

**HINTS  
FROM  
THE  
"HIP"**

Hints from the Hip is written for everyone who owns or is thinking of owning a motorcycle. It is concerned with the things that will make having a motorcycle a rewarding experience.

We know of no other sport that makes getting there so much fun as cycling. The exhilaration of motoring smartly along an open road with the wind in your teeth will bring you into a rapport with your environment that is impossible to match. If you've experienced it, you know exactly what we mean. If you haven't, we wish we could be with you the first time you do. It's like nothing else in this whole loving world.

This is attested to by the rate at which the sport is growing. In 1966 there were about 1,300,000 cycles in use. The industry estimates that the number will reach 5 million by 1970!

Motorcycling has come a long way in a very few years. Modern technology and production methods has put superb machines within the reach of millions. Safety equipment that was not even envisioned a decade ago is now universally available to increase your enjoyment of the sport.

With increases in numbers, the motorcyclist's responsibilities increase proportionately—to himself, to other motorcyclists, and, in fact, to everyone using the roads.

Intelligent assumption of these responsibilities serves to assure increased enjoyment of the sport.

And that is what these pages are about . . . enjoyment of the sport.



Published by Rockford Motors, Inc.  
1911 Harrison Avenue, Rockford, Illinois 61101

### SAFETY

Motorcycles are Motor Vehicles . . . . .	2
Defensive Driving . . . . .	4
See that You're Seen . . . . .	4
Heed the Speed . . . . .	6
Use Your Head . . . . .	8
Be a People Watcher . . . . .	9
Know Your Machine . . . . .	10
Riding Double . . . . .	13
Responsibility . . . . .	14
Trail Sense . . . . .	15
The Intelligent Motorcyclists' Code . . . . .	16

OFF the ROAD . . . . .	17
------------------------	----

RACING . . . . .	20
------------------	----

Competition Machines . . . . .	22
Scrambles . . . . .	27
Road Racing . . . . .	29
Dirt Tracking . . . . .	30
Enduros . . . . .	31
Drag Racing . . . . .	32



## **MOTORCYCLES ARE MOTOR VEHICLES—RULE ONE**

The first rule is that as a motorcyclist you are subject to all the laws of your state and municipalities that govern the operation of a motor vehicle. This is a fact obvious enough to stand *without* discussion. In this booklet, we are not so much concerned with the letter of the law as with its intent—the safe and orderly operation of all motor vehicles.

### **Put Yourself in the Driver's Seat**

You have a lot of safety advantages going for you as a cycle rider. In addition to virtually unlimited visibility, you can *hear* what is going on around you. You can slow down, speed up, snake your way around obstacles like virtually nothing else on the road. All these advantages can, through training and the formation of good habits, keep you well away from trouble.

In fact, if every vehicle on the road were a motorcycle and all their operators were following the practices we will be talking about in coming sections, we doubt if there would be enough accidents around to keep the insurance adjusters out of mischief.

But, as it happens, there *are* a few cars among the motorcycles using the roads and it is this fact that causes us to put this collection of safe practice hints to the printed page.

To get the proper perspective on safety, let's, for a moment, imagine ourselves in the car driver's seat.

First of all, we've lost our advantages of unlimited visibility. All sorts of window posts, mirrors and sheet metal get in the way of our vision.

## Car Drivers Unaware of Cyclists



We can't hear as well, either. We have a radio, perhaps even a stereo, going and what we are listening to has made us less aware of everything going on around us. In short, we sort of operate on "auto-pilot."

We get away with it because we go back on "manual" as soon as our senses and experience indicate to us that something unusual is going on . . . like a car sneaking alongside on the right or a brake light flashing on ahead.

This is all well and good as long as we, as drivers of automobiles, are dealing with *other* automobiles. But mix in a motorcycle or two and we don't react. Why? Because we aren't *used* to reacting to motorcycles. They are outside of our customary experience.

If it happens that we, as automobile operators, don't allow the ordinary courtesies of the road to motorcyclists, it isn't that we are "bad guys"; it's just that we aren't keyed in as yet.

There are good enough reasons for this. Motorcycles are a different size and shape than automobiles. We can't imagine that they could be travelling as fast as we are. Because they don't occupy the same traffic space as a car, we tend to think of them as some other kind of traffic that comes under somebody else's rules, not ours.

For that reason cyclists must be prepared to make allowances for the automobile drivers' apparent disregard for our presence. *Assume* that you haven't been seen. Building this assumption into your operating procedure will stand you in good stead for as long as you ride a cycle.

In fact, this safety habit will make a better car driver of you, too. You automatically come to *anticipate* from minute to minute what the cars around you will do and how you will react. And this, dear friends, is what safety is all about.

Statistics indicate that operating a cycle is safer than operating a car IF you recognize the fact that *you alone* are responsible for your safety.



## THE ANSWER? DEFENSIVE DRIVING—RULE TWO

Defensive driving means that you are constantly analyzing data received by your senses of hearing, vision, feel, etc., so that you *anticipate* situations that will occur 5-10-15 seconds from now. If you practice this “data analyzing” technique from the start, it will become almost instinctive later, freeing you to enjoy the sport to the utmost.

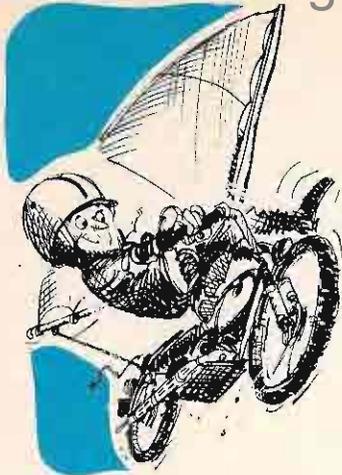
For example, your “data computer” should be analyzing things such as the road surfaces; your speed in relation to traffic; traffic density; the time and distance it takes you to stop (you and a car cannot occupy the same space at the same time, right?); the habits of the driver of the car ahead of you (is he or she a “lane changer”, a “brake dabber”?); parked cars (stay clear of unexpectedly opening doors); the possibility of objects falling off cars or trucks ahead of you; debris in the road; dogs, cats and other furred and feathered friends.

## SEE THAT YOU'RE SEEN—RULE THREE

When you are travelling in heavy traffic, pick a position on the road where motorists can see you. This probably means a position left of the center of your lane. If you stay to the extreme right of the lane, you may eventually find yourself sharing your spot with a car passing the one behind you. In light traffic, you can safely travel the right edge of your lane.

If you intend to pass, do it only when you can clearly see ahead to where you'll be when you've done it. Then do it quickly. Always pass on the left. The clearance on the right might look ample until you're in it. Holes have a way of closing up.

Keep alert for brake lights flashing on several cars ahead in traffic. They've got to be going on for a reason, so you can start expecting the car ahead of you to follow suit in a matter of seconds. That, of course, means you, too. When you see the brakes being hit up ahead, give your rear brake pedal a tap so the car behind you sees your light and starts anticipating a stop. A legal hand signal indicating caution doesn't do a bit of harm either. When you stop or slow down drastically, it's important that the car following you is also playing the game.



