutch (squeezing the clutch lever), pressing up or down on the gear-change lever with your left toe, and then engaging the clutch (letting out the clutch lever) with your left hand.

Starter

Motorcycles have electric starters, kick starters, or both. When kick-starting you should keep the cycle on its kickstand until you can balance it and start up without any trouble.

Fuel Supply Valve

The fuel supply valve has three positions: OFF (STOP or PRIME), ON, and RESERVE. Turn the valve ON when starting and running the motorcycle; turn it to RESERVE when your main tank of gasoline runs dry; and turn it OFF when you stop riding and park your machine.

Controls and indicators which you must know and find automatically are:
Lastly, use the Engine Cut-off Switch for stopping the engine only during an emergency. Use the ignition key all other times.

**Protect Yourself**

Obviously motorcycles offer their riders very little protection compared to automobiles. An automobile driver, encased in a steel compartment, can withstand many an accident that would injure or kill a motorcyclist. Despite this disadvantage, there are ways in which the motorcyclist can protect himself.

**... Wear A Helmet**

A head injury resulting from a crash is no joking matter! Eventual epilepsy, brain damage or worse can result from a low-speed as well as a high-speed crash. A helmet offers the best protection a motorcyclist can have. You should wear one every time you ride! Start out by wearing your helmet whenever practicing the cycle activities in this manual. One day, as you gain road skills and knowledge, you may want to take a passenger for a ride. Make that person wear a helmet too! Large numbers of injuries and fatalities could be prevented each year by the use of helmets, snugly fitted with chin straps fastened. If every cyclist would wear one, we would definitely have more riders alive and well on the road! Remember, if the engine is running or the wheels are turning — helmets on!

**... And Guard Your Eyes**

You need good vision to help you make important decisions fast. A helmet visor or bubble screen, a pair of goggles or a windscreen will protect your vision from flying dirt, insects, water and small stones. Normal glasses used for street wear or sports are not sufficient to do the job. Replace eye protection devices when they become scratched.

**... Your Body**

A sturdy jacket and pants can do a whole lot for you if you skid on the ground, on gravel or on concrete. Simple lightweight shirts and pants offer comparatively no protection at all. Riding shirtless, with only a pair of shorts to protect you, foolishly exposes your bare skin, flesh and muscle tissue to severe damage if you take a slide.

**... Your Feet**

Wear a good pair of ankle-high, lace-up type, leather boots with heels 1 to 1½ inches.

**... And Your Hands**

A pair of gloves will keep your hands warm in the winter and cool in the summer. They will also help you improve your grip on the controls and protect your hands if you have a spill.

> Hey, that helmet looks ridiculous!

Hog Fever
machine tilted upright just slightly off the kickstand (leave the stand down).

... and Practice Getting the Feel of The Controls.

How do you fit on the machine? Do you easily and comfortably reach all of the controls on the handlebars? Do your feet comfortably rest on the ground, or do your toes barely touch? You may need a different size cycle. Next, practice squeezing the clutch and the brake levers. Can you depress the rear brake pedal? See if you can find the electric starter button or the kick starter. What about the light, engine cut-off, turn signal switches and gear change lever? Can you reach the fuel supply valve and the choke? Rotate the throttle.

Once you have gone through this routine of finding the switches and the controls, try checking your body position. Do your knees touch the gas tank? Your feet and rear end should take the weight of your body. If you feel comfortable and can reach all of the controls, adjust the mirrors so you see a small portion of your jacket and a large portion of the vacant lot behind you.

Hold It. Don’t Be In Such A Hurry!

Are you anxious to start up the motorcycle and drive away? If so, please slow down. You have plenty to learn and a lot of confidence to build before you get to that point. If the prospect of moving through this material sounds boring to you, then please consider how thrilling it might be to start up your motorcycle right now and accelerate toward some object, only to find you don’t really know what you are doing. Some thrill that would be. Think how much fun you might have if you crash!

MAKE SURE YOUR BIKE FITS
The driver on the left is obviously too large for his bike. His knees are crowding the handlebars and he is leaning too far forward. The driver on the right is riding a bike that fits.
The time you spend getting to know your machine is time well spent. If you are a beginner, the time you now take to learn about motorcycling is all the introduction you will have. You will want to be very thorough.

Take an evening or two and look ahead to the activities and lessons you'll be receiving in this course manual. Begin to appreciate what you are getting into. There is more to motorcycling than many people realize. You must move cautiously! You will have many years of motorcycling ahead, provided you learn how to ride the machine safely and handle it in heavy traffic, adverse weather conditions and other hazardous situations. You have so much to gain by taking the time now to learn how to ride properly. Hurrying the process might get you into the thrills of owning a motorcycle faster than the way we suggest. It might also get you hurt.

Read all the material on your motorcycle and on motorcycling you can get your hands on. Look through the owner's manual. Get to know your motorcycle and practice the exercises repeatedly in each early section of the 4-H course before you move on. You'll never be sorry you did.

Take A Walk

Walking the motorcycle is a good way to get the feel of your machine, its weight and its braking system. We have included several exercises on mounting, dismounting, straddle walking, coasting and pushing your motorcycle (See Activities section, pages 38-47). In some of these you will be "riding" the machine with the engine off and getting practical experience using the brakes. You will gain experience in balancing the motorcycle.

Parking The Motorcycle

Upon bringing the motorcycle to a place where you wish to park, perform the following steps:

* Place the gear-change lever in neutral.
* Turn OFF the ignition and remove the key.
* Take down the kickstand.
* Turn OFF the gas supply
* Put the gear-change lever in first gear.
* Dismount while holding both handlebar grips.
* Turn the front wheel to the side towards the stand and lock the front fork if possible.

Buddy Push

If you have a friend learning to ride at the same time as yourself, get together with him for the "Buddy Push" and the other exercises in this manual. (See Activities section, page 39.) In some of the activities two can learn better than one.

III. GETTING SET TO RIDE

Start The Engine

If you have taken time with the preceding exercises, if you know the controls (no cheating) and if you feel confident about taking a low-speed ride, then start the engine. We will give you a basic description on how to start a motorcycle. Don't take our word alone; consult your owner's manual for the specific startup routine of your motorcycle.

If you have no other information, these basic steps will get your machine ready to start:

* Turn on the fuel supply valve.
* Turn on the ignition switch.
* Shift to neutral.
* Turn the engine cut-off switch to RUN position.
* Make sure the choke is on.
Perform these steps while sitting on the motorcycle with the kickstand down (so you don’t have to worry about balancing the machine while you start the engine. Now you . . .

* Extend the kickstarter lever and place your foot on it.
* Open the throttle slightly. (This may differ depending upon your machine. Consult your owner’s manual.)
* Thrust down the kickstarter lever all the way. Kick hard!
* Raise your foot slowly and let the lever come up; don’t let it snap up on its own.
* If the engine doesn’t start, try again.
* If the engine starts, adjust the throttle for smooth idling. (Don’t race the engine.)
* Swing the kickstarter to riding position.
* Let the engine warm.
* Adjust the choke back to the off position (you may take a few minutes doing this).

If the engine still does not start after repeated attempts, recheck the steps described above or reread your owner’s manual. You may need to perform a trouble-shooting check or change a spark plug. If you smell gasoline you have probably flooded the engine. Turn off the choke, open up the throttle about halfway and kickstart again, or wait a few minutes for the engine to clear up.

“Slipping The Clutch”

This means nothing more than gaining a feel for the friction point of the clutch by squeezing and releasing the clutch lever during a low speed ride. Start your motorcycle, get into first gear and release the clutch as you have learned above. While underway toward the target destination (keep your eye on where you are going, don’t look down!), squeeze in the clutch to the friction point and a little beyond - so you actually feel the motorcycle begin to coast - and then release the clutch slowly in order to regain power gradually. Now disengage the clutch again. Keep doing it until you have mastered the technique and can slip the clutch in and out of power smoothly. Remember, it is a matter of feel and not vision. So keep your head up. If the motorcycle jerks or jumps, squeeze in the clutch all the way and stop the cycle. Start over from the beginning.

Stalling

If you stall the engine, shift back to neutral and start it again. If you are stalling frequently, try releasing the clutch more gently and use a little more throttle. When you feel a stall about to happen, squeeze the clutch. The engine will return to its normal idle speed (unless you hold the throttle open).

Take Your First Ride

Now take your first ride! An unobstructed vacant lot will do. Once the engine is running, retract your kickstand by placing your feet on the ground, leaning the cycle to the right and then kicking back and up on the kickstand with your left foot. Your motorcycle should be free-standing; you alone are the sole means of balance. To get going under power, your first step is to squeeze the clutch lever all the way in and shift the gear change lever to first gear (usually down with the left toe). Hold in the clutch while you do this and keep holding it until you are ready to move. Make sure your eyes are up and looking toward where you want to go. Place a small marker, such as a cone, on
the lot, and make it the target or "destination" of your first ride. Gradually ease out the clutch until you feel the engine power start to take hold. This is the "friction point" of the clutch, or the point at which power to the rear wheel starts to take hold. As you approach this point, open the throttle a little more and continue easing out the clutch. As the motorcycle begins to move, ease out the clutch all the way. You are now moving in first gear.

Lift your feet to the foot pegs, sit comfortably, and ride toward the target. Cover the clutch lever with your fingers in case you feel you have to stop. Use very little throttle and strive for balance by looking ahead at your traffic. Although this is a wise safety feature, it can complicate matters when you want to shift into neutral.

Select neutral by moving the shift lever up half-way from first gear (or down half-way from second gear). Very often, it will be hard to prevent shifting to second (or first) rather than neutral. The cycle is designed to do this; you must learn how to find neutral accurately. The easiest way to find neutral is to shift before you stop the cycle; or, if you are stopped and having trouble, shut off the engine and shift to neutral.

Now Get Set For Your Second Ride

Congratulations! Your first ride has been a success, or so we hope. Now, take a second trip, exactly like the first. Pick out another destination point, turn the motorcycle in the direction, squeeze the clutch . . .

And Your Third . . .

Keep practicing! Take a third ride in first gear, and then take a fourth, a fifth, a sixth and so on. You should practice until your starting and stopping motions are smooth and controlled. At first you may find it difficult, with jerky start-ups and frequent stalls, but after a while you should have it down to a point of personal confidence and feel for your machine. Many new riders will stall repeatedly because they do not let out the clutch smoothly and slowly all the way. As you engage the clutch by letting it out you'll have to increase the throttle opening. This must also be SMOOTH. Use all your fingers for the best control.

One word of note: at low speeds you squeeze the clutch before applying the brakes. At higher speeds (when practicing in future lessons) you will apply the brakes, or gear down to low speeds, before squeezing the clutch to disengage the rear wheel. Remember, you must disengage the clutch before you come to a complete stop, unless you shift to neutral.
Starting on Inclines

Sometimes it is necessary to halt a motorcycle on an upgrade and then start again. To do this without stalling the engine or drifting down the grade:

* If the engine stalls, engage the hand brake in order to hold the cycle and start the engine with the kick starter.
* Hold the machine in position with the foot brake and keep the throttle above idling speed while engaging the clutch slowly.

