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Governor's Highway Safety Program

# Indiana Bicycle Safety Program Guide

Produced by  
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In Cooperation with the  
Indiana State Department of Public Instruction  
Harold H. Negley, Superintendent

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Bicycling is a means of transportation and recreation enjoyed by the entire family. The popularity and growth of bicycle driving in the State of Indiana has brought with it a concern for related traffic safety problems.

The Indiana Bicycle Safety Program Guide has been developed for use by the bicycling public, educators and local government officials to bring about an awareness of bicycle rules of the road, proper use and care and provide assistance to develop and implement bicycle safety programs in our communities.

It is my hope that all citizens of Indiana share our concern for the safety of bicycle drivers of all ages and will use this Guide in an effort to play a meaningful and effective role in Indiana's total traffic safety program.

Otis R. Bowen, M.D.  
Governor of Indiana

STATE OF INDIANA



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Traffic safety attitudes and skills are developed early in life and ultimately determine the manner in which we function in the highway transportation system. As teachers and parents it is our responsibility to assist in the preparation of our children with regard to bicycle safety. The young bicycle drivers today will rapidly become the automobile drivers tomorrow.

The Indiana Bicycle Safety Program Guide is designed to help reduce bicycle traffic accidents by developing an awareness of the responsibility that goes with driving a bicycle. Further, it is an attempt to involve all members of the school and community in a united effort to make bicycling as safe and enjoyable an activity as possible.

We cannot overlook our duty to ensure the safety of all our children, so that they may become responsible, community-minded adults.

Harold H. Negley  
State Superintendent  
of Public Instruction

# Indiana Bicycle Safety Program Guide

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## Bicycling in America Today

In recent years, the United States has experienced a phenomenal growth in the sale and use of bicycles.

Current estimates are that 15 million bicycles are sold each year. Bicycles outsold automobiles for the 4th straight year in 1975, and one American in three drives a bicycle.

Old and young have taken to the roads and bicycle paths, and their reasons for cycling are many. Some are merely seeking pleasure; some want to keep fit. Others have felt the energy crisis and use their bicycles for transportation—commuting to and from their jobs. Bicycling also provides the opportunity to get closer to nature and to venture into areas not accessible by car and too far to reach on foot.

### Bicycle Accidents

Fortunately, the number of bicycle accidents has not risen in proportion to the number of bicycles. However, bicycle accident, injury, and death statistics indicate a need for concern.

In 1975, about 1,100 bicycle drivers died in accidents. One thousand of these deaths resulted from collisions with moving motor vehicles, and about 100 from other bicycle accidents. However, bicycle accidents not involving motor vehicles produced more non-fatal injuries, both disabling and non-disabling. There have been estimates that each year up to one million bicycle injuries require medical attention or cause one or more days of restricted activity.

The increased use of bicycles by teens and adults is attested to by the steady rise in their proportion of bicycle-motor vehicle fa-



talities. In 1975, cyclists aged 15 and older accounted for more than one-half the deaths. This contrasts with only one-fifth the deaths in 1960.

### Circumstances of Accidents

According to National Safety Council studies, collisions between motor vehicles and bicycles have the following characteristics:

- a. Slightly over half occur at intersections.
- b. Seventy per cent occur during daytime hours, and 50 per cent between 4:00 and 6:00 p.m. (Traffic congestion, reduced visibility, fatigue, and preoccupation are possible factors.)
- c. More than 50 per cent of the collisions involve a violation on the part of both the cyclist and the motorist. In a significant number of contacts, the motorist didn't see the cyclist at all or did not see him in time to avoid a collision.
- d. Twenty per cent of the bicycles involved have some mechanical defect that may have contributed to the accident.

The cyclist's most common traffic violations are:

- a. Failing to yield the right-of-way. (In most cases, the cyclist didn't see the car; in some cases, the cyclist intentionally took the right-of-way.)
- b. Driving in the middle of the street.
- c. Driving too fast for conditions.
- d. Disregarding traffic signs and signals.
- e. Driving against the flow of traffic.
- f. Making improper turns.

Injuries and deaths from bicycle accidents not involving motor vehicles were caused by: falls on surfaces made unstable by rain, sand, gravel, wet leaves, ruts, mud, etc.; collisions with pedestrians, fixed objects, animals, and other cyclists; loss of control due to horseplay, defective equipment, inattention, or overloading.

### The Indiana Scene

Here are the facts:

- a. Over two million bicycles are now in use in Indiana.
- b. During 1974, there were 1,974 bicycle accidents and 1,864 injuries to cyclists reported.
- c. There were 24 bicycle fatalities in 1974.
- d. The breakdown of fatalities by age group during 1974 was as follows: 0 to 4 years of age-2; 5 to 14 years of age-25; 15 to 19 years of age-8; 20 to 24 years of age-1; 25 to 44 years of age-0; 45 to 54 years of age-2; age not stated-1.
- e. About 54 per cent of all bicycle accidents occurred during the summer months.

# The History of Bicycling



Bicycling in America began in 1869 with the manufacture of the velocipede. Nicknamed “the boneshaker,” the velocipede had wooden wheels with iron rims and was not designed for long distance travel.

Around 1873, a later version, the five-foot high “penny farthing,” emerged. The penny farthing, or “ordinary” as it was called in the United States, had a giant drive wheel that allowed the rider to go faster and farther.

The penny farthing was a dangerous vehicle since the front wheel was often 60 inches in diameter and the back one as small as 18 inches, making it very unstable. This instability limited its popularity and it was soon re-

placed with the “safety” bicycle.

The safety bicycle, invented in 1885 by Englishman J. K. Starley, originally had no brakes. It had two wheels, one driven by a chain or gear and both about 30 inches in diameter with solid rubber tires. Soon a coaster brake was added to the safety bicycle, and pneumatic tires, a then-recent invention of Dr. J. B. Dunlop of Ireland, replaced the solid rubber tires. After these improvements, the safety bicycle was much like a modern bicycle, and bicycling soon grew popular.

The social impact of the bicycle in Indiana in the 1890’s should not be underestimated. The bicycle affected the economic, personal, political, and religious lives of all Hoosiers.

### The Bicycle Industry

Indiana, because of its central location and its industrial development, became a leader in bicycle production. New bicycle factories were built almost every month all over the state. There were bicycle companies located in Indianapolis, Terre Haute, Kokomo, Rushville, and Marion, and they were among the largest in the world. Indianapolis alone had as many as 18 factories. All these new plants offered tremendous employment opportunities for the citizens of Indiana. The bicycle industry helped to urbanize communities and develop a skilled labor force. When the automobile industry began, Indiana had the labor needed, and many of the bicycle plants were con-

verted to automobile production.

The Waverly Company, having its own rubber works and forges, manufactured every component of the bicycle. It also developed one of the first major assembly line formats in the bicycle manufacturing business. Because of this efficiency, the price of the bicycle dropped from \$200.00 to between \$85.00 and \$120.00. Just about every family could then afford a bicycle, and many families owned several. Before this, the average family could hardly afford one horse and carriage. Personalized transportation and its freedom became the vogue.

### **Bicycles in Politics and Fashion**

The pressure that this new society exerted on politics was so great that in 1898 Governor Mount of Indiana was elected on his promise to resurface almost all the main roads in the state, a major undertaking even at that time. The League of American Wheelmen, or the LAW, the official bicyclist organization, became one of the most powerful organizations in politics in the United States.

Plumbing bills dropped in Indianapolis when plumbers, who were paid from the time they left the union hall to the time they returned, started bicycling to work. But the plumbers union, unhappy at a loss of revenues, passed a law prohibiting the use of bicycles by its members.

Just as the bicycle influenced politics in Indiana, it also changed fashion. No properly dressed young women would be caught wearing a skirt on a bicycle, and in the 1890's, the Gibson girls in bloomers were the fashion of the day.

### **Religious Debates**

Clergymen did not agree on the impact of the bicycle.

Bicycling was both condemned and applauded from pulpits of churches all over the nation.

In Baltimore, one preacher thundered from his pulpit: "These blatter-wheeled bicycles are diabolical devices of the demon of darkness. They are contrivances to trap the feet of the unwary and skin the nose of the innocent. They are full of guile and deceit. When you think you have broken one to ride and sub-

dued its wild and satanic nature, behold it bucketh you off the road and tears a great hole in your pants."