## The Open Road

The open road is where cycling is at its best. The rules are few and simple but they are as important as those applying to traffic.

One of the things you have to consider is wind effect. You'll find yourself and your cycle leaning into a wind from the side. No problem. Only be ready to make a slight correction when you pass through an area sheltered by a row of trees, a billboard, a truck, building or embankment. If it's a gusty wind, adjust your speed downward to make reacting simple and automatic.

When going around a curve on an open road, put yourself in position in your lane to see as far around it as possible before entering it. Adjust your speed to allow for what you can't see, then bank in and enjoy it.

Always keep check on the condition of the road shoulder and how you would handle it, should conditions make it necessary to hit it. If you do, and it is a loose surface, reduce your speed smoothly, and in a straight line, relying on the "gyros" to keep you stable while you brake.

Brake by applying intermittent pressure on both front and rear brakes simultaneously. Rear brake pressure should start a fraction of a second sooner than front.

Using them together will stop you in a straight line. This applies to a loose surface particularly, but it is equally true on a paved surface.

Never operate your cycle in such a manner that you find it necessary to lock the brakes on. If you ever have to stop this fast, there is something very wrong with the way you are riding. You turned off your traffic data evaluator, right? Keep it working. Look for the subtle signals all around you that will indicate that a change in speed is coming up. When you see one, start doing something about it right away. Panic stops have no place in an alert rider's repertoire.

## HEED THE SPEED—RULE FOUR

The fourth rule concerns speed. Modern lightweight motorcycles are, almost every one of them, masterpieces of engineering accomplishment. The best of them in stock form can produce almost 2 horsepower per cubic inch of displacement. This is on a par with the performance of some of the world's highest performance (and highest priced!) sports cars.

If you've chosen your cycle well, you'll find that it is equipped with brakes that are adequate to keep all this power under control. However good the design, *you* are the one who is ultimately responsible for safe operation.

Speed in itself is not the biggest problem. Because of the gyroscopic effect of the spinning wheels, the cycle itself actually becomes increasingly stable through most of its speed range. So, if we did all our riding on a clean, cool, dry, smooth, straight, level, uncrossed, unlittered, wind-protected surface and if your cycle were in good condition, we could reasonably assume that the faster you go, the more stable and safe your ride *will* be.

It hardly seems necessary to point out that a travelling surface like we've described doesn't exist and probably never will. The closest we can come to it is the Bonneville Salt Flats where the world's land speed records are assaulted every year or two. But even here elaborate precautions and preparations are made for these attempts. The contestants are content to wait for days, weeks or even months for the right combination of air-surface temperatures, humidity and wind conditions to reduce the possibility of mishaps.

So here's the point: match your speed to the conditions you are aware of and drop it another 10% in anticipation of the unexpected. The mark of the skilled cyclist is his ability to automatically calculate safe speed and his good sense to observe it.

Let's look at some of the things that should feed into the safe speed calculator under your helmet.





## Weather

Rain or snow will make anyone but the "out-to-lunch" citizen slow down. First of all, speeding through a rain shower feels something like chasing a porcupine through a keg of nails. It's amazing how sharp a nice, soft drop of rain can feel on your face when you are moving quickly against it.

But even if you are a nut for punishment, your bike at speed on a wet surface can take on a personality you wouldn't believe possible. Things go pretty well as long as your "gyroscopes" are allowed to pursue the straight line prescribed by the laws of physics. As soon as you do something to oppose these laws, like taking a curve or hitting a rut, you immediately start playing under new rules. So, if you get caught in a shower, pull into a sheltered area and check nuts and bolts for tightness for a while. (We know one cyclist who *really* does this as a matter of routine every time he gets caught in the rain.)

If you must ride, keep your speed *way down* and choose routes away from the heavy traffic. Remember, yours isn't the only visibility that will be affected. Motorists will have a harder time seeing you, too.

Even a clear, hot, sunny day can spring a surprise on you. Every well-travelled road has a thin film of oil on it which collects from the thousands of cars passing over it. You can see it. It looks like a brown-black path in the middle of the lane.

When this film is heated by the sun, it becomes a slick. Avoid it. It's easy to do. Keep to either the left or right edge of the lane, preferably the left. But when you have to ride on it or make a turn across it, reduce your speed accordingly.

## Traffic

Match your speed to the traffic in which you're travelling. If it's beyond the capability of you or your machine, pick another road. Neither you nor your cycle can operate at maximum output at all times.

## The High Cost of Maximum Power

Let's take a lesson from the birdmen. Most pilots cruise their airplanes at about 65% power. An engine overhaul costs a minimum of \$1,000.00 on the smallest of planes. No matter how well-heeled the owner may be (and most are pretty well-heeled), he's not anxious to shorten the natural interval between overhauls.

All things being relative, especially when it comes to money, you ought to feel the same way about cycle engine overhauls. One law of physics that never fails to impress us is that engine stresses increase in direct proportion to the square of the speed. This means if you double your speed, the strain and stress on the engine increases 4 times.

If you triple your speed from 10 mph to 30 mph, the engine stress increases 9 times. Engines are built to take it but, they'll take it for a shorter time at maximum speed.

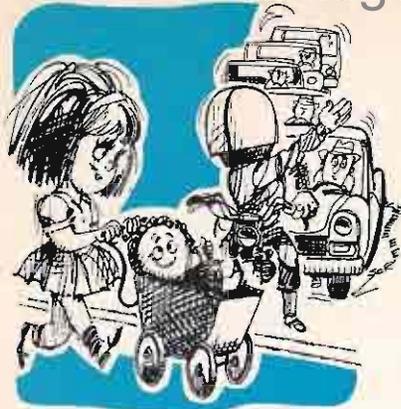
## USE YOUR HEAD—RULE FIVE

"Use Your Head." And putting a helmet on it is a good way to start. This is another place where it makes sense to get the best you can buy, too. Look for a helmet that is approved by a recognized testing organization such as the Snell Foundation or meets ASA standards. If the sticker isn't there, it isn't approved and usually for good reasons.

The best of the current crop of available helmets have molded fiberglass shells over a thick shell of cellular foam material designed to absorb shock. This material used in most good helmets is of a "non-resilient" nature. Although it partially destroys itself after a strong shock, this type of lining affords far more protection than a resilient material. If you ever have occasion to make use of the protection you bought, let the manufacturer or distributor of the helmet check the lining for you and replace it if necessary. And while you're doing it, you can congratulate yourself on the fact that you used your head in buying protection good enough to let you use your head another day.