IV. THE FUNDAMENTALS OF MOTORCYCLING

Taking Turns

There are two basic ways to position your body weight while leaning the cycle to make a turn. When leaning, you can either keep your body and the cycle at the same angle, or you can lean the cycle more than your body. "Counter-leaning" is leaning the cycle more than your body, i.e., keeping your body more upright than the cycle, banking the cycle under you. This is very effective in slow, tight turns.

To turn at higher speeds, the angle of lean is the same for both cycle and rider. With knees against the gas tank, elbows slightly flexed, the rider keeps his body at the same angle as the cycle is to the road. Depending on road speed and the sharpness of the turn, the angle of lean is adjusted to make the turn.

In simple straight-line driving, the throttle increases your forward speed while the thrust of acceleration pushes your body backwards. In a turn, increasing your speed is further complicated by the need to lean the motorcycle at the precise angle that keeps you on the road. If you wish to increase your speed while turning, simply open the throttle slightly and lean more in the direction of the turn. If you wish to decrease your speed, use less throttle and lean less.

It all sounds easy. But in practice, under variable conditions, a lot of motorcyclists take
nasty falls on turns. The reason is usually too much speed going into the turn or overbraking at the wrong time. In practicing turns you will do well to keep in mind that too much speed going into the turn will create a lot of problems later on. In taking turns you should keep your feet on the foot pegs and your right foot covering the rear brake pedal in case you need to slow down or stop.

**Cornering**

You will often be taking low-speed turns at intersections. Practice taking these right angle (90°) turns on your lot or driveway. In doing so you should perform the following steps:

* Keep your eyes well ahead of the motorcycle, looking in the direction of the turn.
* Slow down before starting your turn.
* Adjust the lean of the cycle to suit the turn speed and road conditions.
* Before coming out of the turn, gradually begin opening the throttle to resume your original speed.

**Turns At Higher Speeds**

You must change your technique at higher speeds. In place of steering the motorcycle with counter-lean as in the above exercise, you will now be leaning your body and machine at the same angle to the roadway while you turn. If the road is banked, this will seem automatic. However, you will be performing according to a right “feel” which you will have developed for high-speed turns by the time you get on the road.

Things to remember while taking high speed turns are:

* Enter curves and corners at safe speeds. Slow down before entering.
* Once into the turn, begin gradual acceleration.
* Continue acceleration as you leave the corner or curve.
* If you must brake in a turn, do so with as little force as possible. Never lock the front or rear wheels!
* Keep your feet on the foot pegs.

**Shifting Gears**

Use first gear to begin moving. Once underway you will increase your engine speed in each gear and shift up to the next gear. Changing gears requires you to coordinate the clutch, throttle and gear-change lever. As you shift the gears of the motorcycle you will squeeze the clutch, close the throttle, shift to the next gear, and release the clutch while gradually opening the throttle.

Here is the procedure for shifting from lower to higher gears:

* Squeeze the clutch lever while closing the throttle.
* Raise the gear change lever with your foot, as far as it will go.
* Let the lever return to its original position by removing your foot (it always goes back to the same position, regardless of the gear).
* Gradually release the clutch and open the throttle.

You are now in the next gear. If you were going from first to second gear you would now continue acceleration, to the speed and RPM level that required third gear. Shifting from second to third is exactly the same as shifting from first to second; and once in third you do the same procedure again.
In downshifting (from higher gears to lower ones) you will be using the transmission to slow your speed - in addition to using the brakes. Anytime you wish to slow down, whether for wet road surfaces, hills, or when the engine is struggling (lugging), you should downshift. Your braking system takes a strain when used at high speeds, so downshifting gives you a way of aiding it.

To downshift, simply:

* Squeeze the clutch lever.
* Push the gear-change lever down as far as it will go, (Let the lever return to its original position)
* Gently close the throttle.
* Gradually reengage the clutch while opening the throttle.

Very often new riders will accidently shift more than one gear at a time, finding themselves in the wrong gear or in a "false neutral" between two of the upper gears. This is caused by operating the shift lever more than once to make a single shift. You need to learn to shift precisely so that only one gear is changed each time you shift. Raise or lower the shift lever in one complete movement when you want to change gears. Selecting neutral is the only exception to this when neutral is between first and second gears.

If you have trouble getting underway from a stop, stalling several times, or if you find the engine lugging when it should not be, you may not be in the gear you think you're in. You may be "lost" in the transmission. If you downshift all the way, you will be able to find first gear and then get underway smoothly.

To do this you will have to stop the cycle and turn off the engine. With your right foot on the ground, press down on the shift lever with your left foot - at the same time roll the bike back and forth about five inches either way. Hold down the shift lever until it clicks into the next lower gear, then release it and press down again. Keep rolling the cycle while you do this. When the shift lever stops clicking down as you press and roll, you have reached first gear, the bottom of the shift pattern. (On some bikes this will be neutral). Now you have found your place in the transmission and can get started again.

**Braking**

When you are braking, your weight shifts from back to front. For this reason front wheel traction is greatly increased and your front brake takes up to 70% of the total braking power of your machine. Too much pressure from squeezing the front brake lever can lock (prevent from turning) this all-important wheel and cause a spill. When stopping, form the habit of applying combined pressure to both brakes in a steady and controlled manner.

[Diagram of Coming to a Stop]
Under normal conditions, with dry roads and good traction, brake by:

* Closing the throttle.
* Using the front and rear brakes at the same time.
* Downshifting.
* Squeezing the clutch to prevent stalling.
* Bringing the motorcycle to a smooth halt before dropping your left foot to the ground.

There is no reason to take your foot off the peg while the cycle is still moving. It not only looks sloppy, but it decreases your balance and control.

When you are learning to stop you'll have to develop skill in controlling both the front brake and the throttle with your right hand. Be very careful always to hold the throttle closed as you apply the brake. Use your thumb and palm to rotate the throttle grip and your fingers to pull the brake lever. Don't lower your wrist as you pull in on the brake lever; use the fingers only. When you come to a complete stop, the brakes should be applied, the clutch disengaged, and the throttle off so that the engine is at idle speed.

Special Braking Situations

Watch out for wet, or otherwise slippery pavement such as sand, water, leaves, loose gravel, mud, or soft "built-up" shoulders along roads and highways. These are tricky surfaces for stopping your motorcycle. Be very careful in applying the front brake whenever your wheel is turned. In the above circumstances, apply your brakes gradually. Pressing them too hard can cause a skid or cause the front wheel to drive hard into soft material and throw you from the cycle.

Occasionally you may skid from braking your rear wheel too hard or from downshifting too quickly. If this happens, remember to:

* Ease off the brake, keeping some pressure.
* Keep your head up and look down the road.
* Steer in the direction of the skid and not too abruptly.

On the road, you are forced to make quick decisions and take action to avoid obstacles and accidents. This is why we have stressed building your confidence and skills in the earlier lessons and exercises. So far you have ridden under controlled circumstances. You have stayed on vacant lots or driveways without having to contend with hazards or other moving vehicles. Eventually you will move up to actual road driving. Conditions will become more complex, and your control over what happens less sure. You will be taking turns, braking and accelerating at higher speeds while keeping your eyes well in front of your motorcycle in anticipation of what lies ahead.
REAR WHEEL SKID caused by rear brake lock-up. Note reaction by cyclist:
* right foot is applying brake
* clutch is disengaged with left hand to prevent stalling
* eyes are up and looking ahead
* front wheel is turning - no use of front brake
* rear wheel is not turning due to brake application
* front end of cycle is pointed straight ahead while rear is slightly leaned to the right and sliding slightly left
* rider has "steered in direction of skid," indicated by elbows bent

V. BASIC STREET RIDING

Awareness

Awareness is a key to survival on the road. First, you must become aware of all hazards, obstacles and moving vehicles that could collide with you or cause you to lose control. Second, you must learn how to judge your position in traffic and your relationship to the other cars, trucks, pedestrians, dogs, hedges, trees, pot holes and varied obstacles on the road.

Can They See You?

Motorcycles are sometimes difficult to see. To someone standing 120 yards away, a motorcycle and rider can be hidden from view by a pencil held up at arms length. Given the blind spots in rear and side view mirrors, given the number of "blind" intersections on our nation's roadways, there is little wonder why many motorcycles are hit by other drivers who simply don't see them.

The more visible you can make yourself the better. Add reflective materials to your helmet and wear bright clothes when you ride. Some riders also like to flip on their headlight when riding during the day. In signaling your intentions to other drivers, make sure the "other guy" sees your turn signal. You can help insure that he does by giving the hand signal for a turn in addition to the electronic signal on your cycle. Head checks are important. Turn your head to look at the driver who may be coming up from behind! Always try to look directly at other drivers, whether in front of you, to either side, or just behind. When another driver sees you turn your head to check his whereabouts, he will know you plan...
to do something - to make a turn, change lanes or stop.

Don't assume another driver sees you, make sure of it! A car backing out of a driveway will have difficulty seeing you as you come down the street. Don't assume he sees you. Adjust your speed and sound your horn! When you make a stop, tap your brakes so your brake light goes on and off. This will help insure that those cars and other vehicles behind you know you are slowing down or coming to a full stop. Make sure your brakes are adjusted so the light goes on as soon as you begin to apply the brakes.

Road Position

Keep yourself in a safe space on the road. Never crowd another vehicle from behind. If an emergency stop is called for, say the car in front has slammed on the brakes, you must be able to stop in time. You are not protected by a seat belt and a steel compartment. Your body cannot absorb much punishment when it comes to a high-speed crash. The answer to "how far behind should I be?" depends upon how fast you are going.

An easy way to tell if you are following at a proper distance is to count, "One thousand and one, one thousand and two," between yourself and the car in front of you. Start counting when the vehicle in front passes a fixed point such as a sign, tree, or bridge. You should not pass that same point before two seconds have passed. (This rule applies as long as both vehicles are going the same speed.) The two-second following distance will give you enough room to react and brake if the car ahead of you unexpectedly slows down or stops. In times of limited visibility your following distance should be increased to three seconds or more.

If you are sandwiched between two cars running close to each other, slow down to the two-second following distance and let the car behind you pass. If this is impossible, give ⅔ of your room to the car in front. If something happens and you have to slow down, this will give more room to maneuver to both yourself and the car following you. (See drawing on opposite page.)

And pick up your head! We have stressed the importance of looking ahead of yourself while riding. By looking well down the road you can see what traffic is like and what hazards may lay in the road. The further down the road you look, the more time you will have to prepare yourself for threatening situations.

Intersections

Most accidents happen at intersections. There is no way to make general statements about intersections. They are all different - sometimes vastly so. Some are blind intersec-
tions at the top of hills, others have roads entering from curves or from behind buildings. Traffic lights, arrows, stop or yield signs and lane signals will be posted to help guide you safely through. But no matter what the configuration, the possibility of an accident is always present. Traffic will cross in front of you, just as you cross in front of others. Every day someone runs a red light or jumps ahead of a green and an intersection becomes the scene of a crash.