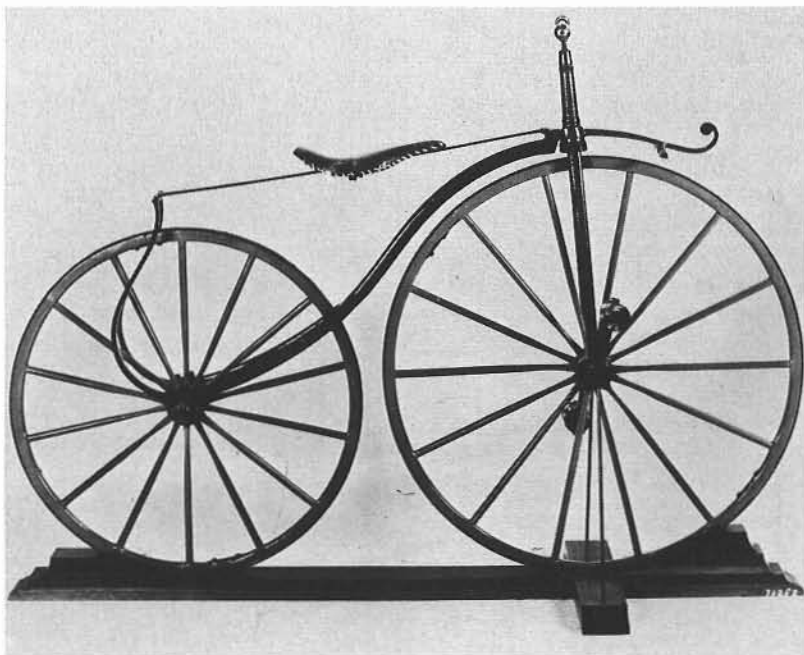
One clergymay drew a horrifying picture of "a long line of cyclists all without brakes rolling helplessly downhill into a place where there was no mud on the streets because of the high temperatures." Another clergyman said that all bicycle riders were in danger of going to hell and virtually certain to do so if they rode on the Sabbath.

On the other hand, the Hope Baptist Church in Chicago was renamed "The Church of the Wheel," and Reverend Jenkin Lloyd Jones invited his parishioners to attend Sunday services on their bicycles. Other ministers defended the bicycle by pointing out that it allowed its rider to enjoy God's creations in the country. Clergyman Reverend John Shaw of New York City said he would canonize the inventor of the bicycle if he knew the man's name. In New Jersey, Reverend John Scudder told his congregation that the bicycle was a revolutionist and was the advance agent of heaven "since it enables us to fly in this life before we get the traditional angelic wings."

### **Hazardous to Health?**

The clergy was not the only profession divided in its opinion of the bicycle. Doctors were also discussing the impact of this new device. Some feared that bicycle riding was unhealthy, and so they invented new diseases to describe their fears. One such disease was "humpadropalitis," caused by bending over the handlebars. A study by the Cooper Medical College in San Francisco, however, later pointed out that not a single case of spinal deformity could be attributed to bicycle riding.

Another disease was bicycle hands, a numbness of thumb and



Bicycling in America began in 1869 with manufacture of the velocipede. Properly dubbed "the boneshaker," it came complete with wooden wheels and iron rims.



forefingers caused by improper adjustment of the bicycle seat and putting too much weight on the hands, cutting off circulation. Many doctors were certain this would later cause the hands to fall off.

An editorial in *The Minneapolis Tribune* talked of bicycle gums. The editorial claimed that cold air drawn over the superheated gums of an exhausted rider would congest the blood and lead to loosening of teeth. It predicted an eventual epidemic.

Bicycle face, bicycle eye, and other diseases caused by the impact of rocks, dirt, and dust on the face were added to the list of maladies certain to cause chronic illness among bicyclists. But the riders rode on, and late in the 1800's, almost all doctors began to realize that the exercise was actually making Americans more healthy. Medical opinions began to change, and by the early 1900's, most of the medical fraternity was on the side of cycling.

### Bicycles and Business

Businessmen were also involved in the controversy about bicycling. In the late 1890's, the *New York Journal of Commerce* estimated that bicycling was costing other trades about 100 million dollars a year.

In July of 1896, many Hoosier businessmen met in Logansport for an economic conference concerning the problems created by bicycling. The following excerpt from an article in the *Logansport Journal* at that time shows the concern of Indiana's business community:

"In all the wondrous stories of commerce and money dealings since the days of the Phoenicians there is no chapter so astounding as that which tells of the bicycle.

"A toy, it has overturned the trade of nations within the compass of five fleeting years. Serious people laughed at it and



"... and you'll look sweet upon the seat of a bicycle built for two."

called the folks who rode it 'featherbrains.'

"Today those same serious people have recalled their capital from world-wide enterprises and started it anew in the bicycle business to save themselves from commercial shipwreck.

"Firms which for a century have weathered financial gales have now stopped dead in a twinkling. The money which used to flow into their coffers goes for bicycles.

"The church? It is forgotten. The Sabbath? A cycling day. The theatre? Old-fashioned fun. The horse, token and companion of gentlemanhood? A hack, browsing on the highway. Jewels? Watches? Clothing? The men who carried on those industries have turned their machinery to the making

of rubber tires and ball bearings.

"Tobacco has been forsaken. Wine is mocked at. Wheels and ginger pop. That is the order of the day. Railroad dividends are decimated. Politics have become merely a catering to the wheelmen's wishes.

"And more remarkable than the mere fact that it all has been done in five short years is this: that the bicycle, in addition to deflecting money from all the legitimate channels of trade, has kept people from spending money which they were able to spend or would have spent in other ways of luxury. That is the marvel of the sport. That is its keynote."<sup>1</sup>

<sup>1</sup>From article titled "Marvel of the Age," *Logansport Journal*, July 5, 1896. Supplement, page 9.

Bicycling did boost some business, though. The League of American Wheelmen in Indiana published a small tour book for bicycle riders showing the routes and mileages between towns, cities, and states. The book also carried advertisements. Since it was paid for by businessmen anxious to attract cyclists, distances were sometimes purposely understated. For example, the route from Indianapolis to Lafayette, as shown in the 1898 tour book, leaves Indianapolis and goes to the small suburb of Clermont, travels north to Lebanon, then to Frankfort, then to Dayton, Indiana, and then into Lafayette. If one adds the distances between these cities as quoted in the tour book, the total distance is 47 miles. Today the *direct* mileage between Indianapolis and Lafayette, according to the official state road map, is 63 miles. Other problems for bicyclists were also downplayed. One businessman north of Frankfort wrote in his advertisement: "Contrary to popular belief, there is no hill in front of this store."

### Bicycle Racing

One of the great offsprings of bicycling was bicycle racing. There were two basic categories. The first and earliest form was road racing. This type of racing, spawned by early tour clubs, began to separate a group of riders known as "scourchers" or "cracks." Later in the 1880's, track racing began to grow as velodromes (bicycle tracks) sprouted up across the nation. One of the finest tracks in the country was built in Indianapolis at what is now 30th and Central. The Newby Oval reportedly seated about 12,000 in the covered grandstand. On some occasions, attendance figures reached the 45,000 mark. There were many other tracks in Indiana, including those with seating for 10,000 or more in Rushville, Terre Haute,

and Fort Wayne. Although it is difficult to know exactly how many tracks Indiana had, the best estimates put the number at around 40.

Many tracks thrived especially when they were able to book the "Black Cyclone," World Champion Marshall W. "Major" Taylor. Major Taylor's life was a classic American hero's story. Born in Indianapolis in 1878, he was one of eight children. At around the age of eight, he was employed as a playmate and companion for Daniel Southard, the youngest boy in a wealthy family on the south side of town. While in this employ, Major Taylor learned to ride a bicycle. When the Southards moved to Chicago, young Taylor found work washing bicycles and doing occasional trick riding at Hay and Willit's Bicycle Shop. In his autobiography, *The Fastest Bicycle Rider in the World*, Major Taylor recounts his first race at age 13:

"Crack! went the pistol, and with tears in my eyes, I was off with a 15 minute handicap on the scratch man. There were hundreds of cyclists stretched along the route, and it seemed to be a friendly sort of cheer and one that encouraged me and inspired me to keep on going even after I had begun to feel very tired. As I pedaled along the seemingly endless route, I felt sure my knees had been worn out of their sockets by my pedaling, but I was determined to cover the entire distance no matter how long it took.

"After I had ridden some distance, I noticed a group of riders coming to meet me. As they drew closer, I recognized Mr. Hay among them. He had the gold medal that was hung up for first prize and dangled it in front of my eyes as we rode alone. As he did so, he informed me that I was a mile ahead of the field and had half

of the distance left to go. The thought flashed through my mind that I had a chance to own that medal which I had so many times pinned on myself in the store. The sight of it seemed to give me a fresh start, and I felt as though I had only just begun to race.

"The act on Mr. Hay's part was the psychological turning point of the race for me. From then on I rode like mad and wobbled across the tape more dead than alive in first place, and about six seconds ahead of the scratch man, Walter Marmon."<sup>2</sup>

Major Taylor went on to become the premier racer in the nation and won his first world championship at age 22. Although the Major was best known for his racing triumphs, it is important to remember that he invented many of the training and racing techniques that are basic to today's racers.