## BE A PEOPLE WATCHER—RULE SIX



In addition to all the traffic information your "data analyzer" is working over, be sure it is keeping track of what is going on *along* the side of the road. Children have a way of becoming engrossed in their make-believe projects to the extent that the real world around them, including automobiles and motorcycles, disappears. Make allowances for these lapses into fantasy and assume the strong probability that they may suddenly occupy the space dead ahead of you just when it's least convenient for all concerned.

Bicyclists and pedestrians, too, have the right of way. Be prepared to respect that fact when you least expect to.

The kind of "people watching" we are talking about definitely does *not* include girl watching. The latter sport obviously has its own merits, the scope of which is beyond the present work. One thing, however, is certain. Motorcycling and girl watching each demand a degree of concentration that makes participation in both sports at the same time impossible. When you motor into an area where the girl watching would seem to make getting to where you set out to go unimportant, park the bike.

Watch, too, for dogs, cats and other four leggers alongside the road. Anticipate that they *will* do something silly and you'll be ready for it. Some dogs think that chasing cycles is more fun than anything and a few of them are aces at it. You can spot these pros because they don't wait until you are alongside and then charge. They study you from a distance to size up your speed. *Then* they start running, leading you enough so that you will be alongside when they are at full throttle.

Fooling these smart guys is easy. Keep your speed constant until you see that he's finished his calculations on your speed. Then slow down drastically. Mr. Smart jams all four legs out ahead of himself in an effort to bring his speed into line with yours. He's off balance. Now you dab into a lower gear and twist the go knob and he's had it. He can't accelerate like you can. Just remember to keep your eyes on the road and watch the dog out of the corner of your eye. Maintain a straight line of travel. Never swerve to avoid.



### KNOW YOUR MACHINE—RULE SEVEN

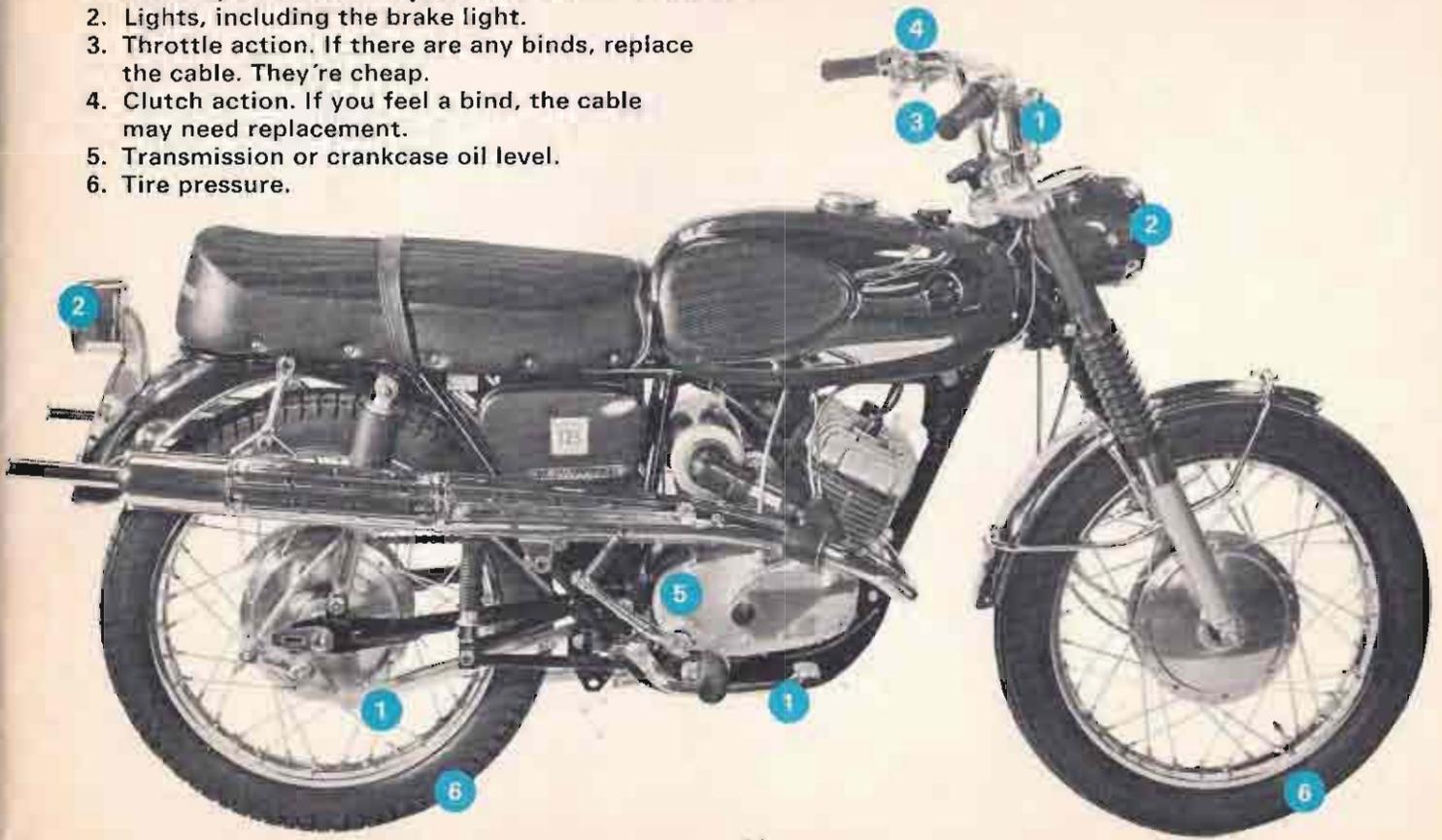
Be thoroughly familiar with the controls on your machine. Knowing where they are and what they do will let you react instantly when the situation calls for that kind of response. The controls are few. They are simple. They are functional. And, unlike those in a car, they can all be operated without removing either hand from the handlebars.

If you own a motorcycle, you'll soon become so familiar with the placement and function of each control that you will operate them automatically. The location of most of them doesn't vary from cycle to cycle. For example, the clutch is always on the left handlebar and the front brake on the right. However, the placement of the gear shift pedal and the rear brake pedal will vary. On cycles manufactured in Japan, for instance, the shift pedal is operated with the left foot and the brake with the right. The opposite arrangement is found on most European machines so be sure you check this out if you're going to ride a strange machine.

It's also a good idea to get the "feel" of the clutch, brakes, and throttle response on any unfamiliar bike before you venture out into traffic. Some bikes have "grabby" clutches and brakes. Some have quick response throttles that go from closed to full open in about a quarter turn. Others almost have to be wound like a watch to turn on the go. Even if you own your own cycle and ride it every day, it's a good idea to check the brake and throttle action before starting out. A parked motorcycle always draws a crowd of curious young fry and a couple of twists of the brake adjustment nut could bring you a big surprise the first time you hit the binders. Surprises are swell—in their place.

Before you take your first ride of the day, check:

1. Brake operation and adjustment. Cable condition.
2. Lights, including the brake light.
3. Throttle action. If there are any binds, replace the cable. They're cheap.
4. Clutch action. If you feel a bind, the cable may need replacement.
5. Transmission or crankcase oil level.
6. Tire pressure.