Follow the "Two-Second Rule"
Again we come to the idea of awareness. It may seem all right to follow closely behind another vehicle in order to "beat the light". It may seem all right until you become aware that other cars might possibly be doing the same thing and might not see you.

**Slow down** at intersections! Enter them cautiously, looking in both directions at cross traffic, looking ahead at cars that may turn in front of you, checking your mirrors and glancing over your shoulder at cars coming up from behind. A very bad surprise may wait for you if you don't.

**Lane Position**

Keep a lot of distance between yourself and other cars. Keep as much distance as possible at all times. There is no single, best lane position. An experienced cyclist knows that he must constantly adjust and readjust his lane position depending on traffic and the circumstances at hand.

Even so, the left part of your lane is often suggested as the most strategic place to ride in traffic. Oftentimes the left part of the lane has advantages: you avoid the oil slickness at the center of the lane; you can see oncoming cars more easily; you tend to discourage cars from "bullying" you to the shoulder of your lane; and finally, the cars ahead have an easier time seeing you in their rear view mirrors.

Yet this so called "best position" is only theory. All kinds of conditions prevail when riding. At a given time you will change lane position from the left to the right track and back again to the center. All this depends on the hazards and points of conflict which come your way.

**Identifying Hazards**

What makes a hazard? A hazard can be anything. Maybe a car coming towards you, or a youngster on a bicycle, or a dog running across the street. Some hazards are unpredictable, such as moving vehicles with drunken drivers.

So you must look at everything on or near the roadway. You must watch for the unexpected. A pedestrian may step out in front of you, or an automobile may swerve into your lane. You should also beware of stationary objects near the road. Hitting a tree is deadly. So is a slide that results in hitting a curb, a drain grating, a fire hydrant, or a boulder alongside the road. A stationary object can cause you to fall if you hit it in the wrong way. So you want to watch out for holes in the road, for branches, for loose rocks and gravel. Slippery pavement is definitely hazardous. Watch your speed! Your "normal" cruising speed is too fast and your "normal" stopping distance will be lengthened if any kind of oil, water or debris lays in front of you on the road.
Predicting What Might Happen

Safe riding involves predicting ahead of time what might happen on the road before the hazard meets you head-on. You can never know what other cars, trucks, pedestrians or animals are going to do. But certain clues will allow you predict what might happen; you can be prepared in case something does. You may see exhaust fumes from a parked car, or its front wheels might be turned outward indicating the car is about to pull out. Safe riding here means making the assumption the driver of the car doesn’t see you. You predict that an accident could happen if the car pulls out in front of you, so you give the car more room and sound your horn.

In another instance, a pedestrian comes to a crossing up ahead. His head is turned away from you. Will he step out into your lane? Safe riding means predicting that he will create a point of conflict. It means avoiding the conflict either by sounding your horn, by changing your lane position, or by slowing down.

Everything you encounter on the road has the potential of contributing to an accident. The tree up ahead could be the solid, unmoveable object that will be in your way if you are forced off the road. Each car, or group of cars in traffic, can abruptly change course. Each driver on the road must constantly be aware of this changing scene.

Predicting Specific Conflicts

Danger presents itself most frequently on freeways when cars and other vehicles press too closely in traffic. In this situation proper following distances are thrown to the wind and reckless conditions prevail. Nevertheless, you can largely predict what might happen. If a lane is closed ahead, ease off the throttle or gear down and let cars into your lane on an orderly basis. If you want to merge into another lane, the same rule applies: slow down and look over your shoulder for a properly large space to merge into. Resist the temptation to "fight" traffic or to cut in ahead of others too quickly. If cars are entering your lane ahead from a merging ramp, slow down and gauge your speed with that of the cars coming on.

If you are entering a freeway from a ramp, watch the cars ahead of you and behind you on the ramp and watch to the side to pick a spot to move into. Upon entering a freeway never crowd other cars. If the driver ahead
seems slow or confused, slow down and give yourself and him more room. In the same way, if the car behind you tailgates, slow down. This will give you more room in front to accelerate when you merge with other traffic. Don’t let yourself be bullied into charging along the ramp.

In town or city driving, you may be riding alongside parked cars when a door ahead of you opens. If you continue riding as you are there will be conflict in your path. So you adjust your lane position and give more room to the driver getting out of his car.

Allow Hazards To Separate

Oftentimes you can let two hazards separate before you reach a point of conflict. If a motorcycle and a truck are about to cross a bridge at the same time, the motorcyclist has two hazards to worry about — the bridge and the truck. If the cyclist is wise he can deal with them separately. By slowing down and moving to the right hand side of his lane he lets the truck separate from the bridge and gives it room to pass. He then moves to the left side of his lane to avoid the concrete abutment of the bridge.

At entry ramps to freeways motorcycles can easily become sandwiched between two cars. If you are on the freeway with cars entering up ahead, you might want to slow down to let them on rather than be forced to the left side of your lane too close to other traffic. In this same circumstance, with cars coming on more slowly and traffic in the left lane behind you, you might want to accelerate to keep ahead of the merging traffic.

The most important thing to remember about two hazards is to deal with them individually. Separate them so that both don’t require your immediate attention at the same time.

The list of points of conflicts is endless for both city and freeway driving. If you stay alert and watchful, keeping your head up and eyes moving down the road, you can more accurately predict what might happen. Looking too closely in front of you, or down at the controls, or at the countryside, limits you to prepare at the last minute for an approaching conflict.

All of your riding decisions should be made with a single safety factor in mind: to maintain distance between yourself and road hazards. You may decide to speed up to avoid a conflict; or slow down. If you make good decisions, your riding will be routine and trouble free. If you make poor decisions, you will be in for a rough and dangerous time.
Compromise!

If somehow you cannot let two hazards separate, compromise! Say you are headed toward an intersection with two cars stopped in the lanes crossing yours, one on either side. Since you have the right-of-way you cannot let them separate. Just in case one of them decides to move, you would plan to give each car as much room as possible. In this case you would move to the left hand side of your lane and sound your horn as you go through.

When riding in traffic always ask yourself, "If there is trouble coming, from which side will it come?" Give more room to whichever side poses the biggest threat, or give equal distance if both threaten equally.

Safe riding is largely a mental process. The physical skills of riding are important, but knowing how to spot hazards and conflicts is most important of all. If you can, avoid hazards and difficulties altogether; and if you cannot avoid them, compromise!

Beware of things that make you angry. When you feel inclined to "show the other guy", watch out! The motorcycle offers you tremendous maneuverability; its small frame lets you move from side to side in a single lane of traffic. You should feel every moment a natural inclination to compromise, giving room to others on the road because you have more room to give, more space to yield.

The driver of the massive truck coming toward you in the opposite lane may not care a bit whether or not you ride dangerously close to the median. If you yield space by maneuvering to the right-hand side of your lane, you will give more room to the truck and to the gust of wind which follows it. At intersections, crossroads, blind alleys, and curves you should anticipate where someone - a car or a pedestrian - might be, and move to the side of the lane which gives you more room to slow down. On hills you will have no way of knowing if someone is in your lane, recklessly passing from the other side. But if you slow down and move to the right-hand side of your lane, you will give yourself a temporary insurance policy (after all, it costs you nothing) against a crash.

So where does this leave you in the art of compromise? If you never compromise, you are certainly headed for trouble of one sort or another; At the very least a close call, or at worst a deadly accident. You can compromise by slowing down, by maneuvering your motorcycle to give room, or by coming to a full stop for more immediate and dangerous conflicts in the road. When you compromise you
will find, in the end, no one to criticize you for letting the "other guy" push you around. In fact, you have let no one push you around; the reverse is true - you have let an accident go somewhere else to happen.

**Passing Other Vehicles**

Before passing another vehicle ask yourself, "does this driver see me?" In asking this question you will probably find yourself passing other cars more cautiously. What tips should you remember?

* Move to the left side of your lane before passing.
* Make sure your following distance is not closer than the two-second minimum.
* Check on-coming traffic carefully.
* Look into your mirrors and make a head check behind you to be sure other cars are not moving up.
* Use your left turn signal as you pull out.
* Pass while riding in the extreme left-hand side of the passing lane. Do not crowd the car you are passing. Make your pass quickly; do not hesitate once you have moved into the passing lane.
* Look into your right hand mirror and make a head check to be sure you have passed successfully.
* Use your right turn signal and return to your lane.

**Group Riding**

When group riding, stay in a staggered formation with the lead motorcycle taking a position in the left third of the lane. Keep a two-second distance behind the motorcycle immediately ahead of you, thus keeping a one-second distance between each (staggered) motorcycle.

If you ride with more than four motorcycles in your group, split up into groups of four or less. Other vehicles on the road cannot easily pass a large group. If they try they may have to cut back sharply in your lane and thereby cause an accident.

Do not bunch up. When at a traffic light, wait in pairs and start up again taking the staggered formation described above. If your group approaches a slow-moving vehicle, pass singly, taking care that each rider has time to pass.
Night Riding

A single headlight does not cover the road as well as the two light beams of a car. You should be constantly aware of this; make sure you do not overdrive your headlight. At night you must also take extra care that others see you. Make sure your motorcycle has proper reflective equipment and that your clothes and helmet reflect light from street lamps and automobile lights.

Almost set to go
- what is she forgetting?

These other tips are useful things to remember when riding at night:

* Discard scratched face shields or goggles. They reflect images and distort your vision at night.
* Turn on your high beam when oncoming cars are far away or when you are alone on the road.
* Replace any headlamp with a broken high or low beam.
* If one beam or the other is out, ride with the low beam and tilt up the headlamp, or ride with the high beam and tilt down the headlamp. Either way, replace the light as soon as possible.

VI. INCREASING YOUR RIDING SKILLS

Things happen without warning, even to the best motorcycle riders. In these circumstances you need to know the advanced skills of motorcycling.

Emergency Straight Line Braking

It's difficult to "slam on the brakes" while at the same time keeping the motorcycle upright, on a straight course, and in control, all with the wheels continuing to turn. Emergency stops are tricky, so if you can find a suitable place - a vacant lot or driveway with enough room - you should practice coming to a dead stop in the shortest possible time to get a feel for the technique. When practicing, remember to apply both brakes - with equal force - just short of locking the wheels. Practice straight-line stopping at slow speeds. It is very important to learn how to stop the cycle in a smooth, quick, and controlled maneuver. If you feel you need more braking power, you can lock the rear wheel by pressing down hard on the brake pedal and holding it down. Remember to disengage the clutch just before the wheel locks; if you don't the engine will stall.

Never lock the front wheel! You will lose steering control if the front wheel is locked. This may result in a spill.
Emergency Braking In A Curve

You increase your chance of controlling your motorcycle when you reduce your speed before entering a curve. To slow down after you have begun leaning into a curve is a very delicate maneuver. For this reason you should practice braking techniques for slowing down while turning. Read this section carefully and remember what it says when you are on the road.