In the late 1920's and 1930's, racing had a moderate resurgence in Indiana. The February of 1937, Butler Fieldhouse was redesigned internally into a giant velodrome for a six-day race between Hitler's hand-picked team of supermen, Killian and Voepel, and the finest teams from the U.S. Although Killian and Voepel finished first with 1535 miles, a team from Indiana, Berhringer and Bennigan, finished 6th—three laps behind the leaders.

At the present time Indiana is the home of some fine national-level road racers, many of whom had their start in collegiate racing at Indiana University, Ball State University, Vincennes University, or Purdue University. Although Indiana has few national-level track racers, this situation could improve rapidly when velodromes are again constructed in the state.

<sup>2</sup>*The Fastest Bicycle Rider in the World* by Marshall W. "Major" Taylor. Pages 3 and 4. The Stephen Greene Press. 1972

# Chapter 3

## Bicycle Styles

Today's bicycles come in a number of models and styles designed to meet various needs and pocketbooks. Brake and gear systems, optional equipment, and accessories vary depending on the type of bicycle. Illustrations in this chapter include the single-speed middleweight bicycle, the high-rise, adult tricycle and the multi-speed touring bicycle.

The three most common bicycle models are the middleweight, highrise, and lightweight.

### The Middleweight Bicycle

The middleweight bicycle, a very popular model, is probably the most common in the single-speed class. This is a rugged, durable bike, ideal for learning how to drive. Its weight normally ranges between 50 and 70 pounds, depending upon the type of frame and tires used. Frame sizes come in 17, 19, 21, and 23 inches in order to fit a wide range of riders. Wheel sizes may vary from 16 to 26 inches. The middleweight has large, low-pressure tires with inner tubes that are normally inflated to approximately 30 pounds of pressure. This contributes to the

middleweight's comfortable ride.

The middleweight is normally equipped with coaster brakes, also known as foot brakes. This braking system has only a rear-wheel brake, activated by reversing the normal direction of the pedals. This is probably the best braking system for the beginning or novice bicyclist.

### The High-Rise Bicycle

Although similar to the middleweight in frame and tire design, the high-rise bicycle has a shorter wheelbase, smaller wheels, high-rise handle bars, and a long "banana" seat. The high extensions behind the seat, commonly known as "sissy bars," are no longer legal. The law states that no part of the seat, seat supports, or accessories attached to the seat shall be more than 125 mm (5 inches) above the top of the seat surface. Because these extensions are hazardous, it is recommended that they be removed from earlier models.

Falls occur frequently on the high-rise bicycle, primarily because these bikes are used extensively for stunt riding and games. Also, studies have shown that

gear levers and stick shifts, commonly mounted on the top tube of the frame or near the handlebar stem, can cause serious injury.

### The Lightweight Bicycle

Lightweight bicycles are designed for drivers who want to go faster and farther. Many have downturned, racing style handlebars. Narrow, high-pressure tires are standard equipment.

The two basic styles are the three-speed recreational bicycle and the five- or ten-speed touring bicycle. These multiple-gear bicycles allow the cyclist to select various gear ratios for faster speeds and easier handling on hills and difficult terrain.

### The Three-Speed Recreational Bicycle

Weighing between 36 and 40 pounds, the three-speed recreational bicycle is a tough, sturdy, and yet easy-to-drive bike. Learning to drive this bike requires a minimum amount of time and instruction.

A number of different frame



The middleweight bike: rugged, durable, ideal for learning.



High-rise: highly-maneuverable, geared for neighborhood travel.



sizes and wheel sizes are available in order to fit just about everybody. In addition, the bicyclist has a choice between caliper hand brakes for both wheels or a caliper brake for the front wheel and a coaster brake for the back. He can also choose upright or racing-style handlebars.

The three-speed gear mechanism is enclosed in the rear and allows the driver to adjust to specific conditions. For example, the lowest gear is used for pedaling uphill or into strong headwinds. The highest gear is used for pedaling downhill or with the wind.

When a bicycle is equipped with caliper hand brakes, both brake levers should be operated with equal pressure. This will cause both the front and the rear wheel to stop smoothly. Some experts advise that the rear brake should be initiated slightly before the front brake, and many bicycle mechanics adjust these brakes so that more pressure is applied to the rear wheel during braking.

It is important that the left hand be free for hand signals, so the rear brake should be activated by the right-hand brake lever. Applying pressure to the front brake first should always be avoided, especially on wet or slippery surfaces or on gravel. Stopping the front wheel alone could cause the bicyclist to lose

control of the bike and pitch forward.

### **The Five- or Ten-Speed Touring Bicycle**

This bicycle is equipped with derailleur gears that help the bicyclist drive farther and faster with less effort. A proper understanding of derailleur gears and their function is necessary for optimal performance.

A derailleur moves the chain from one sprocket to another. A five-speed bicycle has a single chain wheel and a cluster of five freewheel sprockets in the rear. The gears are selected with a shift lever on the front of the bicycle frame. A ten-speed bicycle has two front chain wheels, five freewheel sprockets in the rear, and a front and rear derailleur. Two shift levers permit the proper gear selection. The right lever shifts the chain on the rear sprockets, while the left lever shifts it on the chain wheel. During shifting, the bicycle wheels and pedals must be moving (except on some newer bikes equipped with a front freewheel system). The pressure against the pedals when gears are changed should be reduced.

The more sophisticated derailleur-equipped bicycles are made of special lightweight alloys and may weigh less than 20 pounds. Most derailleur high-perfor-



The derailleur "derails" the chain, moving it from one sprocket to another for different gear ratios.

mance bicycles have front and rear caliper brakes, taped drop handle bars, and pedals with toe clips and straps. These pedals, along with the other more sophisticated features of the ten-speed bicycle, require skill and experience. Therefore, they are not recommended for novice or beginning bicyclists.

### **Special Bicycles**

The middleweight, high-rise, and lightweight bicycles are the most common in the contemporary cycling scene, but other models are available. Included among these are sidewalk bicycles, adult tricycles, tandem bikes, track bikes, and one-of-a-kind bicycles.



Three-speed: allows driver to adjust to specific conditions.



Ten-speed: sophisticated, high-performance touring bicycle.



The tandem: requires both a pedal rhythm and a different cycling technique.



Adult tricycle: steady friend to the elderly and handicapped.

### The Sidewalk Bicycle

The sidewalk bicycle has a seat height of no more than 635 mm (25.0 inches). The seat height is measured with the seat adjusted to its highest position. In appearance a sidewalk bicycle resembles a miniature middleweight bicycle with large, low-pressure tires and coaster brakes (when equipped with a braking system). Sidewalk bicycles by law may not be equipped with hand brakes only.

Sidewalk bicycles are often used by children learning how to balance on two wheels. Training wheels can be added and easily removed once balance has been accomplished. Sidewalk bicycles are subject to the same legal requirements and regulations in

Indiana as other bicycles. The street is *no* place for the sidewalk bicycle.

### The Adult Tricycle

The adult tricycle is designed for steadiness and the ability to carry objects two-wheeled bicycles cannot. Adult tricycles are frequently used by older adults and the handicapped. The adult tricycle is normally equipped with a coaster brake and often caliper brakes for the front wheel. The front wheel usually has a "park" setting to prevent rolling away. A basket is typically mounted between the two rear wheels, making these bikes quite useful for shopping and running errands.

### The Tandem Bicycle

A tandem bicycle is a bicycle built for two. Tandem bicycles are becoming more popular because they allow bicyclists of different strengths and endurance to travel long distances together.

Like most other bicycles, tandem bikes come in different weights and sizes and offer a variety of braking systems as well as gears. However, tandem bikes require a pedal rhythm and technique different from that required by other bikes. Steering is particularly difficult in short-radius turns at slow speed. Nonetheless, the tandem bike offers a unique form of bicycling enjoyment, especially when both partners are experienced cyclists.

### The Track Bicycle<sup>1</sup>

Feather-light, handcrafted, and tailored to fit the owner, the track bike is the elite of racing bicycles. Because it is custom made, the track bike allows the bicyclist to achieve the most efficient forward motion from each thrust of the pedals. The track bike is designed for quick acceleration and easy handling. It is intended for use on a smooth track where conditions are constant.

A track bike has a single, fixed gear that is predetermined by the racer. The frame is made of very lightweight alloys, giving the bike a total weight of only 14 to 18 pounds. The wheelbase is somewhat shorter than that of a conventional bike.

Track bikes have no brakes. Drivers stop them by counter pedaling and placing a gloved hand on the front tire. This unique braking technique is *not* recommended under any other bicycling conditions.