## Keep it in Shape

There is an old truism heard around airplane hangars that goes something like this: "There are old pilots and bold pilots, but there are no old bold pilots."

Something a little less drastic might apply to people in love with the sport of motorcycling.

If you've ever hung around an airport, you probably noticed that before firing up the engines, the pilot takes a methodical walk around the airplane. He peers at the landing gear. He looks for bird nests in engine nacelles (it happens!). He looks for oil leaks, loose fittings and all the things which would prove embarrassing to try to fix in flight.

These are the old pilots or, at least, the ones that will someday enjoy old age.

The ones that kick the tire, light the fire and head for the blue—these are the bold pilots . . .

## Lay Out a "Pre-Flight" Check Routine for Yourself

Once every week or two, check all the nuts and bolts for tightness. You may never find a loose one but at least you'll have the comfort and satisfaction of *knowing* they are tight and that knowledge can add to your enjoyment of the sport.

Include an inspection of tire condition. When what you see says, "get new tires" and budget control says, "maybe next month"; let your good judgment prevail—don't ride until budget control comes through. And when you buy them, get the best you can buy. Don't be taken in by the lowball-priced "just as good as" brands. Only the big, well-known, foreign and domestic manufacturers have the know-how and equipment to produce a safe, long wearing tire. It stands to reason the biggest manufacturers have the volume to justify the lowest possible price consistent with their valued reputations for quality. If a small, low volume manufacturer comes along with a *lower* price, it just *has* to be that you are not getting as much tire for your money. Good tires are essential for cycling safety and performance. Do yourself a favor and save money on something else.



## RIDING DOUBLE—RULE EIGHT

All the precautions and responsibilities that apply to riding solo apply when you take a passenger with you—only more so. In addition to doing everything to insure your own safety, you are solely responsible for the well-being of your guest.

We've earlier compared some of the common sense procedures that cycling shares with flying. The matter of passenger carrying has similarities, too. A student pilot can't carry a passenger. By law, a pilot is a student pilot for a minimum of 40 hours of flight. In actual practice, he usually has accumulated many more hours of flight than that before he is capable of passing the written and practical examinations which will grant him his license to carry passengers.

A good practice would be to log at least 40 solo hours in the saddle before you take your first passenger with you. And when you do, take it doubly easy. Balance and response are different. It's not difficult but it takes getting used to. Keep out of heavy traffic and pay attention to what you're doing.

Don't do it at all if your cycle is not equipped for doubles action; that is, if it isn't equipped with a tandem saddle, passenger foot pegs and a hand hold.

Check tire pressures carefully before starting out. Check your owner's manual for the recommendation for double riding.

Above all, don't let your passenger divert your attention from the road. The only way your "data processor" works effectively is if it receives an uninterrupted flow of information . . . from the *road*, and not from your back seat buddy!

## RESPONSIBILITY—RULE NINE



The infant sport of flying might have died an early death if the early flyers had their way. These daring young men were barnstormers—daredevil nuts who turned the sport into a collection of circus stunts. The impression of the sport you create as a cyclist speaks for all of us. We are far outnumbered by motorists. We are members of a minority group and, for some reason, the actions of members of minority groups are always subject to plenty of criticism and suspicion on the part of members of the majority group, warranted or unwarranted. For this reason, our appearance and behavior as cyclists must be beyond reproach at all times.

For example, the temptation to blast away from a stop is almost overwhelming because we can out-accelerate almost any car on the road. Don't do it. It causes all kinds of, "There they are, I told you so" sort of conversation.

It's also almost irresistible to pass a long line of stopped traffic on the right when they're lined up waiting for a light to change. This *really* makes 'em mad. We know it can be done *safely* under some conditions, but you score all kinds of points when you wait your place in line. The car ahead of you and the car behind you know you could move up if you wanted to. That you don't, makes you a "good guy", at least in the eyes of two members of the majority.

In other words, you have to conduct yourself with the calmness and good sense of a heavyweight champ in a night club who gracefully declines to deck all the pipsqueaks who goad him to impress their lady friends.

So look sharp, feel sharp and act sharp so that we give no cause for emotionally inspired acts of legislation that serve to mollify the big number groups to the restriction and detriment of our sport.

Who knows? With the proper example set for them, we may eventually persuade them to join us. If we ever get them aboard a two wheeler to try it, we've got them hooked.



## TRAIL SENSE—RULE TEN

We've said earlier that the cycle is more stable at speed because of the "gyroscopic" effect of the turning wheels. Because speeds will be lower on the trail, it requires a bit more handling on your part. Practice in some relatively easy terrain before you attack the wildest parts of the "boonies". You'll feel a lot more confident when you have acquired a "feel" for the trail.

### Expect the Unexpected

Always expect the unexpected. It's great fun to storm up a bluff and go airborne over the crest . . . unless a party of picnickers has appropriated your landing area. The same holds true when you are navigating through dense woods. Keep your speed at a level where you can do something about it if you come around a tree and are confronted by a washout or a king-sized fallen log.

You can easily ford streams as long as the tailpipe and carburetor are above the waterline. It's real fun, too, to knife through the wet throwing a roostertail to either side. But be prepared to get doused if you hit a submerged log or an underwater hole.

Also, check your brake action when you're back ashore. Most trail bikes are equipped with brakes that do a good job of sealing out the water but, if they *do* get wet, you may find nothing much happens the first time you squeeze them on. If you apply them several times, you will generate enough friction heat to dry them out.

Keep on the alert for cables or chains stretched across your trail. When they are rusty, they are hard to spot from a distance.

In the public relations department, make it a practice to secure permission to trail ride on private property. It is a privilege that will usually be granted if you make the effort to ask. When you do receive such permission, remember to leave the property as you found it and be sure to do the Smokay Bear bit with matches and butts.

So, there you have it—the big, wide wonderful world of two wheels. It's all yours to enjoy as long as you *practice* being a skilled and intelligent motorcyclist.

We've covered all the rules that make the sport safe and worthwhile. Remember them? Let's take one more look at the Intelligent Motorcyclists' Code.

### **INTELLIGENT MOTORCYCLISTS' CODE**

1. I will obey all laws and regulations governing the operation of a motor vehicle.
2. I will practice Defensive Driving by assuming the motorist does not see me, anticipating and avoiding all potentially dangerous situations, caused by traffic or road surface conditions.
3. I will occupy a position on the road that will insure my being seen by motorists. I will not take any action that will startle them.
4. I will operate my cycle only in traffic conditions which are within the safe capability of both my cycle and myself.
5. I will wear an approved helmet at all times while operating a motorcycle.
6. I will watch out for pedestrians and respect their right of way.
7. I will only operate my cycle after I have checked to see that it is in perfect operating condition.
8. I will not carry a passenger until I am thoroughly proficient in the operation of my cycle. When I *do* carry a passenger, I will avoid any distractions which would involve me in hazardous traffic situations. I will only carry a passenger if my cycle is properly equipped to do so.
9. I will conduct myself at all times so as to be a credit to all motorcyclists.
10. When riding off the road, I will respect the property of others and operate my cycle in such a manner as to insure the safety of others and myself.