There is no easy answer of "what to do" if you head into a curve too fast. What to do depends upon how fast you are going, how tight the turn is, how much traction you have, and how much further you have to go in order to get out of the curve. You must also consider possible obstacles on or near the road, and how much time and room you may have before hitting them.

What advice can be given? Again, try to reduce your speed as much as possible before leaning into the turn. If you must brake while in the turn, do so with gentle, gradual and equal force to both wheels without locking either one. As you reduce your speed, your angle of lean should also be reduced and the braking pressure increased. That is, as you decelerate and straighten the cycle the brakes can be applied harder, reaching maximum force when you are straight up and down. If the surface is wet, your situation is even more delicate - hard braking may cause a spill.

Road Surfaces

On a motorcycle traction depends upon the conditions of the road over which you ride. Motorcycles are more sensitive than automobiles to changes in road surfaces. The pavement may seem firm, yet a closer inspection reveals cracks or bumps, loose material or debris that will cause a motorcycle to lose traction. On some roads the center line may topple the unwary motorcyclist. Handling these deceptive surfaces is a matter of:

• Downshifting before reaching the poor road surface.
• Riding at slower speeds.
• Keeping constant direction with no abrupt changes.
• Keeping your body and feet ready to maintain balance.
• Shifting weight away from the wheel crossing the obstacle.
• Checking traffic before changing directions and signaling your intentions if possible.
• Accelerating when you have passed the poor surface or the obstacle to resume proper speed.
Standing On the Pegs

A lot of riders use the technique of standing on the footpegs to avoid body shock or to ride more easily over a rough surface. You can maintain control at critical moments and absorb the shock of a bump if you do this correctly. Practice this technique, following these suggestions:

* Grip the handlebars firmly.
* Raise your body from the saddle.
* Keep your head up.
* Absorb the bump by staying loose in your knees, wrist and arms.
* Keep your weight over the footpegs.
* Accelerate after both wheels have crossed the obstacle.
* Return to your seat.

Standing on the pegs while riding can be a dangerous thing to do; you can easily slip from the pegs and your hands can suddenly jerk the throttle. Good riders use this technique only when it is absolutely necessary. Use this procedure only when the situation calls for it, and with great caution.

Sand, Mud, And Water

Sand, mud and water (and other foreign materials) create steering and balancing problems. Be especially careful when encountering these surfaces after riding well-paved roads. If you ride for any distance on mud, sand, or gravel you may have to gear down to regain power. If you do plan to do much off-road riding, be especially careful not to operate your bike in deep water. You will not only lose braking efficiency by wetting the linings, but could also damage the engine.

Loose Surfaces

Riding over loose materials on a solid surface can be like riding over ice. Gravel, dirt, leaves or rocks in patches on the road will spill a motorcycle unless careful measures are taken. Accelerate and brake slowly. Increase your distance for planned stops and avoid any sudden swerves or moves.

Bumps And Cracks

Take bumps and cracks in the road with a slow, steady speed. Downshift before you reach them, maintain your speed and direction while crossing over them, and accelerate as you come to the other side. Cross the bad section at an angle favorable to you - usually 90 degrees - while being careful not to swerve. If you come upon the rough road area suddenly, just slow down and carefully cross over it.

Deep ruts, road tracks or cracks with sufficient depth to catch your wheels are another matter. If you see that your angle of approach is a bad one (less than 45 degrees) stop before crossing. Turn around and try again at an angle between 45 to 90 degrees.

Bad angle of approach

Correct angle of approach
Wet Pavement

If it is raining while you ride, slow down. The first drops mixed with road dirt and oil cut traction greatly. If you cannot stop and feel you must continue on, then:

* Wear brightly colored rain gear.
* Slow down if the rain on your face shield or goggles blurs your vision.
* Ride in the drier tracks of automobiles if there is any traffic ahead of you.
* Stay off the center oil strip or any painted lines.
Be extra careful with wet metal or wood surfaces.

To fight the vibration in the handlebars; instead, slightly relax your grip.

Other Slippery Surfaces

Manhole covers, painted lines, oil slicks at intersections and road litter can all be very dangerous. Avoid them if possible and, at any rate, slow down. Remember, these surfaces are treacherous when you are braking! Ice and wet wood can also cause accidents. If you must ride over them, slow down and extend both legs to catch yourself if the motorcycle slips; do not try to turn or weave around!

Skids

A skid can be both sudden and violent. Skids are usually caused by excess braking or by excess throttle on a loose surface. The resulting loss of traction in the rear wheel causes the motorcycle to "skid out" from under you. If you feel the motorcycle begin to skid you should:

* Steer in the direction of the skid.
* Let up gradually on the brakes; or ease off the throttle (whichever has caused you to skid in the first place).
* If possible use your foot to straighten up. (Do this only if you are going slow enough, AND if all else has failed!)

 Blowouts

Blowouts sometimes go unheard but they never go unfelt. The motorcycle suddenly vibrates and becomes difficult to handle. If a blowout happens, don't use your brakes to stop. Just ease off the throttle, slow down gradually, hold the handlebars steady to keep control and signal your turn (if you can) to move carefully off the road.
Stuck Throttle Or Broken Clutch Cable

Riders who experience a stuck throttle or a broken clutch cable are frequently so surprised that they don’t do anything! But you can prepare and practice a technique ahead of time. If your throttle sticks, turn off the engine with the cut-off switch, and apply both brakes. Pull off the road.

If a clutch cable breaks, you will have difficulty shifting gears and it will be impossible to start smoothly from a stop. Should it break while you are riding, try to get home or to a repair shop immediately. You will be able to continue riding in the same gear you were in when the cable broke. Try to keep a steady speed to minimize the need for shifting.

If you have to shift, do so gently with the throttle closed and the RPMs low. Getting underway once you’re stopped is the biggest problem, so try not to stop if you can avoid it; if possible, time your approach to traffic lights, or take roads without stop signs. Experienced riders always carry spare cables, just in case. You can route the spare in its proper place ahead of time and tape it to the working cable. This way it is ready for the day you may need it.

Dogs And Other Animals

If a dog or other animal chases you on the street, distracts you or otherwise gets in the way: slow down to throw the animal off its timing, then accelerate quickly and move away. If you are in an area that is the habitat for a wild animal, by all means pull over, shut off your bike and let the animal pass by! Do not consider yourself the only user of the trail.

Passengers

Extra loads of any kind greatly affect the handling of your motorcycle. If you have been riding for a while and you know what you are doing, you may then want to start carrying passengers on your motorcycle. For beginners this is something that should not be done. If you lack self assurance and experience, you will foolishly expose your passenger and yourself to great risk. If you are a beginner, wait a few more months before taking passengers.

If you have the experience and a two-person motorcycle, then check out these steps:

Wobble

At high speeds you may feel a "wobble" in the front wheel. If it is a strong vibration, you should grip the handlebars firmly and gradually reduce your speed. Avoid braking. At first opportunity check your motorcycle for an improper steering adjustment, a bent or unaligned wheel, an improper mounting on your windshield or an uneven load on your motorcycle. Check the spokes to see if any are bent. Check the shocks. If all else fails, take the motorcycle to a repair shop as soon as you can.
* Set your shock absorbers to a firmer setting (if your shocks are adjustable).
* Instruct your passenger on wearing protective gear. Check him or her for any loose clothing, shoe laces, pant legs, or scarves which can tangle in the chain or spokes.
* Show your passenger what is hot, such as exhaust pipes and mufflers.
* Tell him or her to ride straddled behind you, not side-saddle!
* Instruct the passenger not to lean unless you do, for turns or any other reason.
* Have him or her hold onto either your waist or the handholds on your motorcycle.
* Tell the passenger to keep his or her feet on the footpegs at all times, even when stopped.
* Take care to give yourself extra time to stop or slow down to compensate for the extra weight.

- Make sure your taillights, turn signals and license plate are not covered by the load. Check for loose ends.
* Beware that extra weight affects chain adjustment. Check and adjust as necessary with a full load on the cycle.
* Do not fasten anything to the front fender or to the fork.

Wind

A strong gust of wind can move your motorcycle across an entire lane of traffic. Be prepared. If traveling in an area of high wind, or through a narrow mountain pass, between tall buildings, over bridges or gullies remember to:

* Grip the handlebars firmly.
* Adjust your position to compensate for the wind (for example, to the upwind side of the road).
* Lean slightly into the wind.

When you turn, accelerate or stop, the passenger should follow your movement closely. You must lean together in curves, both at the same angle and at the same time. When you start up, both of you should lean forward slightly; when stopping, both should lean back and put pressure on the footpegs to brace yourselves.

Other Loads

When you carry camping equipment, packages or supplies of any kind:

* Fasten the load to your machine. Use rope or fasteners, never your hands or knees to secure something while riding.
* Use a luggage rack for large loads.
* Distribute weight evenly on both sides of the machine.
* Check the security of the load periodically.
Off-Street Riding

Riding on unpaved surfaces is harder to learn than riding on paved surfaces. "Dirt" riding requires a different technique and it takes practice. It also requires a specific type of motorcycle. Motorcycles used on the trails are designed and equipped for rough treatment. Riding in the sand requires a motorcyclist to be careful with any sharp turns. The front wheel tends to guide along on top of the sand until it is turned. It then tends to dig deeper into the sand.

Motorcycle tires come in various tread designs. Some tires are made especially for off-street riding such as the tires shown on this page. The knobby tire provides the lugs to dig into sand or dirt for better traction while climbing hills or riding in rough terrain. Be sure to check the manufacturer's recommendation for proper tire inflation.

Climbing hills is exciting, and also dangerous; it is better to begin with small hills and work up to larger ones. Be sure to investigate a hill prior to climbing it. A sudden drop-off or a large rock on the other side could produce an injured rider and a damaged cycle. When climbing the hill it is better to get a good running start at the bottom so the momentum will help carry the machine up the grade. Stand up on the pegs and remember to shift your weight over the front of the cycle.

One of the most difficult operations in riding a trail bike is going down a hill. If the hill is steep, ride down with the engine idling, and use the brakes gently. The compression of the engine will aid the brakes. Shift your weight over the rear wheel by standing on the pegs and extending your body to the rear of the cycle. On some very steep hills, you may be able to traverse at an angle across the hill. In doing this you should stand up and lean the cycle into the hill. If you should lose your balance and fall on a hill, try to fall uphill off your cycle. Let the bike slide down the hill before you - not after you.

In the event that you do not get up a hill that you're trying to climb, you'll have to turn around on the hill and go back down. This can be very difficult. Here's how to do it. While holding the bike with the front brake, get off on the side opposite the kickstarter. Now, let the bike roll slowly around you until it is turned sideways to the hill and downhill from you. Keep it leaned into the hill. At this point you can re-start (if necessary), mount the cycle and go down for another try if you want.