<sup>1</sup>Nelson, Janet, *Biking For Fun and Fitness*. Award Books, New York, N.Y., 1970, p. 40.



# Chapter 4

## Bicycle Equipment

Because the bicycle driver shares the roadways with a number of other vehicles, it is essential that his bicycle be properly equipped to insure its safe operation. Some of this equipment is required by law in the state of Indiana, while other equipment is recommended or optional.

### Mandatory Bicycle Equipment

The four types of equipment legally required on every bicycle operated on the streets and roadways of Indiana are: 1) an adequate braking system, 2) a headlamp for nighttime driving, 3) reflectors on the front and rear of the bicycle and on the front and rear of the pedals, and 4) reflective sidewalls on the tires or reflectors mounted on the spokes or frames.

### Brakes

All bicycles must be equipped with a braking system that will enable the driver to stop within 15 feet from a speed of 10 mph on dry pavement. In the case of caliper brakes, such brakes should include one on each wheel, or a caliper brake on the front wheel and a coaster brake on the rear.

Because caliper brakes lose more of their efficiency when wet, extreme caution should be used when driving in wet weather, through puddles, or in circumstances that may cause wet caliper pads and wheel rims.

### Headlamp

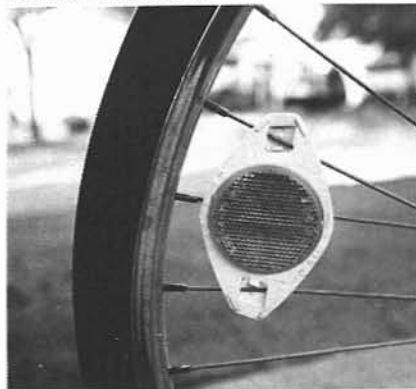
Nighttime driving presents special problems for the bicyclist. Glare and poor lighting conditions greatly reduce his vision. In addition, motorists have an even



Headlamp

greater than normal difficulty in seeing and identifying the bicyclist. Every bicycle operated between sunset and sunrise must be equipped with a headlamp on the front exhibiting a white light visible from a distance of at least 500 feet to the front. This headlamp should also be on at any other time when visibility is reduced.

Headlamps may be powered by batteries or a generator. The flashlight-type light is handy and may be easily removed when desired. However, batteries tend to wear out quickly; thus, the generator type might be preferred by the person who frequently drives at night. Generator power also has its drawback; the light goes out when the bike is stopped, leaving the cyclist with no illumination.



Reflector

### Reflectors

Safety standards developed by the Consumer Product Safety Commission require new bikes (both domestic and imports) to be equipped with front, rear, pedal, and side reflectors. The front and pedal reflectors may be amber or colorless; side reflectors must be amber or colorless in front and red in the rear, and may be mounted on the frame or spokes. Tires with retro-reflective sidewalls may be used in lieu of other side reflectors. The 1976 supplement to the Uniform Vehicle Code requires "reflective material of sufficient size and reflectivity to be visible from both sides for 600 feet when directly in front of lawful lower beams" (of a motor vehicle), or in lieu of such material, "a lighted lamp visible from both sides from a distance of at least 500 feet." The UVC also permits lights or reflectors in addition to those required, but does not stipulate color.

All lights and reflectors must be clean to maximize effectiveness. Reflective tire sidewalls and pedal reflectors lose much of their effectiveness when covered with the normal accumulation of road dirt. Serious cyclists object to spoke-mounted reflectors that destroy wheel balance, producing hazardous vibration at higher speeds. Reflectorized tape may be used to augment but not substitute for reflectorization and/or lighting as described above.

### Recommended Bicycle Equipment

Although not mandatory, the following pieces of safety equipment are recommended.

### Safety or Extension Brake Levers

Safety (extension) brake levers should be given serious consideration on bicycles equipped with caliper brakes that are mounted on downturned handle bars. It should be noted, however, that safety levers are effective only when the wheels are properly aligned and the brake assemblies are in proper adjustment.

### Taillights

There is evidence to indicate that rear end collisions (a motor vehicle hitting a bicycle from the rear) are a major cause of nighttime cycling injuries and fatalities. Thus, it is imperative that the cyclist who drives at night make himself as conspicuous as possible to vehicles approaching from the rear. A wide variety of battery and/or generator powered taillights is available, as well as flashing lights that can be attached temporarily to the bike or to the cyclist. White, light-colored, or reflectorized clothing is also strongly recommended for night driving.

### Bicycle Flag

A bike flag is a piece of pennant-shaped material on a long shaft, designed to attract the attention of motorists.



Bicycle Flag

Bike flags should have a shaft at least six feet in length. "Spring-loaded" shafts are not recommended because of their "whipping" motion. This may interfere with the bicycle driver's operation or vision. Fiberglass shafts are preferred over metal shafts as they seem to last longer and are poor conductors of electricity. The pennant-shaped flag should be at least eight inches high and 12 inches long and of a bright, contrasting color. Research has shown that florescent ("day-glow") orange is a highly recognizable shade and seems to have light-gathering qualities in the near-darkness before dawn and after dusk.

Careful attention should be given to the installation of a bicycle flag. The holder must not interfere with the quick release axle skewer if the bike is so equipped. The holder should be placed between the outside wheel nut and washer, not at the serrated nut on the hub. Mounting and dismounting must be over the front wheel when the bike is equipped with a flag.

### "T" Light

A "T" light, or leg-light, has a white light showing to the front and a red lens to the rear. It should be worn on the left leg below the knee. It is a useful safety feature that identifies the bicycle driver because of the leg movement. The "T" light may not be used to replace the mandatory headlamp or reflectors.

### Protective Headgear

Head injuries represent one of the more serious forms of accidental injury for the bicycle driver. Some type of protective headgear should be considered by the beginner or the person who does extensive bicycling. Headgear designed specifically for the bicyclist is available at most bicycle shops. Headgear that will not in-

terfere with the driver's hearing should be selected.

### Optional Bicycle Equipment and Accessories

A wide range of optional equipment and accessories is available to today's bicyclist. The following list is provided for consideration. The final decision for selection of any of these devices depends upon the type of bicycle, how it will be used, and the owner's pocketbook.

### Baby Seats

Baby seats permit small children to go riding, enabling them to become a part of the cycling scene and avoiding the cost of a babysitter. A number of different models are available. Preference should be given to those that attach to the rear frame of the bicycle itself and not to the rear axle. A seat pad allows for more comfort, but for safety's sake the baby seat should be equipped with a safety strap. The child's feet should not be able to reach the spokes.

For maximum stability, a baby seat should attach to the rear, not the front frame or handlebar. Some heavy children may make lightweight bikes unstable. Rear luggage carriers should never be used to transport or carry babies, children or other people.



Baby Seat

## Chain Guard

Most bicycles already have a chain guard. If the bicycle has no chain guard, it may be best to put one on. This is particularly true of bicycles having a single sprocket ratio that cannot be free-wheeled in a direction opposite to the drive direction. In lieu of a chain guard, a trouser clip should be used to keep clothing from snagging in the chain.

## Fenders

Fenders for the front and rear are recommended. They are useful in keeping water and dirt off of the bicyclist's clothing. Either metal or plastic models are acceptable if properly mounted.

## Front Carrier

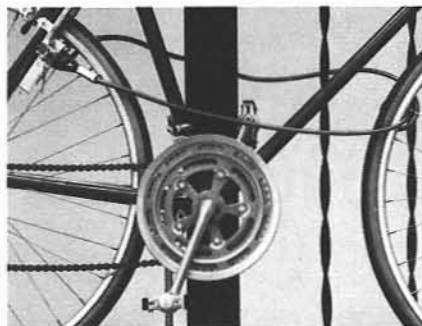
Many bicycles have a basket on the front. However, front carriers interfere with the steering and stability of the bike. In addition, front carriers often don't hold much and it is difficult to keep objects from bouncing out.

## Horn or Bell

Although a loud shout is quicker and probably more effective, a bell or horn is useful (and is required in some areas) for sidewalk or pathway driving. A bell is easily identified with a bike. The bell selected should be one that can be heard at a distance of at least 100 feet. Whistles and sirens are prohibited by law.

## Kick Stand

Because proper performance of the bicycle depends upon a number of adjustments, a bike should never be laid down. A kick stand allows parking almost anywhere without impairing the bicycle's performance. Periodic checks of the kick stand for proper clearance are a good idea, and any looseness should be promptly corrected to prevent interference with the rear wheel



Lock and Chain

or crank arm.

## Lock and Chain

Because thousands of bicycles are stolen each year, it's a good idea to lock a bicycle whenever it's left unguarded. The cyclist should choose a sturdy lock and a heavy chain or cable that cannot be easily picked, cut with wire cutters or broken. Many chains have a plastic covering to protect the bicycle finish. Plastic pre-coiled cables often are easier to carry than heavy chains. The bicycle should be locked to something solid, such as a tree or a bike rack. It is not enough to lock only the front tire. That could be the only part left when the owner returns.