*Knowing and following these simple rules will increase your enjoyment and make you a credit to the sport.*



## OFF THE BEATEN PATH—A WHOLE NEW WORLD OF ADVENTURE

Because trail cycles are so much at home in the woods, they have almost become standard equipment with hunters and fishermen. They can carry you to spots that you'd have trouble reaching on foot. And because they are equipped with generously proportioned luggage racks, they can carry enough of your gear to keep you in style for as long as you want to stay "away from it all."

Off-the-road bikes are also gaining a reputation as the world's most versatile farm machines. They are in use every day checking fences, herding livestock, and a host of other jobs. And when the day's work is done, they go into service for a quick run into town.

But by far the most popular use is trail riding. The first time you take your cycle into the boondocks, you are going to wonder why you didn't do it sooner. It cannot be described as more fun or less fun than the open road. It is a totally *different* experience—a whole new *kind* of fun.

### Easy Handling

First of all, the ease of handling will surprise you. If you've ever driven the family barge off the normal paved or graded surface, (for example, on the trail leading to a summer cottage) you know what a disconcerting experience it can be.

The car wallows along on its too-soft suspension. The steering wheel seems to spin wildly through your hands as the wheels follow ruts or drop into potholes. Worst of all, the nose of the car points violently up and down as the front wheels follow the fast ups and downs of the terrain so that you can never quite be certain of where you are going. Add a couple of fast turns around some stout trees and the worst gravel road in the world begins to look pretty good in your mind.

It is under conditions like these that the motorcycle comes into its own. The most obvious advantage is the unlimited visibility afforded the rider.

Not only can you see and anticipate every obstacle in your way, but seeing and reacting is so easy that you can really enjoy the wildness of your surroundings, a situation impossible in a car.



## Equipment

All the personal safety gear mandatory for the open road applies to trail riding. Your helmet belongs on your head and a leather jacket will protect your hide against the inevitable bramble patches. A pair of heavy jeans is essential for leg protection. Boots and leather gloves top off the uniform of the day.

Trail cycles are available in displacement sizes ranging from 50cc to about 175cc. They all have their advantages and disadvantages: the littlest are light enough to carry over insurmountable obstacles and the largest, obviously, have more horsepower and torque. However, the 50cc machines are a little short in the power department and the bigger, more powerful machines are of necessity heavier. This additional weight increases the difficulty of handling. In many cases, this extra weight outweighs the power advantage.

Fortunately, there is a good selection of machines in the 90cc. displacement category which combine adequate power with light weight.

They are available with both 2 stroke and 4 stroke engines. We lean toward the 2 stroke variety because, in general, they deliver their maximum torque (pulling power) at a lower R.P.M. and have a flatter torque curve. That is, they continue to deliver maximum torque over a wider range of engine speeds. Most of these two stroke engines are equipped with automatic mixing devices which add oil to the gas at the proper ratio while the engine is running, thus eliminating the need to "pre-mix" the oil-gas fuel mixture they burn.

## Dual Sprockets Increase Versatility

Many of these machines offer a dual rear sprocket system as standard equipment. The larger of the two is used off the road, providing ratios as low as 50:1 which is about low enough to climb the side of a building. When you use the cycle on the road, you switch over to the smaller of the two rear sprockets and you are ready for travel at speeds up to about 60 mph.

When you are shopping for a machine with this dual sprocket arrangement, look for one that changes easily and ends up with the front and rear sprockets in true alignment, regardless of which of the two rear sprockets are in use. If the rear sprocket combination uses any "offset" arrangement wherein the drive chain is slightly off center when either of the rear sprockets are used, the chain will wear more rapidly than it should. It will also increase the wear rate of the sprockets. Chains have a nasty habit of popping off worn sprockets.

## Other Trail Essentials

An off-the-road cycle should also be equipped with a sturdy skid plate under the engine which protects your investment against being mashed by rocks and logs.

The fenders should be positioned slightly higher than those on a road bike to provide enough clearance for mud packed wheels.

Handlebars are usually of the reinforced scrambler variety, sufficiently strong to withstand the knocks and abuse they will get in use.

All of the dual purpose on or off-the-road bikes will be equipped with full lighting equipment.

This may seem like excess baggage in the wilds—until you get caught out after sundown. Then they are worth their weight in gold.

Your off-the-road machine should be equipped with knobby-tread tires both front and rear. If you use the machine almost exclusively in the rough, a heavy knobby tread is desirable. If you split about 50-50 on and off the road, you can get a dual purpose "road knobby" tread. This tire is a compromise between road holding characteristics and traction on dirt.

Neither of these tires will wear as well on pavement as a tire with a road tread, but they will get the job done for you in spots where a road tread will spin helplessly.

So, properly equipped and mounted, you are ready to head for the hills. Be sure to try it. It's a special kind of fun, too good to miss.





### OFF TO THE RACES

If you are a motorcycle enthusiast and you haven't yet seen your first motorcycle race, you are in for a lot of fun. For a variety of excitement and action, there are few spectator events that can equal motorcycle competition. It is even more fun if you own a motorcycle because cheering for your brand on the track increases the excitement by involving you. You don't have to be on the track to feel like you are participating. An informed spectator can have as much fun as anybody—and for a lot less money.

Motorcycle racing has an enormous following in Europe and in Japan—it has had for years. It has its famous events—and it has its heroes, whose names are household words.

While motorcycle racing has been overshadowed by auto racing in the United States (understandable in a nation of cars), its popularity is increasing with the boom in cycle ownership. However, because of the enormous variety of competitive motorcycle events, being an "informed spectator" takes a bit of doing.

The American Motorcycle Association, the organization which sanctions almost all motorcycle meets in the United States, currently recognizes the following types of events: Hill Climbs; Dirt Track and Speedway Races; Short Track Races; T.T. Races; Road Races; Side Car Races; Straightaway Races; Field Meets; Scrambles; Cross Country Races; Hare Scrambles; Cross Country Runs; Drag Races; Observed Field Trials; Road Runs; Endurance Runs; Reliability Runs; Economy Contests; Non-Stop Contests; Polo; and Record Trials.

From the size of the list, it would appear that the only events they *don't* sanction are left-footed kick starting, endurance idling, and vertical take off and landings, and we're not too sure about the latter!

It goes without saying that you will have more fun regardless of which side of the fence you're on if you know as much as possible about what's going on.

And that is what this section is all about. We will fill you in on what goes on before and during the more widely followed events—the ones that are the most fun to watch—and we will give you the ground rules for the rest.