Competition Enduro: An off road bike with high fenders, knobby tires, small lighting equipment, tool bag on rear fender and number plates
VII. GETTING TO KNOW YOUR MOTORCYCLE

Perhaps you already own a motorcycle and you know the routines necessary for maintaining it; you know what insurance coverage you need and what troubleshooting checks you should make every day.

However, all students of motorcycling should take the time to know these subjects thoroughly. If you don’t know everything about selecting a motorcycle, insurance and maintenance, then a little more reading is a good thing.

Selecting A Motorcycle

What is your riding ability and experience? What kind of riding do you wish to do? How much are you willing to pay for a new motorcycle? The answer to these questions will largely determine what kind of motorcycle you should buy.

... Size And Type

Motorcycles are grouped into three different types or classes depending on how the motorcycle is to be used.

For street riding, you want to purchase a motorcycle for on-the-road driving. If you wish to ride some of the time off the road, on trails or open ground, you’ll want to look into a combination (on and off-road) motorcycle. If your interest is competition or motocross you will want to buy a specially designed sports cycle.

VARIOUS TYPES OF BIkes

Below:
Combination on/off road — semi-knob tire, high exhaust
Right: Lightweight on-road bikes
Below Right: Motocross racer, similar to Enduro but no lights or tool bag and more suspension

What size? Motorcycle size is measured in engine displacement (cubic centimeters or CC’s) and not in physical height or weight of the machine. Roughly, motorcycles can be grouped into three size categories:

- Light - up to 200 cc’s
- Medium - from 200 to 499 cc’s
- Heavy - 500 cc’s and over.

Of course the differences between individual motorcycles are much larger than the three categories of size and types that we have given here. Each manufacturer designs motorcycles differently, so today a wide selection of makes and models is available.

You cannot control a machine that is too high or too heavy for you. Can you straddle the motorcycle you wish to buy and place both of your feet on the ground? If not, the machine is too big. There will be times when you must physically move your motorcycle in and out of tight places, so you should choose one that you can push, place on its center stand and park with ease. Can you push it without losing balance? If it is on its side, can you pick it up? The bigger the motorcycle, the more skill, experience and physical strength it takes to ride it.
Insurance

An accident can cost you a lot of money (if not your life). To protect yourself you should carry insurance. It is wise to carry more than your state requires.

In buying liability insurance you will want to make sure you have adequate coverage for:
- Injury or death of more than one person in any one accident.
- Damage to someone else's property.

A. Liability Insurance

Liability insurance pays for injury done to others (either to their person or their property) as a result of an accident caused by you. If you decide to carry passengers, you should make certain that you carry liability insurance covering them, because many policies do not automatically offer this coverage.

B. Collision Insurance:

Covers you against damage to your motorcycle, regardless of who may be at fault.

C. Comprehensive Insurance:

Covers you against damage to your motorcycle in case of vandalism, fire, theft, falling objects and natural disasters.

D. Uninsured Motorist Insurance:

Protects you against damage from an accident caused by someone with no insurance.

E. Medical Payment Insurance:

Pays medical costs for injuries you may suffer while riding your motorcycle.

Pre-Ride Inspection

No matter how short the trip, each day's motorcycling should begin with a safety check of the machine itself. In doing this you are not only interested in finding needed repairs ahead of time. You are also seeing to it that the motorcycle is safe and ready to ride. This safety check will take you a few minutes, but the time is well worth spending.

1) Cables

You might begin with checking the clutch, throttle and brake cables, since they determine your control over the motorcycle. Are they frayed, loose, or in need of adjustment? Check by squeezing the clutch and front brake levers. Look for frayed ends where cables attach to the levers. Rotate the throttle to see if it works properly. It should spring back to idle position freely.

2) Lights and Horn

Work the switch of your motorcycle to be sure your horn, headlight (high & low beams), taillight, turn signals, and brake light are working. Check your brake light switch adjustment. It should turn on the light before actual braking begins.

3) Fuel And Oil

Look into the gas tank to check your gas supply. Check your oil. With two-cycle engines, check both the transmission oil and the engine oil.
4) Drive Chain
In a well-adjusted chain, there usually remains approximately 3/4 of an inch of play with the rider’s weight on the cycle. A loose chain could jump off the sprocket while you ride and cause an accident. So you want to check this adjustment as part of your everyday safety inspection. A well-lubricated chain will last longer and prevent wear to other moving parts and will insure smooth operation. Lube the chain at least once a week. Check your owner’s manual for further instructions.

5) Tires
Use a pressure gauge to measure the inflation of your tires. Inspect them for wear, depth of thread and the condition of the wheel rims. When they show signs of wear, (thin threads, cuts, uneven use or dented rims) replace the tire or the rim right away to avoid a blowout or flat tire. If you have a flat, replace the tube rather than use a patch. It is poor economy to take chances with your tires.

6) Kickstand
The kickstand (side stand) and the center stand can become hazards if they do not stay in place while riding. Make sure the spring mechanism holds them tightly.

Maintenance

In learning to ride a motorcycle through this course you will have learned a lot about safety, the roadability of your machine, and the nature of defensive riding. With the activities we have included in this course you will have driven these lessons “home” and made them a matter of habit. Now we want to close with an introduction to maintenance, hoping you will pick up your owner’s manual and read it carefully. Get to know your motorcycle by asking questions of a mechanic or an experienced friend, and take the time to work on your machine yourself. The essence of becoming a “knowing” rider is becoming a caring one. Care for your motorcycle and it will help care for you.

What does it take to maintain your motorcycle? When you buy your machine you will notice that it comes with a tool kit and owner’s manual. These are packed with your machine for serious reasons and are meant to be studied and used. You cannot learn to maintain your motorcycle in a few haphazard hours. It takes work and it takes time. If you wait, you may have to break out your tool kit for the first time some lonely night while you sit stranded alongside the road. In such a case you may as well hitchhike as try to repair your motorcycle. You won’t know what to do.

Start now and read your owner’s manual from cover to cover. Carry it with you when you ride, along with your tool kit, and learn the maintenance schedules your manufacturer recommends. Find out how to save on maintenance and how to spot trouble before it happens. You will also want to carry extra tools (as you learn which ones you need), as well as extra oil, levers, hardware, points,
plugs, tubes or "canned sparetires", cables, fuses, bulbs, bungee cords and chain links and lube for bikes with chain drive.

What kinds of simple maintenance jobs should everyone be able to do? Check in your manual for the proper procedures on the following:

* Engine and Frame - Tighten loose nuts and bolts; be careful not to overtighten.
* Clutch and Brake Levers - Check for smooth operation, lubricate, adjust according to owner's manual.
* Rear and Front Brakes - Check, adjust and test brake cables.
* Battery - Add distilled water to battery when needed; clean the terminals of corrosion; check for missing, clogged or bent vent tube.
* Wheels and Spokes - Look for loose spokes, improper wheel alignment, and poor balance.
* Electrical Wiring - Look for exposed ends, bad connections, and worn insulation.
* Frame, Fenders and Handlebars - Look for bends, breaks and dents; tighten where you can.
* Steering Adjustments - Check for too much free play or tightness.
* Throttle Grip and Cable - Should be free moving, lubricated and secured to the handlebar.
* Leaks - Look over the motorcycle and your parking place for oil, gas or any other evidence of leaks.

Required Service

If you are on the road frequently and run at high, sustained speeds or in adverse conditions, your machine may require more frequent servicing than the owner's manual suggests. If your motorcycle has taken a spill or has been in an accident, take it in to a mechanic right away. An undetected problem could show up one day later while you are riding.

You can do a lot of the maintenance work called for in your owner's manual yourself. You should learn to:

* Change your engine oil.
* Clean and replace the oil filter.
* Clean and adjust gap, or replace the spark plug(s).
* Clean or replace the air cleaner.
* Check and adjust the carburetor.
* Clean and check the fuel lines and tank.
* Clean the fuel valve strainer.
* Check and adjust the clutch.
* Adjust and lubricate the cables for the rear and front brakes.
* Check and change the front fork oil.
* Check the kickstand spring.
* Check the oil pump.
* Retighten clamps, bolts and replace the baffle on the exhaust pipe and muffler.

Spot Trouble Ahead Of Time

Motorcycles wear out and break down if you don't take care of them. Learn to recognize warning signals that spell trouble. Don't wait for a malfunction to happen: When you first detect a sign that something is wrong, check it out.

Be alert for:

* Misfiring on one or more cylinders.
* Excessive noise, vibration or "wobble".
* Sticking or hard-moving parts.
* Excessive smoke from the exhaust.
* Pulling to one side.
* Hesitation from engine; lack of power, sluggishness.
* Difficulty in shifting gears.
* Soft front or rear shocks.
* Oil leak from engine, transmission, wheel hubs, or shock absorbers.
Before You Find Out Too Late . . .

Practice troubleshooting. It's not difficult. In fact, you have already learned much of what you need to know to be your own mechanic, just from your basic servicing of the machine. A breakdown on the road is the supreme test of what you have learned. Almost everybody faces this challenge eventually. Some basic trouble-shooting steps follow (though these by no means cover the list of all the things you might try in order to find out what is wrong). If the engine does not start, or if it stops suddenly be sure to check:

* Ignition switch and engine cut-off switch
* Fuel valve (should be "ON" or in "RESERVE" position)
* Spark plugs — clean and tight? replace them if necessary
* Choke
* Fuel level
* Battery and fuse
* Oil level

If stability and steering are poor, check to see that:

* The tires have the right pressure.
* The tires are wearing evenly and still have sufficient tread.
* There is no excessive play in the front fork assembly.
* The front and rear wheels are aligned and balanced.
* The front and rear shocks are in good condition.

A final congratulations upon completing the 4-H Motorcycle Manual! You have accomplished much in recent weeks during the course of your training. You have found out why it is important to know your controls and the rules of the road before going to meet the world in challenging situations. You have learned how to proceed on the road and what to do when hazards arise. By this time you have probably learned how to predict hazards before they happen. You have also been introduced to some of the advanced "tricks" of safe motorcycle riding to get through hazards you cannot avoid. You have found out that it pays to get a motorcycle that fits, and one that is capable of meeting all the challenges that you give it, either on or off the road. You have learned of the necessity for adequate insurance. And finally, you have seen why it pays to know your machine and to make some of the necessary repairs yourself.

If you feel that in proceeding through the manual you passed over any points or skills too quickly, go back and review. It will pay off for you in the long run.

If you know all the aspects of smart and safe cycling that have been presented in the course, then you are ready to move on. Get involved. You may wish to enroll in a more detailed course on motorcycle safety. You may want to organize some club activities, whether it be a group ride to a campsite or a champion safety competition between your 4-H motorcycle club and a neighboring one in your county. Perhaps you could help teach younger riders who are starting out with a lot of enthusiasm but little experience or skill, just as you once did.

Think of ways you could help change the bad image that motorcycle riders have had in the past. Consider volunteer work where motorcycle riders could lend their special skills, such as a "package patrol" service for senior citizens.