## Rear Carrier

Rear carriers may be used for packages, books and other items. This is the safe and easy way to haul things. Carriers with long, hold-down stretch straps can accommodate relatively heavy loads. Also available are saddlebags made of leather or cloth and wire saddle baskets, which come in a wide variety of sizes and fit over the carrier on each side of the rear wheel. Rear carriers should be steel or alloy only.

## Rearview Mirrors

A rearview mirror enables the bicyclist to check the traffic behind without turning around. A tour leader might use the mirror to keep track of a group of cyclists. However, the mirror is a projection that can be dangerous

in the event of a fall. In addition, the mirror may reflect light into the driver's eyes. When it is necessary to use a rearview mirror, it should be a convex mirror or an approved motorcycle mirror and of a low profile in order to minimize the hazard should an accident occur. Cap, eyeglass, and hand mirrors are also widely used by experienced cyclists.

## Touring Bag

A touring bag or tool bag may be hung behind the seat. Tools and spare parts kept in it can make the touring bag an important consideration for touring or any long trip. However, care should be taken that it doesn't rest on the rear fender.

## Turn Signals

Electric turn signals show the direction in which the driver intends to turn, and let him use both his hands to steer. Periodic checks to make sure they are in working order are necessary.

## Undesirable Bicycle Modifications and Accessories

A number of popular bicycle modifications and accessories are hazardous and should be avoided.

The sidewalk bike or minibike should never be on any street.

Extremely long forks, unusual or unsafe configurations of the handle bars, or modifications of the break system should be avoided on any bike for street use.

"Sissy" bars, or high seat bars, are so dangerous they have been banned. There is a tendency to lean on them, altering the balance of the bike. In addition, the bars break off easily.

Also to be avoided are front-mounted baby seats or luggage carriers, or any device mounted on or near the front wheel that could possibly lodge against the wheel and cause a braking action or change stability of the bike.



## Minor Maintenance

Although the beginner is somewhat helpless when it comes to bicycle maintenance, the experienced cyclist can often handle his own cleaning, adjustments, and minor repair jobs. However, major adjustments and repairs should still be done by a trained bicycle mechanic.

### Saddles

The height of the saddle is important for driving comfort, driving efficiency and safety. The cyclist should be able to stand over the bicycle and have both feet flat on the ground. To test for maximum comfort and safe operation, the driver should sit on the bicycle saddle and place one of the pedals in its lowest position. In this position, the knee should have only a slight bend in it when the ball of the foot is placed on the pedal. Frequent adjustments will be necessary on a child's bike to ensure continued good fit as he grows.

There are three main types of saddles: the high-rise saddle (sometimes called a "polo" or "banana" seat), the conventional mattress saddle (which is padded and spring supported), and

the racing saddle (which is narrow and made of hard plastic or leather).

To adjust the mattress or racing saddle, the cyclist loosens the seat clamp bolt found near the point where the seat post enters the frame, and raises or lowers the seat post as required. It may be necessary to twist the saddle and seat post within the frame. In some cases the application of oil or other lubricant may be required to free the seat post. When the saddle is in the correct position, the cyclist fully tightens the seat post clamp bolt and nut. The seat post clamp is properly tightened when the saddle cannot be twisted. To test the saddle, the cyclist should apply a considerable amount of pressure.

High-rise saddles are secured to the bicycle frame by the saddle clamp bolt and a set of struts that attach either to the rear axle or to special fittings on the rear of the bicycle frame. To raise or lower the high-rise saddle, the cyclist loosens the saddle clamp bolt nut and the nuts on the strut clamps. It may be necessary to pry the clamps apart slightly in order to move the strut. He next raises or

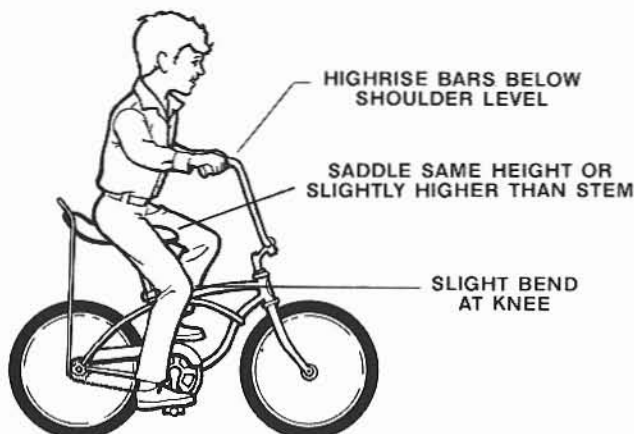
lowers the saddle to the proper height and fully tightens all the nuts. On a well-worn bicycle, he should check to see that the strut is securely attached to both the saddle and the bicycle frame.

Whenever any adjustments are made on the saddle, at least two inches of the seat post must remain in the frame to assure the safety of the bicycle driver. The seat post may have markings to indicate the maximum possible extension. The length of the seat post varies depending on the bicycle type.

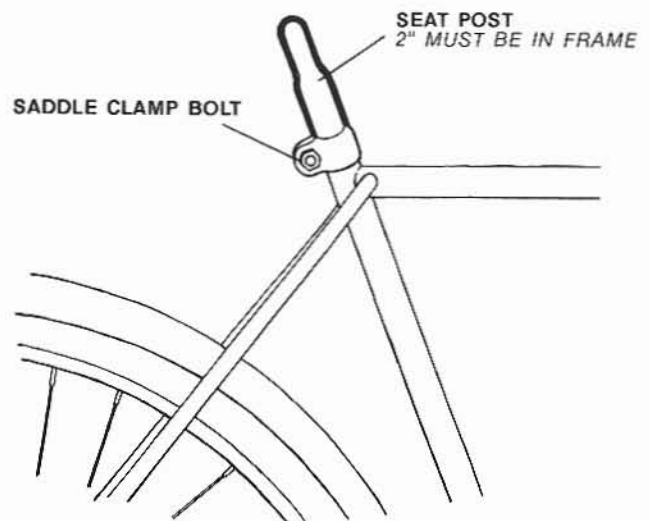
### Handlebars

The position of the handlebar and the stem is the other item on the bicycle important to proper fit. The handlebar should be set so that the driver can comfortably and easily reach the grips (and the controls and brake levers if the bicycle is so equipped). In the case of the high-rise handlebars the grip should be below the driver's shoulder level. With drop bars or touring handlebars, the handlebar should be even with the saddle or slightly below it.

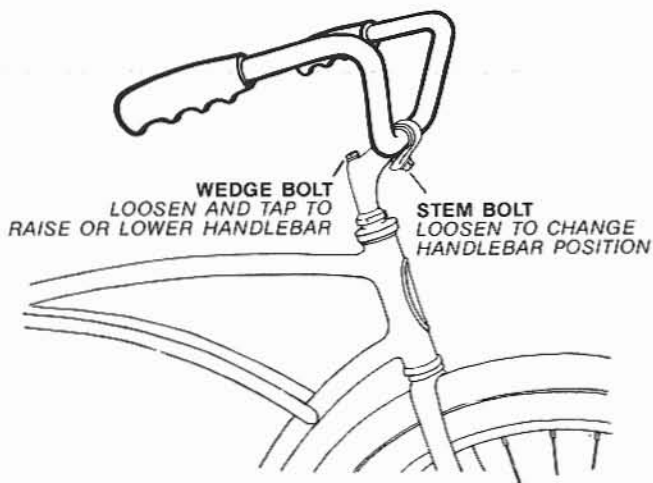
To adjust the height of the han-



Proper saddle height is needed for comfort, efficiency, safety.



For safety's sake, 2" of seat post must remain in frame.



Handlebar and stem adjustments important to proper fit.

Handlebar and handlebar stem, the cyclist loosens the stem wedge bolt and taps the bolt lightly until the stem is free. He then raises or lowers the handlebar to the proper position.

To change the position of the handlebar within the stem, he can loosen the stem bolt and adjust the position of the handlebar.

This is a good time to check to see that the handlebar is properly aligned in relation to the bicycle frame and the front wheel. The cyclist can determine this by standing over the front wheel and looking to see if the straight portion of the handlebar is parallel with the front hub axle.

When adjusting the handlebar, the cyclist must be certain that at least two inches of the stem remain in the fork stem at all times. Stamped on the side of the handlebar stem is a line indicating the maximum it can be raised.

### Pedals

The pedals on a bicycle are made of rubber or metal. In either case, the cyclist should make sure that the pedals are intact and that there are no broken parts. The pedals should rotate freely without any appreciable side play or binding. If the pedals are worn or otherwise damaged, they should be replaced. It is possible to disassemble and repair some expensive types of pedals, but

most pedals cannot be repaired.