## Surprisingly Safe



One of the early impressions you'll probably get the first time you watch a race is that everyone on the course has to be nuts to be there. The spills are frequent and often spectacular and it would appear that someone just *has* to be a candidate for broom and shovel pick up before the day is out.

As a matter of fact, serious injuries are few in supervised racing. There are a number of good reasons. First, there are no cars on a motorcycle race track. All the traffic is two-wheeled and it's all moving in the same direction.

Second, competition riders are properly suited up. Helmets, goggles, boots and leathers are mandatory. This required equipment virtually eliminates potentially serious injuries. There are plenty of bumps and bruises but despite the fury of the action, all go home in about as good shape as they arrived.

The third big reason is that every competitor is highly safety conscious and skilled in its practice. Remember that all of them have years of experience on motorcycles and their reactions to every situation are reflex in nature.

For example, watch a competition rider fall, particularly when he falls while leading the pack. With the thundering herd hot on his heels, it looks like "so long, Hotshoe." But wait a minute . . . he tucks up in a loose ball and rolls smartly along in front of his sliding motorcycle. When he and it stop, there he is, lying quietly behind the protective barrier of the bike with the herd flying neatly by on either side. What kept him from being clobbered? Everyone behind him was alert to the fact that he *might* fall and they were ready to react when it happened.

Also, the rider who went down had the good sense to stay put until the dust cleared. He knew that he was seen and would be OK as long as he stayed put.

In spite of the old truism about moving targets, a stationary target, in this case, is easier to *miss*.

## COMPETITION MACHINES



The kind of racing to be done will determine the configuration of the machine. For example, scramblers are built with a solid, well reinforced frame from which all excess baggage has been stripped off. The tires will be as large as can be fitted to the rims and a knobby tread is the most common choice. The handlebars will be high and wide and they will be reinforced with a tubular "bridge" for stiffness. They are bulls of machines, built for punishment.

Their opposite numbers are the road racers, the greyhounds of the game. They are light and sleek, usually enclosed in a fiberglass fairing to reduce frontal wind resistance.

Where the scramblers are geared for maximum "turn-on" usually with a top speed of 50 to 60 miles per hour, the road racers are geared for speed. Steel fuel tanks are often replaced with fiberglass tanks, steel wheel rims are replaced with magnesium, handlebars are stubby "clip-on" affairs which can be tucked inside a fairing. Tires are used which form a triangular peak at the center of the tread so that the "footprint" is reduced to the absolute minimum on straightaways, and the flat sidewall is firmly planted on the track when the bike is heeled over in a turn.

The machines used in the enduros, which we will talk about later, are rigged for reliability. Speed doesn't much enter into this kind of competition nor does flashing acceleration. What does matter is the machine's ability to pull itself through impossible terrain—mud, sand, steep inclines, bramble patches and anything worse that you can conjure up. It is also helpful to have a bike that can operate pretty much under water since no enduro is complete unless it includes a good long river ford.

The enduro machine is set up about like an office for the rider. He has some sort of timing device in front of him, an accurate odometer to keep track of distances, and a scroll-like device, something like television's "idiot cards", to keep track of where he has been and where he's going. Every rider has his preferences but almost all of them use some sort of data system.

Scramblers and Dirt Track Racers are stripped of everything that does not contribute to performance. Typical of this class of machines are the wide, reinforced handlebars, the raised, bobbed fenders, light-weight racing saddle, special tuned "expansion chamber" exhaust system. Sprockets are changed to suit conditions of the particular track.





- A. Road racers utilize full fairings to reduce wind resistance, increase speed.
- B. A Hillclimber goes airborne over the crest.
- C. What's an enduro without plenty of mud?
- D. Things get a bit crowded at the first turn on a scrambles track.
- E. Axle-to-axle action on the short track.
- F. A cloud of dust and a cross country race is underway.
- G. A well-placed jump keeps the scrambles rider on his toes.



F



G



## Competition Machines (continued)

Dirt track racers are another distinct breed of cat. At first glance they appear to be all wheels. They often have a solid rear end or their owner has replaced the rear shocks with steel rods to achieve the solid rear end effect. They have no brakes whatever, conforming with A.M.A. rules. The engine itself is used to control speed.

The usual steel wheel rims are usually replaced with magnesium alloy rims which mount huge tires. This tire and rim combination provides considerable "gyroscopic" stability, an absolute necessity in dirt tracking.

Another distinctive group of machines are those used in Hill Climbs. The object here is to zoom up an impossibly steep hill in the shortest possible time. That's the object but, if you've even seen some of the newsreels covering the subject, you know that all kinds of things happen between the bottom and the top of the hill. The cycles tend to become airborne very suddenly and the rider finds himself going straight up in the air if he has made a slight throttle miscalculation.

The cycles built specifically for Hill Climbs use a lightweight solid tubular frame crammed with engine. The tires are big and knobby, many times equipped with chains.

But you'll also see about everything else with two wheels and an engine in Hillclimbing, including neatly polished street lightweights.

It's great sport for the competitors and loads of fun for spectators.

Finally, there are the dragsters. These can be anything from Formula C stock machines to Formula A "Specials", the unlimited-class monsters which burn exotic fuels and turn fantastic speeds on the quarter mile.

So much for the machinery. Let's take a look at some of the more popular spectator events and point up the techniques involved in each.



## **SCRAMBLES**

Scrambling is one of the most popular sports among competitors, both amateur and professional, and is gaining enormously in popularity among spectators. The reason is the intensity and variety of the action. The race is held on a course of  $\frac{1}{2}$  to 2 miles having both left and right turns. It will usually include a hill requiring a gear change and a jump. A T.T. Scrambles race is the same except that at least 50% and as much as 100% of the course is an improved, graded track.

The first thing to watch for is the start. If you have a sharp eye, you may spot the winner as he leaves the line because a good start is all important.

The experienced rider will "read the starter" during the qualifying heat races. That is, he will watch the starter to see if he has any little giveaway signs that indicate when he is about to drop the starting flag. Many do. If the rider can spot this mannerism, it will give him a fraction of a second start on the pack and get him into the first turn first.

### **The Start Tells the Story**

The start itself tells a lot about the rider's skill. The novice racer will do a "wheelie" off the line, and the experienced rider will shoot off with both wheels on the dirt. The wheelie looks great from the sidelines, but valuable fractions of seconds are lost while the bike is brought under control.

As a matter of fact, wheelies are hard to avoid. Scrambles machines are geared relatively low so that they have tremendous acceleration. When the power is screwed on, there is a natural tendency for the front wheel to lift. It takes a very sure hand on the clutch and throttle to get off smoothly.



## Action in the Turns

The real action starts at the first turn. The rider who gets there first is hotly followed by what looks and sounds like a band of angry hornets.

He will stick out a steel-shod boot and slide the bike around the turn, in the "groove". The groove is the line through the curve that covers it in the shortest and fastest time. By the end of the heat races, this "groove" becomes quite literally a groove worn into the track. Getting out of it is about as disastrous as crossing wet railroad tracks at a narrow angle. At best, the rider will lose some degree of control; at worst, he'll unload.