Above all, don't stop here with your involvement. Keep going. Safe'n easy, that is. It's the only way to go.
SAFE 'N EASY LEADER'S GUIDE

This manual is intended especially for young, inexperienced motorcycle riders who are not enrolled in a formal course for motorcycle safety instruction. As the leader of their riding activities, you have the opportunity to prepare them for meeting the everyday challenges of the road. You don't have to be an expert on motorcycle riding or equipment. There are well qualified people in the community whom you can call upon for assistance, such as motorcycle mechanics, dealers, safety officials, driver education instructors, police officers and even older 4-H Club members with experience in motorcycle riding.

This course is NOT intended to take the place of longer, more detailed courses of instruction, such as those offered through various national safety programs listed in the reference section. It is hoped that "graduates" from this course will have learned enough to want even more detailed instruction from more formalized programs.

Even if the member does not take an advanced course, he or she will profit from your supervised instruction. Members will gain more from a structured program than if a peer were teaching them, at best incompletely and maybe incorrectly. Your members will learn how to ride properly and will actually find more pleasure and take more pride in their motorcycle skills.

Although most of what you will need to know about forming a safety club and conducting meetings can be found in this manual, a few things are left for you to do. You must make it your responsibility to know your own state laws regarding motorcycles. You will need to know whether or not a valid drivers license is adequate for motorcycle riding. You will also have to know what is the minimum age for either a license or a learner's permit.

Plan ahead for your group. Find a large, unobstructed, vacant parking lot and arrange for the group to use it at a specific time to practice riding skills. Make sure that the area is large enough and its surface safe enough for the activities in the manual. You will need an area without glass, chuck holes, sand, loose gravel, oil or other slick surfaces. Next, read the whole manual through, including the activities and the meeting outlines. Know what is coming around the next bend and prepare accordingly. If you wish to invite specific speakers or bring certain films to the meeting, you will have to plan this well in advance.

Members and Bikes

Quite possibly only a few of the members in the club will have bikes upon which to ride. There are a number of solutions to this problem. One that is highly recommended is participation in the Dealer Loan Program, sponsored by the Motorcycle Safety Foundation. The Foundation, founded in 1973, is a national private nonprofit organization whose chief goal is to reduce motorcycle accidents. It is sponsored by the five leading motorcycle manufacturers, and offers a formalized Motorcycle Rider Course that features comprehensive teaching techniques and instructional aids.

The Foundation has initiated a national loan program which makes motorcycles available to qualified school and community motorcycle
safety education programs. Participants in the loan program include the motorcycle manufacturers, distributors, local dealers, and the organizing institution or individuals. This arrangement might help to provide your group with bikes for your motorcycle training program. For more information on this and their Motorcycle Rider Course, contact the Motorcycle Safety Foundation at:

780 Elkridge Landing Road
Linthicum, Maryland 21090
(309) 768-3060

Other ways to make bikes available to members is to politely approach your local dealer on an individual basis to find out ways he might help, or to have members form teams of two or more persons who will share a bike during the meeting.

Many young people have motorscooters, dirt bikes, and mini-cycles for off-road use. You may want to include this group in your plans, for they are also in huge need of good instruction. Make sure that such members have a chance to practice the parking lot activities in this manual, and have them at least read the rest of the manual, too. If necessary, hold separate meetings for this group.

Insurance and Liability

Liability is an important matter for all concerned. All licensed riders should carry this insurance for themselves. In addition, for anyone hosting the group on private property, liability insurance should be carried to guard against personal injury claims if an accident should happen. If you plan to hold meetings on your property, make sure your insurance includes this coverage.

Notice the sample parental release form on this page. This helps remind both parents and leaders of the mutual interest and responsibility that must be shared in safe motorcycling. However, proven negligence on either side cannot be protected by this or any other form.

4-H Automotive Program

Encourage active members of the 4-H Motorcycle Club to fill out automotive records, as the 4-H Motorcycle Project is part of the National 4-H Automotive Program. Their activities may qualify them for county medals, state recognition, an award trip to the National 4-H Congress and national scholarships provided by Firestone. There are group awards, too.

| SAMPLE |
| 4-H MOTORCYCLE PROJECT FORM |
| Parental release to 4-H Motorcycle Project Leader |
| We, the undersigned, hereby give permission for |
| ____________________________________________________________________ |
| Member's Name |
| ____________________________________________________________________ |
| to participate in the 4-H Motorcycle Project. |
| We hereby indemnify and agree to hold harmless the 4-H Leader, the State Extension Service and any other sponsors of the 4-H Club Program and any and all persons affiliated with them, from any claim, suit or cause of action of any nature whatsoever arising as a result of, or in connection with, the instruction or participation by my child or arising from his presence on or about the said property or facilities of the said organizations, their representatives or instructors. |
| Dated this, _______ day of ________ 19____ |
| Mother: ____________________________________________________________________ |
| Father: ____________________________________________________________________ |
| Guardian: ____________________________________________________________________ |
Meetings

Outlined for this manual are eight meetings totaling 24 hours of instruction. The meetings should be scheduled to fit the needs and interests of the members. In order to include all the material suggested for the course, allow up to three hours for each meeting. (Some groups will need more time in certain areas than others, so be flexible with your schedule.)

Your time can be broken down as follows:
1) Early arrivers may practice skill activities on bikes if the practice area is nearby and supervision is available.
2) Review last week’s topics and exercises and introduce new discussion topics (including use of audiovisual aids) — 60 minutes.
3) Break. Set up lot while members have refreshments — 15 minutes
4) Practice riding skills on bikes — 60-75 minutes.
5) Review discussion topic, critique riding exercises, give reading assignment for next meeting — 30-45 minutes.

This plan may be altered in several ways. If your meeting room is far from the practice area, you may want to begin riding and then discuss afterwards. If you meet for three hours you can alternate between meetings that have two hours meeting time and one hour riding with meetings that have two hours riding and 1 hour meeting.

Another alternative is to use two leaders and split the group in two. One group will be inside holding a discussion while the other is outside riding. This arrangement will allow you to handle two members per cycle.

If for some reason your group cannot meet for three hours at a time, meet for two hours instead and hold a total of 12 meetings.

Remember, always provide detailed instructions and explanations for each maneuver before a member is asked to perform it. It is best to go over riding activities in the meeting and then quickly review them outside before the members attempt them.

Encourage the members to work at home on assignments between meetings. Have them read and study upcoming material in the manual. Also, give individual reading assignments from time to time to promote group discussion. Reference material sources are listed in the back of the manual.

Member — Leader Ratio:

Six members per leader is recommended — do not try to handle more than eight to one.

Skill Activities and Games

In this section a wide range of riding “Activities” are presented for use in the meetings. They are listed in sequence according to when each should be attempted. You may wish to start members at a higher level, or pick and choose among various activities, depending on the skills of the members. On the other hand, you may wish to use more than one meeting to conduct the activities suggested in each lesson, if it seems that there are too many to cover in the allotted time. Adjust your course to the skill level and learning speed of your group. The basic exercises include an explanation of their purpose and a procedural guide on how to conduct them.

The Skill Games included in this manual are of secondary importance to the main tasks — teaching the basic skills needed for safe motorcycle operation. A mildly competitive event can be fun for everyone. However, this should be AFTER all contestants have demonstrated their skills in handling the motorcycle. Scheduling such an event for the last meeting or as an extra meeting would be more appropriate than to hold it in the middle of the course.
MEETING 1: INTRODUCTION TO SAFETY

(Members should not bring their bikes to the first meeting.

A. Introduce the course, giving an overview of the entire program. Give a general introduction to the types of activities members will be involved with during the course. Obtain permission from parents; discuss insurance factors; emphasize that the club is oriented towards safety and proper handling rather than towards racing.

B. Show a motorcycle safety film obtained from a library, law enforcement organization or film company. (See "Film Resources" in the back of this manual.)

C. Emphasize the importance of safety: have members testify to accidents they have experienced, seen, or heard about.

D. Discuss the importance of defensive driving: point out several defensive tactics.

E. Discuss the possibility of a club exhibit to be displayed either in a motorcycle center or a public place.

F. Discuss the rules of the range. Be sure that all participants understand that they must follow your instructions whenever in the practice area. You will want to impress upon them the following points.

* Members should come dressed ready to ride. Wide bottom pants are NOT acceptable (if necessary, they should be taped around the ankles or tucked into a pair of high boots); no jewelry to be worn on hands, fingers, or wrists.

* Helmets ON whenever cycle wheels are turning and/or engines are running.

* Stalled cycles must be removed from the exercise area before restarting is attempted. Riders should straddle-walk their bikes with clutch disengaged to a safe area.
ACTIVITIES

1. Mount and Dismount:

Layout: arrange members and cycles on one long side of the rectangle, spaced 8 - 10 feet apart.
Cycles should be in place before members arrive for the exercise. Instruct members on proper mounting and dismounting procedure (dismounting is reverse of mounting).

Make sure that members:
— use the front brake.
— keep the kickstand down until the cycle is straddled, and place it down again before dismounting.
— lean the cycle toward the rider and to the left.
— turn the handlebar toward the stand when they leave the cycle.

*Some cycles have only centerstands. Give special attention to these; have all members try them.
*Check the fit of the cycle to the rider; change if too tall or too short.

2. Controls:

Layout: same as above.
Have members locate and operate all controls; clutch, shifter, front brake, rear brake, throttle, choke, fuel valve, ignition switch, engine cut off switch ("kill switch"), signals, horn dimmer, kickstarter and fork lock. Drill members on operating controls without looking at them — be sure they begin to find controls without hesitation. Drill them on this periodically throughout the course.

3. Walk Cycle:

Layout: same as above.
Have members stand to the left of the cycle, grasp handlebars, retract kickstand, and walk the cycle across the practice area. Have them use the same body position to walk their cycles backwards about 20-30 feet. Walking across the lot should not be continuous. Have members use the front brake to stop and start repeatedly on their way across. From the very beginning — teach control of the front brake! Members should walk the cycle around to the left at the end of the lot and back to the other side.

Look for:
— use of front brake.
— cycle leaned to left, toward rider.
— general control of cycle and balance.

MEETING 2: CONTROLS AND PROTECTION

(Members should bring their bikes and wear protective clothing to this meeting and to all the remaining meetings. Check to see that all cycles are in satisfactory condition.)

A. Review the previous meeting's topics.
B. Discuss different types of cycles, and their different uses. Utilize the testimony of members to stress advantages and disadvantages of different models; demonstrate capabilities of different members' bikes.
C. Review motorcycle controls; end with a quiz or competition to name all the controls. Stress the importance of finding controls without looking at them.
D. Discuss proper clothing and equipment for various riding situations; show examples.
E. Show motocross or track racing film.
F. Activities:
   1. Mount and Dismount, page 38.
   2. Controls, page 38.

(The above activities are also discussed in Part 2 of the members' section.)