The pedals can be removed by turning the pedal spindle located next to the crank arm. Either a 9/16" or 15 or 16mm wrench is required. The right pedal has right-hand threads and is turned like any other type of nut or bolt, but the left pedal has left-hand threads and is turned in the opposite direction from normal. If it is necessary to remove and reinstall pedals, the pedal spindle must be fully tightened against the crank arm. Pedals are usually marked with "L" or "R" designating whether they are for the right or left side of the bicycle.

### Crank Arms

There are three types of cranks of bicycles. There is the one-piece crank, sometimes called an American style crank. Then there are two variations of the three-piece crank. One type of three-piece crank has the crank arms secured to the crank axle by means of a pin mounted through the crank arm. The other type has the crank arm secured to the axle by a nut or bolt mounted through the end of the crank arm opposite the pedal. In all cases the cyclist should make sure that the crank arms are not bent, or out of line, or showing any unusual amounts of wear or cracks.

If the pedal crank bearings are properly adjusted, the crank should turn freely with no bind-

ing and no unusual noises. To test for excessive side play, the cyclist attempts to move the crank from side to side. There should be no more than a trace of side play at the end of the cranks. Although bicycles are equipped with a variety of cranks, most have some sort of an adjustment cone on the crank opposite the sprocket. The cyclist adjusts the bearings by loosening the lock nut or retaining nut and then adjusting the cone until the crank has the proper amount of side play. He should make sure there is a lock washer between the lock nut and the adjustable cone, and then fully tighten the lock nut. Grinding or cracking noises from the area of the crank may indicate there is dirt or grit in the crank bearings or the bearings need lubrication. In this case, the crank should be taken apart and relubricated.

### Front Sprockets

A bicycle may have a single sprocket or, if it is equipped with derailleurs, there may be two or three sprockets attached to the crank. In any case, the owner should check for excessively worn sprocket teeth and for bent sprockets or bent chain guards. Where possible, he should gently bend chain guards and sprockets into position. If the teeth are excessively worn, the sprockets should be removed and replaced. This will require the removal of the crank.

### Chains

There are two types of chains used on bicycles. The chain on three-speed and coaster-brake bicycles is thicker than the chain used on derailleur bicycles. Also, the chain used on three-speed and coaster-brake bicycles has a removable master link. The derailleur chain does not have a master link; a special chain rivet tool is required to separate the derailleur chain for removal.

The bicycle chain should be lubricated frequently but not too heavily. The best way to completely lubricate the chain during an overhaul is to remove it from the bicycle, clean it thoroughly with a degreasing solution, and let it stand in oil for several hours. When the chain is ready to be reinstalled, the excess oil should be wiped off so that it will not attract dust and dirt.

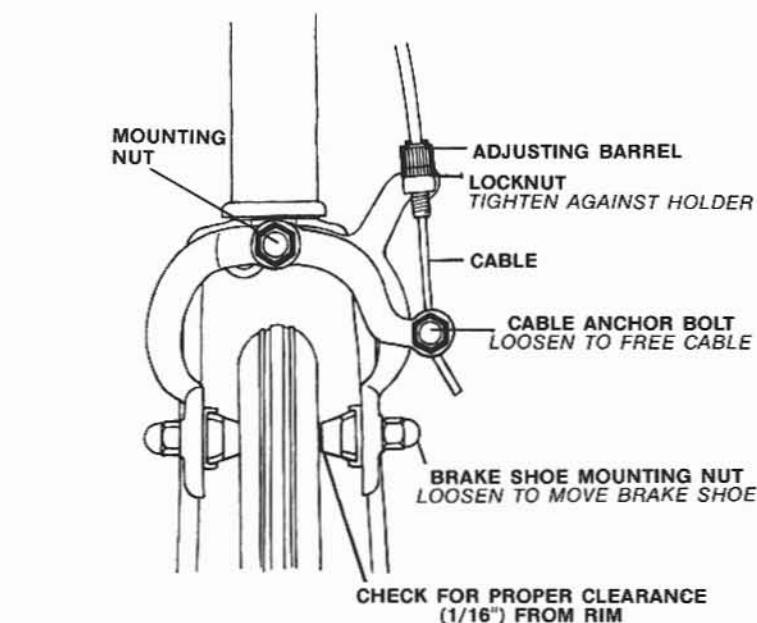
A loose chain on a bicycle, particularly a coaster-brake bike, can be extremely dangerous. The chain is tightened by moving the wheel back in the frame.

## Brakes

The two most commonly used types of braking systems are the coaster brake, which has the braking mechanism enclosed in the rear hub shell, and a caliper brake system, which has brakes mounted over both the front and rear wheels.

On a coaster brake, the cyclist should check to see that the brake arm strap on the left-hand side of the brake is tightly secured to the bicycle frame. There is usually a clamp with a nut and bolt that secures the brake arm strap to the frame. The cyclist should also make sure that the chain is not too loose or too tight between the front sprocket and the coaster brake sprocket. The wheel should turn easily when the pedals are rotated in a forward direction, and the wheel should spin easily without any unusual noises when the pedals are held stationary. The cyclist turns the pedals backward to test effectiveness of the coaster brake. The brake should engage and stop the wheel positively and smoothly with no unusual noises.

If the coaster does not operate smoothly, or if braking action is poor, the wheel will probably have to be removed and the coaster brake taken apart for repair. This service should be done by a professional bicycle me-



Brake cable, brake shoe adjustments for caliper brake system.

chanic since there are many types of coaster brakes on the market.

The other main type of braking system used on bicycles is the caliper brake system. Caliper brakes fall into two categories: the side pull caliper and the center pull caliper. Of these, the side pull caliper brake system is more commonly used, especially on less expensive bicycles.

Since caliper brakes are exposed, they may suffer not only from use but also from abuse. The cyclist should make sure that the brake arms, brake levers and brake cables are in reasonably good condition and that the arms are not bent or the cables frayed. If the arms of the caliper brake system are bent, it's better to replace the system rather than try to bend the arms back into position, since the arms are frequently made of aluminum alloy, which develops cracks.

The cyclist should also check to see that caliper brakes have brake shoes on both sides and that these are properly positioned in relation to the rim. Brake shoes should be replaced when they are badly worn. Caution! Shoes must be correctly installed in their retainers so they are not pulled out by the rotation of the wheel.

Another frequent cause of problems with caliper brakes is the cable. Often after the owner's attempts at adjustments, the cable may become frayed or broken. New cables may be installed in the old housing, but it's better to use completely new assemblies. Cables should be lubricated before they are installed in the housing. The cyclist should be sure all cable bolts are tight. Excess cable should be cut off after all adjustments have been made.

Many times a cable is adjusted too loosely and should be pulled together. Minor adjustments can be made by turning the cable adjusting barrel out if its holder. When the brake cables are adjusted, the shoes should be very close to the rim—approximately 1/16" away. If it is not possible to properly adjust the brakes with the action of the adjusting barrel, it is necessary to loosen the nut that holds the brake cable onto the arm. Using a "third hand" type of tool to hold the brake shoe tight against the rim, the cyclist can pull the brake cable through the eyelet with a pair of pliers and fully tighten the cable anchor bolt. He should try the brake lever several times to make sure that the cable anchor bolt is fully tightened.





Bicycle pump and proper pressure: aides to long tire life.

If the brakes are difficult to apply, or stay closed on the rim after the brake lever is released, the most probable cause is lack of lubrication. Being very careful not to get oil on the brake shoes, the cyclist should add a drop of oil between the brake arms and at the front brake arm. He should also make sure these pivot bolts have not been tightened too much, restricting the travel of the brake arms.

One of the most common problems with brake levers is that they may be loose on the handlebar and not offer secure braking performance. To tighten a brake lever, the cyclist either tightens the screws of the clamp that holds the brake lever in position, or pulls the braking lever as if to brake and sights inside to gain access to the mounting screw. Access to the mounting screw will be easier if he removes the cable from the brake lever.

### Tires and Tubes

Underinflation is the most common problem with bicycle tires. Driving on soft tires shortens tread life and increases the possi-

bility of major damage to the tires and the rims. Although tubes are relatively inexpensive, tires can be costly. The correct inflation pressure is usually stamped on the side of the tire. The cyclist should pump it up to that pressure. It's best to inflate the tire with a bicycle pump. Air hoses at gas stations usually deliver too much air too quickly and it is easy to blow out a bicycle tire. Other damage that can be easily spotted on a tire includes cuts and breaks in the tire casing, especially along the rim. The cyclist should replace any damaged tires since

they will quickly fail.