The rider shuts down the power before entering the curve and then smoothly starts to apply it as he "crosses up" the bike into a controlled drift. It is the application of power that controls the amount of drift. By the time he has put his foot back on the peg, power is full on and the bike is steaming toward the next test of skill offered by the course.

## Jumps

It may be a jump. As he approaches the crest of the mound that will send him off into the air, the rider throttles back just slightly. As the back wheel reaches the top, he screws on the power and shifts his weight back slightly, rising on the foot pegs to bring the front wheel into an attitude about 18 inches above the rear. The reason is that he wants to be certain he lands on the rear wheel. Landing on the front is instant disaster if he has any plans to finish the race. He has almost certainly bought himself a bent or broken front fork.

The race is won in the corners and the charger will really show his stuff here. Anyone who has a lot of hesitation about tangling axles is going to come off second best.

The Scrambles action is hot and heavy from start to finish and there is excitement aplenty throughout.



## ROAD RACING

Whereas the scrambles bikes are built to take a beating and the engine is geared for flashing acceleration, the road racers are built and tuned like violins.

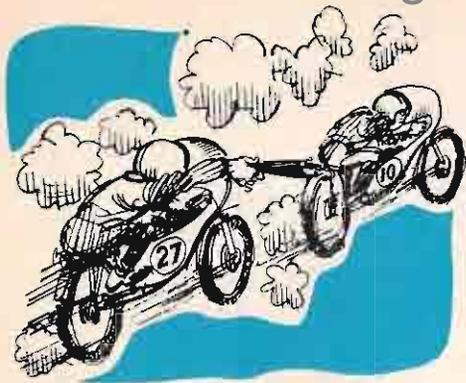
We personally think that the sight and sound of a pack of beautifully built and tuned road racers screaming at well over the century mark around a course like Daytona is one of the most beautiful in any kind of racing.

The course itself must be completely paved with no straightaway longer than  $\frac{1}{2}$  mile. This is plenty of length to allow speeds over 100 miles per hour even in the lightweight classes. The races are at least 20 miles long so you'll have time to spot several techniques that go to produce a win.

Once again, cornering is all important. The rider will usually spend his practice time finding the best line through each bend, gradually building up to race speeds in the process. The technique is to take the straightest line through the curve so the rider will be wide in entering, pulling in tight at the apex and then going wide again as he leaves it. While this is the standard procedure, an aggressive rider will often pass on the inside by keeping closer to the inside edge all through the bend.

The track will have large numbered placards placed at appropriate distances from the beginning of the curve which are used by the rider to mark braking points. By the time the machine is heeled over into the turn, braking should be completed and a smooth application of power will begin so that the engine is again at full bore when the bend is completed.

The road racers will approach these turns at terrific speeds and braking is accomplished within a very few seconds. Needless to say, the brakes take terrific punishment. They are large and well ventilated. Many of the machines are equipped with air scoops on the front brake backing plate to help cool the linings. Others will use a "swiss cheese" pattern of vent holes. Whatever the system, one thing is certain—it had better work.



## Slipstreaming

Watch, too, for a rider getting a lift from the slipstream of the rider ahead of him. This will usually happen in a race where two machines and contestants are so evenly matched that neither has an advantage over the other.

The slipstreamer can work his engine a bit easier because the wind resistance is being broken by the lead rider. To be effective, the following rider must be suicidally close to the leader and this is only attempted where the slipstreamer is confident of the skill of the rider he is following.

The payoff on slipstreaming is the finish line. The slipstreamer will wait until he is almost there and then crank on the last ounce of power as he swings out and counts on momentum to slide him past the leader and over the line before wind resistance sets him back again. If he makes his move too soon, the other rider will use the same trick on him. If he makes his move too late, it won't work.

The leader knows what is on the mind of the rider following him. He may try zig-zagging to lose him. Chances are he won't because it will lose him precious seconds. So he waits and hopes the slipstreamer's timing will be off.

This can be a pretty exciting affair, especially at the high speeds road racing produces.

## DIRT TRACKING

The races run on the flat dirt tracks come in two varieties: the Short Tracks, those less than  $\frac{1}{2}$  mile in circumference, and the Dirt Tracks, those measuring more than  $\frac{1}{2}$  mile in circumference.

The rules say that the machines cannot be equipped with brakes and that, in non-professional racing, once a rider has shifted into high gear, he must stay there. So gearing is selected which will provide plenty of acceleration as well as sufficient top speed.

Again, the race is often won or lost on the basis of the rider's ability to travel in a very quick oval, staying "in the groove." You will see all the "hot shoe" action you want and you'll find it plenty to justify the small price of admission.



## ENDUROS

An enduro is a cross country affair run over what the rule book describes as "little used roads, trails, footpaths, and all other types of terrain, just so long as it is able to be negotiated by the power of the motorcycle and/or the muscular energy of the contestant or contestants."

The muscular energy of the contestant has plenty to do with who does or doesn't win.

Because these races are usually 40 miles or more in length, and are run in the boondocks, they don't offer the viewing opportunity for the spectator found in some other forms of racing. But you can pick a particularly tough spot or a water crossing and have a lot of fun.

Riders have to decide whether they will use a lightweight machine which can be toted past the worst of the mudholes or a heavyweight that can auger through places that make hands and knees crawling a challenge.

Total exhaustion is the order of the day.

Enduro riding is not a contest of speed. The object is to maintain a predetermined average speed over the course so that the rider arrives at a series of known and unknown checkpoints at the proper time.

He loses points for arriving too early as well as too late. The object is to retain as many of his original 1000 points as possible. To do so requires a lot of clock and mileage indicator computations as well as tremendous stamina and will to finish.

That pretty well covers the events that make good spectator contests. There are any number of events that are loads of fun for the contestants but range over too wide a territory to be followed by the fans. These include Cross Country races which are exactly what the name implies: mountain trail races, desert races, the fabulous Hare and Hounds runs that may include as many as 500 contestants roaring over an open course 80 miles or more in length.

## DRAG RACING



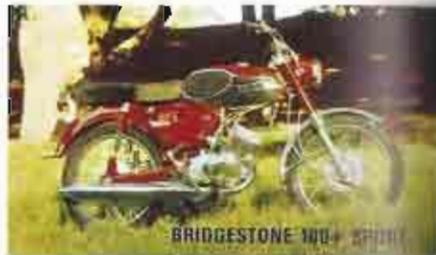
Drag racing is increasing in popularity and it draws an ample number of fans. But as it is a relatively simple-to-understand race against the clock, it doesn't warrant a lot of explanation here. What makes it so interesting is the variety of machinery you'll encounter—everything from the 50cc putters to a set of wheels and a bunch of tubing embracing a full blown Corvette engine. These attractions in themselves make a trip to the dragstrip rewarding.