MEETING 3: GETTING SET TO RIDE

A. Review the previous meeting's topics.
B. Review state and local safety ordinances. Invite a local law enforcement representative to give a short talk on motorcycle safety.
C. Discuss clutch, throttle and brake relationships.
D. Activities:
   7. Friction Point, page 40.

(The above exercises are also discussed in Part 3 of the members' section.)
MEETING 4: FUNDAMENTALS OF MOTORCYCLING

A. Review the previous meeting’s topics.
B. Discuss how to take turns properly.
C. Discuss when and how to shift gears.
D. Review the brake system; discuss how to brake on dry and wet pavement.
E. Show a film on common causes of motorcycle and/or auto accidents.
G. Activities:
   8. Straight Riding (repeat).
   10. Turns on a large Circle, page 42.
   11. Tight Turns on a Rectangle, page 42.

(Turns are also discussed in Part 4 of the members’ section.)

MEETING 5: BASIC STREET RIDING

A. Review the previous meeting’s topics.
B. Discuss differences between driving a car and a motorcycle. Emphasize the special need for defensive driving (review introductory remarks on safety made in Meeting 1).
C. Discuss road strategy — where to drive on the road.
D. Give a hypothetical road test: Make up road hazards for members to face; they must describe how to handle the situation.
E. Present a short film on some aspect of defensive cycling.
F. Activities:
   12. Turns on Medium Circles, page 42.

(Turns, shifting and braking are also discussed in Part 4 of the members’ section.)

4. Parking:

Cycles should be parked with front wheels turned toward kickstands; they may be parked in first gear to prevent rolling and to provide practice in finding neutral. Parked bikes should be uniformly spaced in their proper location for the next exercise.

5. Buddy Push and Straddle Walk:

Layout: With members lined up on the long side of the rectangle, one to a cycle.
Have them count off by two’s (1, 2, 1, 2, . . .). Pair them up as riders and pushers. Instruct riders to mount cycles; leaders and pushers should both check riders’ posture for proper positioning.

Instruct members to do the following: Pushers get the cycle and rider rolling by pushing on the rear of the seat so that the rider can balance the cycle. Push hard halfway across the lot and then let go. Riders should keep their feet on the pegs, balance the cycle, ride to the markers at the other end and stop with BOTH brakes, straddle-walk around the marker and get ready to repeat the exercise. After returning to the starting side of the lot, partners change and repeat the entire exercise.

Look for:
- good balance.
- use of BOTH brakes, stopping with left foot down.
- feet on the pegs (except when turning around).
- posture — knees against the tank, elbows flexed, upper body relaxed, low wrist position on the throttle hand.

Buddy Push
6. Starting and Stopping Engines:

Layout: cycles and members should line up on the long side of the rectangle. Instruct members in starting procedure (as per members' manual). Have them start and stop their engines to practice the starting routine.

Watch out for:
- loss of balance while kicking.
- weak kicking ("stepping down" is not enough; a firm, smooth, downward thrust is needed).
- bell bottoms or flared pants, which can catch on the kickstarter or footpegs and cause a spill if the cycle leans toward the trapped leg.
- throttle twisting (the throttle is not to be opened repeatedly when kickstarting); usually it should be opened slightly when kicking, depending on the manufacturer.
- flooded engine, a result of repeated kicking without engine starting; a flooded engine can be started by kicking vigorously with the throttle open more than normal.
- kicking with ignition, kill switch or choke in improper position.

You may want to help your members with this by warming the engines before the range exercises. Emphasize that all riders have to learn to start their cycles by themselves.

7. Friction Point:

Layout: cycles and members lined up on long side of rectangle.

Giving individual attention, have members start engines and engage first gear. Then have them let the clutch out slowly to the point of engagement and hold it there so that the cycle moves forward. Members should leave their feet on the ground for this exercise. The clutch is to be disengaged after the cycle has moved 3-5 feet. Members will straddle-walk the cycle back and repeat the exercise. The front brake is to be used to stop the cycle. As members gain skill, increase the distance they move under power. This exercise requires individual attention; help those who need it the most. As these members progress, lead into the next exercise.

MEETING 6: INCREASING YOUR RIDING SKILLS

A. Review the previous meeting's topics.
B. Talk about the differences between the average driver and the excellent driver in the fine points, such as emergency driver and handling the bike on different road surfaces.
C. Discuss driving in the rain; solicit personal accounts from members.
D. Give a verbal quiz — more hazardous road situations; "What would you do if . . . ?" (using situations like those discussed in the text.)
E. Plan a field trip to camp sites or track races.
F. Activities:
   15. Turns on an Oval, page 44.
   16. Shifting While Turning, page 44.
   17. Braking on a Turn, page 45.
   18. Figure 8's, page 45.

(Activity 17 is also discussed in Part 6 of the members' section.)

MEETING 7: GETTING INTO YOUR MOTORCYCLE

A. Review last week's topics.
B. Discuss choosing a cycle; members should relate why they bought their current cycle.
C. Stress the importance of the owner's manual.
D. Invite a local dealer to come to introduce basic maintenance; tools and spare parts to have on the road.
E. Stress the importance of proper servicing and how to do some basic servicing at home.
F. Practice fixing common trouble spots.
G. Plan the champion skills riding contest for the next meeting.
H. Activities:
   20. Quick Stops, page 46.
   21. Street Simulation, page 47.
   22. Passengers, page 47.

(Activities 19 and 22 are also discussed in Part 6 of the members' section.)
MEETING 8: FORMING AN ON-GOING CLUB

(Members should bring bikes and riding gear for the champion skill games contest.)
A. Discuss the safety aspects of off-street or "dirt" riding. The group may want to become involved with forming a track course in an area that is ecologically safe.
B. Discuss ways to change the community attitude toward motorcycles, and ways to form an on-going 4-H motorcycle club. Here are some suggested activities the group could undertake:
   * Setting up motorcycle paths.
   * Reporting and/or removing community road hazards.
   * Establishing a package service for senior citizens.
   * Conducting motorcycle demonstrations for school, community groups or other 4-H clubs.
   * Interesting other youth in taking this course; more advanced group members could help lead.
   * Holding rallies or championship competitions with other clubs.
   * Organizing a motorcycle check lane at a shopping center parking lot; working to convince owners of noisy bikes that they are harming the reputation of the sport.
   * Helping your local 4-H agent to make a motorcycle safety slide set.
C. Work on the club exhibit. Consider a 4-H Motorcycle Safety Awareness Day at a mall or other location. Display the exhibit and hold demonstrations.
D. Plan club trips to racing sites, local dealers, repair shops, or other locations.
E. Activity: Skill Games, pages 42-46.

8. Straight Riding:

   Layout: same as above.
   As a progression from the friction point exercise, allow members to ride across the lot with their feet up and clutch fully engaged. Have them stop with both brakes (left foot down) and straddle walk around the markers to the left. Then they can ride back to the starting point.
   Look for:
   - proper posture.
   - use of both brakes.
   - good clutch, throttle coordination.
   - eyes up, not looking at the front wheel.
   - stopping before turning around; cycles should be straddle-walked around the markers.
   - correct lane position.
   - experienced riders to be getting bored at this point and to be tempted to fool around; prevent this by having them help out others or by making the lane smaller in order to make the exercise more challenging.

9. Turning on a Rectangle:

   Layout: same as above with complete rectangle.
   Have members begin to ride around the rectangle, making left turns first. Remind members that if they stall, they should immediately straddle-walk the cycle, with clutch disengaged and transmission in gear, out of the path of the other members. They must get out of the traffic flow to avoid danger (not everyone can stop) and to keep the action moving smoothly. Reverse direction when ready.

   Watch out for:
   - imbalance on turns — this is the first series of turning under power.
   - improper wrist position on the throttle; all fingers must be on the throttle grip, the ends of the fingers held forward.
   - fingers over the clutch anticipating emergency braking.
   - attempts to go into higher gears.
   - tailgating, "hot-dogging".
   - improper posture.
   - "footing" on turns (foot on the ground).
10. Turns on a Large Circle:

Layout: large (30') circles and rectangles.

If there is enough space on your lot and more than one leader, this can be combined with the previous exercise. Keep the direction of motion uniform - all left turns on the rectangle, all left turns on the circle, and so on. After a while reverse direction.

Two or three members should proceed in the circle, following the markers around it making left turns first, then right.

Look for:
- first gear only, clutch full engaged.
- eyes ahead, not down.
- correct leaning on turns.
- ability to coordinate speed (by throttle control) with angle of lean to make turns.
- "footing" on turns.

11. Tight Turns on a Rectangle:

Layout: Rectangle with markers to limit width of corners; riders on the long side to start.

This is operated in the same manner as the previous rectangle. The limits on the corners place a greater demand on the members' skill in making turns. Start on the left then change to right.

Circles may be run during this exercise if space and personnel permit. As members gain skill, begin to demand use of turn signals; also begin to drill them on the use of other controls as they are riding. Continue this practice throughout the course.

12. Turns on Medium Circles:

Layout: smaller (15') circles inside a rectangle; members start from the long side of rectangle.

Instruct members to begin with turns on the rectangle; call them into the circles individually (no more than two per circle). Have them make the tighter circle in the same manner as the larger circles. Practice both directions, changing directions on both the circles and the rectangle at the same time.

SKILL GAMES

After the group has mastered the basic activities listed in the leader's section, they may wish to test their skills even further through the following skill games.

These games, along with the group's favorite activities from the other meetings, may comprise a championship skill games contest that will take place at the end of the course. They are divided into intermediate and advanced categories; do not allow your members to attempt advanced games unless they are definitely ready for them. Remember, these games are not to be used for racing or competition between cyclists. The winners will be those who score the highest number of total points.

INTERMEDIATE GAMES

A. Backward Push

All contestants line up in front of their own motorcycles and face the finish line. At the signal the contestant must push his motorcycle backwards, and the first one to reach the finish line is the winner. Additional points are given according to order of finish.

B. Straight Line Stop

1. Stop at Point A or not more than six inches behind the line.
2. Drive forward at 20 mph to Point B.
3. Apply brakes and stop in the shortest distance under control.

Points are given according to the shortest distance required to stop.

Straight Line Stop

```
A

B
```
C. Serpentine Weave
Driving in low gear, drivers must successfully weave in and out between cones, staying inside the boundaries. Distance between the cones could start at 20 feet and eventually be decreased to 8 feet.

Points are given to drivers who complete the weave without touching the cones. The path should be about 4 feet wide, as shown on the diagram.

D. The “S” Brake Drill
1. Approach the first stopping point at 15 mph, and stop by using only the hand brake with the front axle between the cones.
2. Turn toward the second stopping point and stop by using the rear brake with the front axle between the cones.
3. Turn toward the third stopping point and stop by using both front and rear brakes with the front axle between the cones. Points are given according to how close to the line between the cones each bike stops.

13. Shifting on a Rectangle:

Layout: add markers to each long side of the rectangle, ¼ of the length from the corners.