Although it's possible to repair a flat with the wheel on the bicycle, it's easier if the cyclist takes the wheel off first. Then he can completely deflate the tire by placing it on the floor and pushing down. He can remove the tire from the wheel by using either his hands or tire lever tools. Sharp objects such as screwdrivers should never be used.

Next, the cyclist removes the tube and inflates it slightly. He then dunks it in water and looks for the air bubbles that will indicate the leaks.

He can repair the puncture with a good patch or replace the tube.

The cyclist should examine the tire and wheel rim carefully, making sure that the tire is clean and that the rim is free from rust and loose or rough spoke heads.

He should also make sure a rim strip covers all the spoke heads.

He then inflates the tube until it just starts to regain its shape, and places the tube in the tire.

He inserts the valve through the hole in the rim and carefully mounts the tire on the rim using his hands. Screwdrivers should not be used to mount tires. Such tools, although commonly used, may cause cuts in the tube during the mounting operation.

After mounting the tire, the cyclist carefully inflates it until the tire beads are seated. Both



After deflation, tire can be removed from wheel by hand.

beads must rest properly in the rim and the rim line on the tire should be visible all the way around on both sides. Then he deflates the tube, allowing it to free itself, thus avoiding pinching and binding with the tire.

Finally, he inflates the tire to correct pressure as shown on the side of the tire, and puts the wheel back on the frame.

## Wheels

The removal and installation of wheels may occasionally present problems, especially with different types of mounting hardware used on bicycles. The easiest wheel to remove and replace is the front wheel. To remove the front wheel, the cyclist takes off the axle nut from the front axle. He detaches the brace for the front fender, if there is one. Then he takes careful note of the arrangement of nuts, washers and special washers. When he reinstalls the wheel, they must be replaced in the exact same order. Next, the cyclist makes sure that the axle rests securely in the fork slots and that the wheel is correctly centered. He may slightly reposition the wheel in the fork slots to correctly center the wheel. A need for unusually large adjustments may indicate additional damage, such as a bent fork.

Another type of mounting commonly used on the more expensive ten-speed derailleur-equipped bicycles is the quick release skewer. On this type of hub, the axle is equipped with a special lever that can be used to remove and install the wheel without the use of tools. To remove the wheel, the cyclist turns the lever parallel with the axle and loosens the brakes so the tire can slip between the brake shoes. He uses the quick release lever if the brakes are so equipped. When reinstalling the wheel, he positions the lever parallel with the axle. Then he inserts and centers

the wheel. Next, he turns the lever at right angles to the hub. If this does not properly lock the wheel, or if the lever cannot be turned all the way, he turns the nut on the opposite side of the hub as required. Finally, he repositions the brakes and checks for proper operation.

To remove the rear wheel equipped with a coaster brake, the cyclist removes the axle nuts and washers, being careful to note the assembly sequence. He then removes the nut and bolt that hold the break arm strap onto the brake arm. The wheel can now slide out of the frame, free of the chain.

To remove the rear wheels equipped with three-speed hubs, the cyclist loosens the lock nut and unscrews the cable from the indicator rod that screws into the axle. Then he can remove the axle nuts and washers, again being careful to memorize their sequence.

Removing the rear wheel on derailleur-equipped bicycles is not as difficult as it first appears. The cyclist loosens and removes the axle nuts and washers, being careful to note the correct sequence. For easiest removal, he should shift the chain onto the smallest gear sprocket. Then he can pivot the entire derailleur mechanism to the rear of the bicycle and guide the rear wheel out of the frame and free of the chain.

When reinstalling the rear wheel, he again pivots the derailleur to the rear of the bicycle and positions the chain on the small rear sprocket. Then he guides the wheel into the fork slots, making sure the rear wheel is properly centered in relation to the rear frame of the bicycle.

Common wheel problems include loose or missing spokes, bent or damaged rims and improperly adjusted hub cones.

The cyclist should check to see that all of the spokes are present in the wheel, and replace any

missing ones. This is relatively simple on some types of wheels, especially if the spoke can be completely removed from the nipple, and the nipple is still in place and useable. If not, the tire, tube and rim rubber will have to be removed.

It is important to follow the proper pattern for placing the spoke in the hub and the rim. If the spoke needs to be replaced on the sprocket side of a derailleur-equipped rear wheel, the five sprockets or the freewheel cluster must be removed first. This requires a special tool called a freewheel remover.

All spokes should be properly tensioned and the rim should run reasonably true and straight. The correct size of nipple wrench must be used to tighten the spokes on the wheel. The cyclist tightens the spokes slowly, making one or two turns per spoke going around the wheel. Overtightening the spokes on one side of the wheel will cause distortion.

The simplest type of hubs are found on the front wheels of bicycles. Generally speaking, the only thing that will go wrong with such hubs is the adjustment of the cone-shaped nuts that tighten against and serve as a surface for the ball bearings. The cones need to be adjusted so that the wheel turns freely with only a minimum amount of side play. Usually a special thin wrench is required to properly set the cones. Front hubs can also be easily disassembled for cleaning and relubricating of the ball bearings. Caution: If bearings are not in a retainer, they will fall out when the cones are loosened. The cyclist should work over a large container or soft cloth to avoid losing any of the ball bearings.

Rear hubs on derailleur-equipped bicycles are very similar to front hubs in that they have no special internal mechanism. However, adjustments are com-



plicated due to the free wheel sprockets and derailleur. The inexperienced owner is advised to have these units serviced by a competent bicycle mechanic.

Coaster brake hubs have internal mechanisms that produce the driving and braking action. There are many types of coaster brakes currently on the market, and it would be impossible to give detailed instructions for disassembling and repairing these units. However, the cones on coaster brake hubs can be adjusted by following the directions described for front hubs.

Three-speed hubs are probably the most complex mechanisms on a bicycle, since there are many parts within the hub shell to produce the different gear ratios. There are also many types of three-speed hubs on the market, and it is beyond the scope of instructions here to give detailed repair procedures for such hubs. However, the cones can be adjusted using the same principles previously described.

Three-speed hubs are also equipped with some sort of lever to shift gears. The most common type of gear shifting mechanism is a small trigger control mounted on the handlebar with a cable running to the three-speed hub. Since there are several types of three-speed hub controls on the market, the actual adjustment procedures for these different types of hubs vary somewhat. The owner should consult a good bicycle repair manual to familiarize himself with the different types of hubs and their adjustment procedures.

### **Front Derailleurs**

Front derailleurs are found on ten-speed bicycles and they control the shifting of the chain between the front sprockets. Their mechanism is simple, consisting of a guide that "derails" the chain from one sprocket to the other. It is important that the front derail-

leur be mounted correctly. Many shifting problems are traceable to improper mounting of the derailleur. The guide should be parallel with the sprocket and there should be no more than one eighth of an inch clearance between the chain guide and the tips of the sprocket teeth. If the derailleur needs to be repositioned, the cyclist should loosen the mounting nut and shift the derailleur.

The front derailleur is equipped with two screws that will limit the chain guide movement so that it doesn't shift the chain off the sprocket. To set the low gear limit screw, the cyclist shifts the chain onto the smaller front sprocket and turns the low gear limit screw until the inner side of the chain guide just clears the chain. To set the high gear limit screw, he can shift the chain onto the large front sprocket and turn the high gear limit screw until the outer side of the chain guide just clears the chain.

Then he should check the operation of the front derailleur by turning the pedals and shifting the front derailleur. The chain should easily shift from one sprocket to another with a minimum of noise and clatter. Sometimes it helps to bend the front part of the inner side of the chain guide slightly inward to assist in shifting the chain.

To adjust the cable on the front derailleur, the cyclist shifts the chain onto the small front sprocket so that the cable is not under tension. He next loosens the cable anchor lock nut and pulls the cable almost taut with a pair of pliers. Then he retightens the cable anchor lock nut and checks again for operation of the front derailleur.

### **Rear Derailleurs**

There are many types of rear derailleurs currently used, but their operation is basically quite similar. Just about all rear derail-

leurs have two pulleys housed in a spring-loaded cage over which the chain rides. These help to properly tension the chain as it is shifted from one size sprocket to another. The most common causes of shifting problems with the derailleur are falls, dirt, lack of lubrication, or improper cable adjustment. The first step should be a thorough cleaning of the derailleur, and then light lubrication at the pivot points. Too much oil will only attract dirt.

Most derailleurs are equipped with two screws that control the travel of the roller cage that guides the chain. To set the low gear limit screw, the cyclist shifts the chain onto the second smallest sprocket and turns in the low gear limit screw until it contacts the derailleur to prevent further movement of the roller cage. Then he will shift the lever all the way forward, attempting to shift the chain onto the smallest sprocket. Next he turns the pedals and turns the high gear limit screw out until the chain just drops onto the smallest sprocket.