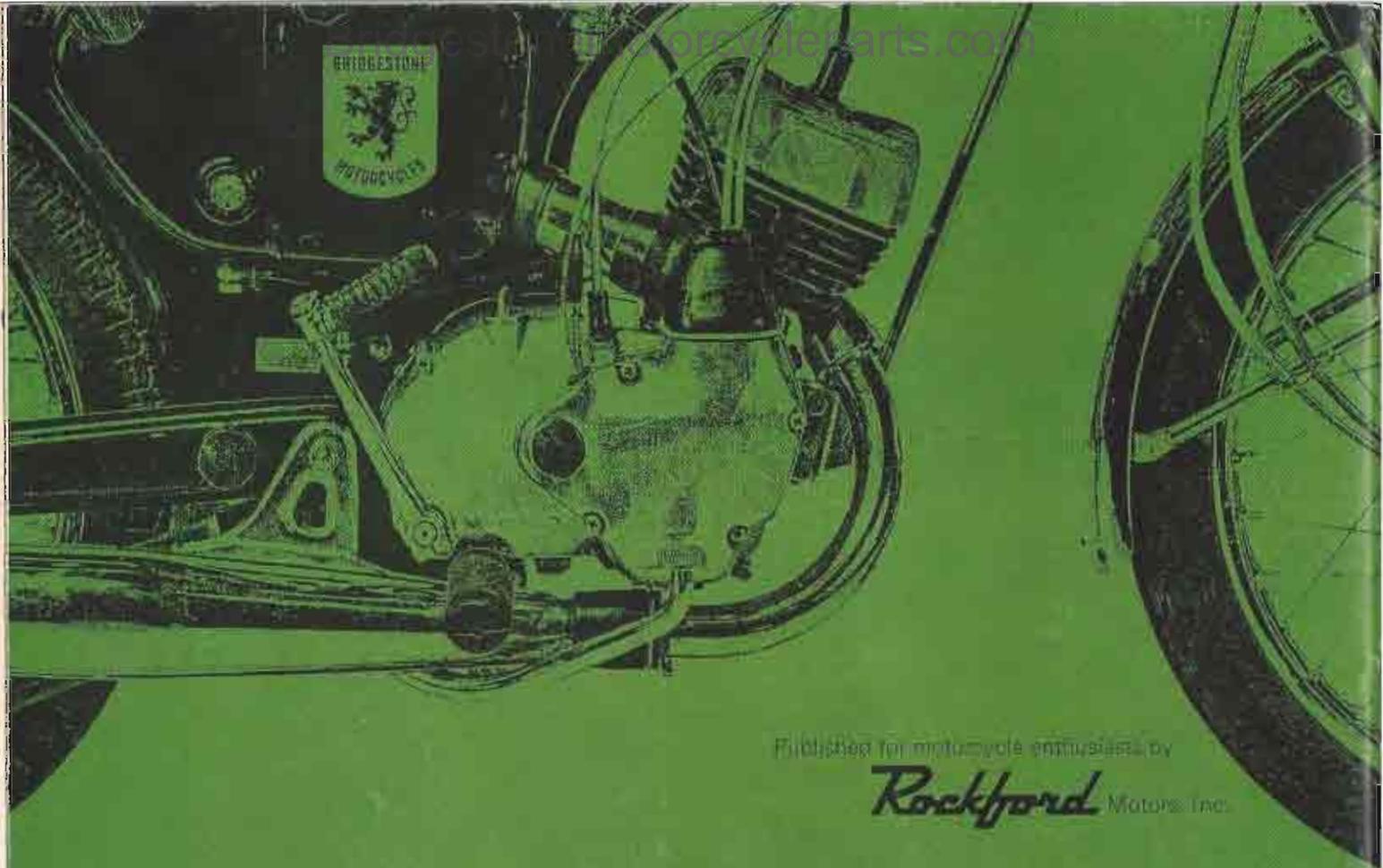
Regardless of what your pleasure may be, there is a form of racing competition which we're sure you'll get hooked on after a few visits to a track. It will convince you of the fact that the motorcycle is truly a wondrously versatile collection of nuts and bolts and it will most certainly heighten your enjoyment of the sport.

Our last hint then, is this . . . get yourself off to the races. You'll find yourself in the midst of a group of true sportsmen with whom you share the joy of cycling. You'll gain a new respect for the skills of the sport which you will find amplified and intensified on the track. You'll be convinced of the stamina and capability of today's motorcycles, and you'll see a practical demonstration of cycle safety under the most demanding conditions.

Most of all you'll discover a new kind of fun—the colorful, action-filled fun of one of America's most fascinating spectator sports—motorcycle racing.

But whether it's watching a race or riding to school, work or the corner drug-store, you'll find that motorcycling, like no other sport, has a built in element of fun and utility. And unlike boating or skiing or a game of golf, you needn't hunt for water, snow or a specially prepared place to enjoy it. Motorcycling makes its own fun anytime, anyplace. And, as an added bonus, it also provides the most economical form of motor transportation for young Americans on the move.





Equipped for motorcycle enthusiasts by

*Rockford* Motors, Inc.

FIRST CLASS  
PERMIT NO.  
1187  
Rockford, Illinois

B U S I N E S S   R E P L Y   C A R D

No Postage Stamp Necessary if Mailed in U. S. A.

Postage will be paid by

**ROCKFORD MOTORS, INC.**

1911 HARRISON AVE.

ROCKFORD, ILLINOIS 61101



***Here's your chance to stand up and be counted as a cyclist pledged to safety.***

## INTELLIGENT MOTORCYCLISTS' CODE

1. I will obey all laws and regulations governing the operation of a motor vehicle.
2. I will practice Defensive Driving by assuming the motorist does not see me, anticipating and avoiding all potentially dangerous situations, caused by traffic or road surface conditions.
3. I will occupy a position on the road that will insure my being seen by motorists. I will not take any action that will startle them.
4. I will operate my cycle only in traffic conditions which are within the safe capability of both my cycle and myself.
5. I will wear an approved helmet at all times while operating a motorcycle.
6. I will watch out for pedestrians and respect their right of way.
7. I will only operate my cycle after I have checked to see that it is in perfect operating condition.
8. I will not carry a passenger until I am thoroughly proficient in the operation of my cycle. When I do carry a passenger, I will avoid any distractions which would involve me in hazardous traffic situations.
9. I will conduct myself at all times so as to be a credit to all motorcyclists.
10. When riding off the road, I will respect the property of others and operate my cycle in such a manner as to insure the safety of others and myself.

*Knowing and following these simple rules will increase your enjoyment and make you a credit to the sport.*

## FREE

This handsome 2-color decal for your cycle. Sign the attached card and mail it today. We will send you the decal by return mail. Display the decal so that it will be known that you, like thousands of other cyclists, are a member of the Bridgestone team.



NAME

ADDRESS

CITY

STATE

ZIP

SIGNATURE