Shifting from first gear to second gear is done as the members accelerate away from the turn, and downshifting is done as they decelerate for the upcoming turn. Allow enough time for this exercise; this is the first experience in shifting for many members. This exercise can be combined with the circle exercise if space and personnel permit.

Watch out for:
- rough shifting, especially downshifting.
- failure to accelerate in first gear.
- “double shifting” resulting in selecting too high a gear for the speed, and indicated by lugging engines.
- shifting with body movement and loss of balance (only ankle pivot is needed).
- poor clutch and throttle coordination.
- failure to shift at the markers.
- lack of deceleration before downshifting.
- looking at the controls.

14. Braking:

Layout: use markers on corners that are diagonally opposite each other as the braking lanes on the two long sides of the rectangle. Position riders at corners 1 and 3. Riders will head towards corners 2 and 4 respectively.

Members are to accelerate to 15 mph and hold that speed until they enter the braking area. They will apply both brakes and stop at the markers at corner 2 or 4, respectively. After stopping completely, members should proceed to their left and to the other side of the rectangle to repeat the exercise.

Look for:
- use of both brakes (stand to the right of the cycles to see the brakes) and left foot.
- clutch disengaged before cycle is stopped.
- shifting to second (optional).
- shifting back into first to re-start.
- steady speed of 15 mph until reaching the braking lane.
15. Turning on an Oval:

Layout: large circles and rectangle.
Instruct members to ride around both large circles forming an oval.
They should be gaining practice in leaning to make a turn, smoothly controlling the throttle and lean angle. This activity should be done in second gear; first gear will not allow enough speed for proper leaning. Remember to allow time for both left and right routes around the oval.

Watch out for:

- tailgating on straightaways.
- lack of deceleration before entering turns.
- eyes down, looking at the front of the bike.

16. Shifting While Turning:

Layout: same as for Number 15.
Upshift and downshift during a turn. Instruct members to ride the oval in second and third gears. Shifting is done at the double markers (see diagram for Number 15). At the beginning of the turn members will brake, downshift, and enter the turn. As they exit the turn, they should be gradually accelerating and upshifting to third gear at the shift markers. Run the exercise in both left and right directions.

Watch out for:

- lack of smooth shifting.
- not shifting at the proper points.
- failure to decelerate before down shifting.
- failure to accelerate to second gear before upshifting.
- fear of combining shifting with leaning.

E. Stop and Win

A line is drawn across one end of the rectangle. The contestants are lined up on their bikes at the other end. At the signal they start for the line, and the first bike to reach the line without crossing it is the winner. In this case speed helps but it must be controlled, since no part of the machine may go across the line.
Points are given according to order of finish. Crossing the line or a spill disqualifies.

F. Plank Race

Take two white strings and fasten them on the ground about 10 inches apart for a distance of about 50 feet. Then send all contestants down the string at 10 mph. All riders who stay between the strings without stopping are given another trial, with strings moved closer together until all but one are eliminated.

Points are given according to order of finish.
ADVANCED SKILL GAMES

A. Stake Race
Set up pylons, or other appropriate markers, about one motorcycle length apart. All markers should stand vertically. Each rider must ride through the line of stakes on alternate sides of each stake, circle the one, and return by the same method. Each ride should be timed.

Points are given according to the fastest times; knocking down or breaking any stake disqualifies.

B. Observed Field Trials
Lay out a clearly marked (roped) course, not less than three feet wide, that includes such natural obstacles as rocks, bushes, water, and so on. This should be done preferably on a section of dirt. Avoid hazardous ascents or descents in the layout. Observers are stationed in strategic spots to score those sections visible to them. Riders proceed one at a time.

Points are given according to the fastest times. Riders are penalized for errors such as dabs (touching one foot to the ground), footing (two or more dabs or foot dragging), stopping, out-of bounds and failure to attempt a section.

C. Slow Race
Line up all entrants about five feet apart and select a finish line 30 to 60 feet away, with side boundaries about five feet from the end bikes. All riders must start at the same signal, and the last rider to cross the finish line without crossing the side boundaries is the winner.

Points are given according to the order of finish. Any rider who touches either foot to the ground or stops the cycle after the starting signal is disqualified. This same contest could be held by running each rider individually through a narrow lane marked with string or lime. In this case the object is to have the slowest finish time without crossing the sidelines and without touching the ground with either foot.

17. Braking On a Turn:
Layout: large circles.
Allow one or two members per circle. Have them ride around half the circle and stop. (With two riders on a circle keep them 180 degrees apart.) Repeat several times for all members, and in both directions.

There are many myths about the dangers of using the brakes while turning on a motorcycle. In fact, braking on a turn can be done safely. Both brakes should be used gently — neither wheel is allowed to lock. The rotation of the wheels is to be slowed, not stopped.

Look for:
- proper stopping; left foot should be down, both brakes employed, clutch disengaged.
- acceleration to produce enough speed so that the cycle has to be leaned for the turn.
- increased braking pressure and decreased lean angle as cycle is slowed.
- rotation of wheels; they must not lock.

18. Figure 8's:
Layout: the rectangle.
Assign each member to two markers on the rectangle; leave one extra marker between each pair of markers to spread out the group. Members will ride low-speed figure 8's around each pair of markers.

Look for:
- use of "counter - leaning" technique, as explained in Part 4 of the members' section.
- good clutch - throttle coordination; slipping the clutch may be required.
- keeping a small arch on turns (discourage wide swings to make figure 8's).
19. Standing On The Pegs:

Layout: rectangle with braking lanes (as used in Meeting 5).
Instruct members to ride around the rectangle in a weaving pattern between the markers, all the while standing up on the pegs. Have them ride the short side of the rectangle without weaving.
Look for:
- elbows bent, knees bent, throttle wrist position correct.
- change in right wrist position when handlebars are turned back and forth.
- “counter-leaning” with footpeg pressure; this helps steering control.

Standing on the Pegs

20. Quick Stops:

Layout: same as for braking in Meeting 5.
Instruct members to ride to braking lane, shift to second gear and speed up to 15 mph. After passing the entrance of the braking lane, they are to stop as quickly as possible.
Look for:
- proper speed on approach.
- smooth shifting.
- eyes up.
- use of both brakes, left foot down at stop and clutch disengaged.
- front wheel to remain unlocked.

Repeat this exercise enough times so that all members gain confidence and show improvement. Once members master the basics, speed can be increased eventually to 20 mph on the approach.
(Note: at 15 mph a new rider who can stop in 10 - 12 feet has done an excellent job. Most members will need more distance).

D. Economy Run

Conduct this contest in the “mock village” layout. Fuel tanks and carburetors are emptied and each bike is supplied with identical amounts of the same gasoline (e.g., one quart). Points are given according to the greatest amount of time the cycle is kept running. No stopping, dismounting or pushing the bike allowed.

E. Obstacle Race

The obstacle course should be about 30 yards. Obstacles can consist of planks, boxes, stakes, and so on. Make sure that each is clearly marked in order to prevent any accidents. Riders are started one at a time, and must successfully drive around each obstacle. The winner is the driver who finishes in the shortest amount of time. Touching one’s foot on the ground disqualifies. Penalty points are given according to how many obstacles are moved.

F. Whacking the Murphy

Each rider is armed with a broom handle or the like and tries to smash a large potato placed on top of a stake driven firmly in the ground. The stake should be planted vertically and should be mounted high enough to bring the potato to the rider’s waist. The rider must cut the potato downward, side strokes not counting. Contestants must approach the stake at a minimum speed of 15 mph. The winners are those who break the potato in the fewest number of tries.

Street Simulation, Activity 21.
21. Street Simulation:

Layout: starting with a basic rectangle; add markers to create a "mock village". Use oversized (3 times as tall) markers for stop signs. Be imaginative — keep changing the road signs so that members must stay alert to changing traffic patterns.

Instruct members to ride around "town" as they please ... but all normal rules of the road apply. Watch for violations and hand out traffic tickets. Place repeat offenders in a "penalty box" for 5 or 10 minutes.

Watch out for:
- "hot-dogging",
- excessive speed on long straightaways (this can be controlled by placing stop signs strategically),
- failure to use signals, horn, etc.

Street Simulation

22. Passengers:

Layout: same as Number 21.
Allow double riding during part of the street simulation. Use only cycles that have passenger footpegs. Change partners so that everyone gets a chance.

Look for:
- communication between driver and passenger,
- proper leaning techniques.
COURSE OUTLINES AND INSTRUCTIONAL MATERIALS (CONTINUED)

Motorcycle Industry Council (MIC)
1001 Connecticut Avenue, N.W.
Washington, D. C. 20036
(Government Relations Office)

American Driver and Traffic Safety Education Association
1201 Sixteenth Street N.W.
Washington, DC 20036
Division of Highway Safety Coordination
One West Wilson Street
Room 1211
State Office Building, Madison, WI 53703

FILM RESOURCES

AAA Motor Club of Iowa
P. O. Box 4290
Bettendorf, IA 52808
Films available on a lease basis

American Honda Motor Company
100 W. Alondra Boulevard
Gardena, CA 90247
Films available on a short-term free loan basis

Centron Educational Films
1621 West Ninth Street
P. O. Box 687
Lawrence, KS 66044
Films available on a lease basis

Film Fair Communications
10900 Ventura Boulevard
Studio City, CA 91604
Films available on a short-term lease basis

Kawasaki Motors Corporation
Safety Education Department
P. O. Box 11447
Santa Ana, CA 92711
Available at cost

Motorcycle Industry Council, Inc.
1001 Connecticut Avenue, N.W.
Washington, DC 20036
Films available on a free loan basis

Pyramid Films, Inc.
P. O. Box 1048
Santa Monica, CA 90406
Films available on a lease basis

SUPPORTING ORGANIZATIONS

The following are organizations that have a direct responsibility for motorcycles or motorcycle safety.

American Motorcyclist Association (AMA)
P. O. Box 141
Westerville, Ohio 43081
Provides information and materials for organizations and individuals who wish to hold and compete in motorcycle racing events throughout the nation. Also works on behalf of cyclists in various legislative matters.

Governor's Representative for Highway Safety.
The governor of each state has designated a person to head an office that is responsible for distributing federal funds and providing guidance for use of these funds at the state and local level.

State Police
Contact the Public Information Officer of your local office for information concerning guest speakers, slide presentations and films.

Motorcycle Industry Council (MIC)
4100 Burch Street, Suite 101
Newport Beach, CA 92660
(Administrative Office)

Serves as the information and legislative council for the motorcycle and allied trades. A major function is the dissemination of public information relating to the number, kinds, and use of motorcycles.

National Highway Traffic Safety Administration (NHTSA)
Department of Transportation
400 7th Street, S.W.
Washington, DC 20591

Responsible for improving highway safety, the Administration conducts research and develops and implements highway safety programs designed to reduce accidents, injuries, and fatalities. NHTSA’s Highway Safety Program Standard 4.4.3, Motorcycle Safety, was adopted to assure that motorcycles, motorcycle operators, and their passengers meet standards which contribute to safe operation and protection from injuries.