Then he loosens the cable anchor bolt to free the derailleur cable, pulls the cable taut with pliers, and retightens the cable anchor bolt.

It should then be possible to shift the chain onto the largest rear sprocket. He adjusts the shifting levers so the roller cage is directly underneath the large rear sprocket and adjusts the low gear limit screw until it just contacts the derailleur, preventing further movement of the roller cage. Then he checks the operation of the derailleurs to make sure they are functioning properly in all gear selections.

If the chain slips off the large low gear sprocket, the tension control on the shifting lever should be checked and tightened. Usually this will be sufficient to prevent the chain from slipping off the large sprocket by itself.

## Chapter 6

# Buying a Bicycle



The first step in buying a bicycle is to decide on the type. There are many things to be considered. For what purposes will the bicycle be used? If it is for a child, what age and size? Will it get rough, medium, or light usage? How much money is the buyer willing to spend? What kind of maintenance and repair work can he do? How concerned is he about safety?

A middleweight bicycle is best for the beginner or for those with paper routes; a lightweight bicycle is best for racing or touring. An adult tricycle might be preferred by the elderly or by persons who frequently use a cycle in shopping.

Even when the particular style has been selected, there are often different models available. The lightweight 3-speed and 10-speed are the most popular bicycles today. The 10-speed is usually lighter than the 3-speed, which makes it popular for cross-country touring. On the other hand, the 10-speed is more delicate and requires a higher level of maintenance and riding skill for maximum safety and pleasure.

Another consideration is the type of handlebars desired. "Drop" or "reverse bend" handlebars (sometimes called racing bars and virtually standard equipment on lightweight 10-speeds) provide a wide variety of driving positions, but generally require the driver to assume a bent-forward position. The extreme crouch position used when holding the drop portion of the handlebars provides optimum muscular efficiency and minimizes wind resistance. Regular or "touring" handlebars permit a more upright driving position and offer a better view of traffic. Although the drop handlebars appear awkward and uncomfortable, they are vastly superior for sustained driving because they offer a wide variety of hand/arm positions and help minimize wind resistance, which increases geometrically with speed.

Elementary school children should not be expected to drive a full-size 10-speed with handbrakes. These bicycles are far too sophisticated and complicated for children to handle safely. The frame is too big to allow them to

get on the seat easily or to reach the pedals when they do. Stopping is difficult once they are in motion because their hands are too small or weak to grasp the brake levers. (This is one of the reasons why coaster brakes are always recommended over handbrakes for the beginning bicyclist.)

Anyone buying an unassembled bicycle should be familiar with bicycles and know how to put one together. Those with multi-speed gears can be particularly difficult. Inexperienced buyers should ask the dealer to do the job or find out where it can be done.

For a number of reasons it is often best to select a bicycle at a local bicycle shop. The owner and his staff know how to set up a bicycle and make repairs. The chances of getting a bicycle that's in perfect working order are good, and there's a trained mechanic on hand to fix it should something go wrong. Many small adjustments and repairs are also covered under warranty with these dealerships.

Regardless of the style and model selected, the buyer should make sure that the bicycle fits properly. A bicycle that is too large or too small is not only uncomfortable, but may also be dangerous.

### Selecting the Right Size Frame

Perhaps the most important step is the selection of the proper frame size. The frame size is measured from the point where the seat post enters the frame to the center of the crank housing (See fig. one). Selection of the proper size bike is based on

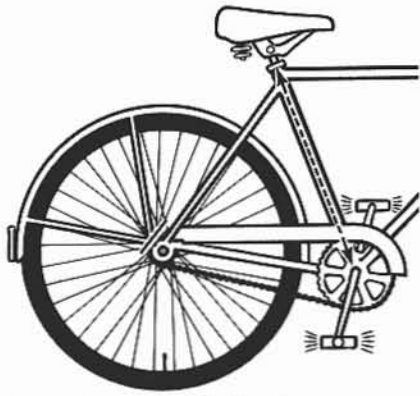


Figure One. Dotted line (seat post to crank housing) indicates frame size.

the length of the individual's leg. In stocking feet or flat-heeled shoes, the buyer should measure the distance from the crotch to the floor. Then he should pick the frame size that comes closest to this measurement.

For small children, age and diameter of the wheels are often used to determine the correct bike size. The following table presents a guide that can be used in bicycle selection:

Wheel Size	Age	Frame Size	Leg Length
12 inch	2-4		
16	3-5		
20			22½ inches
24			26-28
26		17 inch	28-29
		19	30-31
		21	33
		23	34
27		19	31½
		21	32½
		22	33½
		23	34½
		24	35½
		25	36½

One way for the buyer to determine the correct size in a bicycle shop or store is to take off his shoes and straddle the top tube of the frame (the horizontal bar between the handlebars and seat). He should be able to rest both feet flat on the ground.

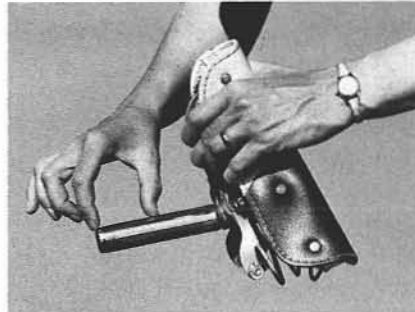
Parents often make the error of selecting a bike that is obviously too large for their child, thinking he will grow into it. This makes it very difficult for the child to learn how to drive the bike. Much enjoyment is lost and the risk of collision or accident is increased. It

is important to stick to the right size.

### Correct Seat Height

Getting the correct height of the saddle or seat is also important. A saddle that is too low will be uncomfortable and cause the cyclist to tire easily. This happens because the muscles of the legs cannot be used properly. A saddle that is too high won't allow the legs to act as "shock absorbers" by bearing some of the body weight when roads are bumpy.

Saddles can be adjusted by loosening the bolt and nut located at the top of the seat tube and adjusting the seat as needed. AT



LEAST TWO INCHES OF THE SEAT POST MUST REMAIN INSIDE THE SEAT TUBE FOR SAFETY. In most cases the saddle should be adjusted so that it is approximately parallel with the ground or has a very slight upward tilt--the front of the saddle just a little higher than the rear. The height of the saddle should be adjusted so the leg, thigh and heel form a straight line when placed on the pedal in the down position (See fig. two). Beginning bicyclists may want to have their saddles somewhat lower to make it easier to place their feet on the ground when they stop.

### Handlebar Adjustment

There are two basic types of handlebars: the upright or flat handlebars and the dropped or turned-down type.

The upright handlebars used with most 3-speed or coaster-

brake bicycles are more common. One variation, high-rise handlebars, forces the cyclist to drive with his hands at chin height. This style is not recommended. Proper adjustment for regular upright handlebars should:

- cause the upper part of the body to be inclined slightly forward,
- find the hands falling naturally to the handlebar grips without stretching,
- have the grips pointed slightly downward, at right angles to the handlebar stem and about the same height as the seat.

The dropped or turned-down handlebars used primarily on 10-speed derailleur lightweights are preferred by most experienced cyclists for short- and long-distance touring. As body weight is distributed more evenly between saddle and handlebars, they are more comfortable and less tiring. However, even a small misadjustment in the handlebars can make a great difference in cycling comfort, especially on a long trip. Because of the wide variation in arm length and body build as well as stem bar type and length, adjustment procedures for dropped handlebars are beyond the scope of this guide. It is recommended that the owner of a bicycle with dropped handlebars follow the steps outlined in his owner's manual and talk to the bicycle shop dealer or other well-informed, experienced bicyclists.



Figure Two. Adjust saddle height with heel on pedal and leg straight.



# Learning To Drive a Bicycle



In fitting the bike to the driver, the leg should be fully extended when the driver is seated in the saddle and the pedal is at the bottom of its stroke.

The beginner should start with a middleweight bicycle or one of the less sophisticated lightweight types, fitted to the driver.

The best place to learn is a flat, open area that is free of obstructions, traffic and other hazards. School yards, church parking lots or shopping center parking areas are good at those times when they are not in use.

The teacher should hold the bicycle by wedging the front wheel between his legs, with both hands holding the handlebars firmly. The beginner can now sit on the saddle and lean to either side without the bicycle falling over.

As the beginner starts cycling, the teacher should hold the back of the saddle and run along behind the bike, out of sight of the cyclist. The cyclist should always look straight ahead, not at his feet or at the bicycle. It's best to go at a fairly good speed. Balance is

more difficult on a slow-moving bicycle.

The cyclist should drive in a straight line at first. Gradually he'll need less help. The teacher should let go of the bicycle periodically without advance warning.

The cyclist should not look down if his foot slips off the pedal. He should keep his head up and find the pedal with his foot by feeling for it.

## Getting Started

Sooner or later everyone falls. When that happens, it's best to let go of the bicycle and relax.

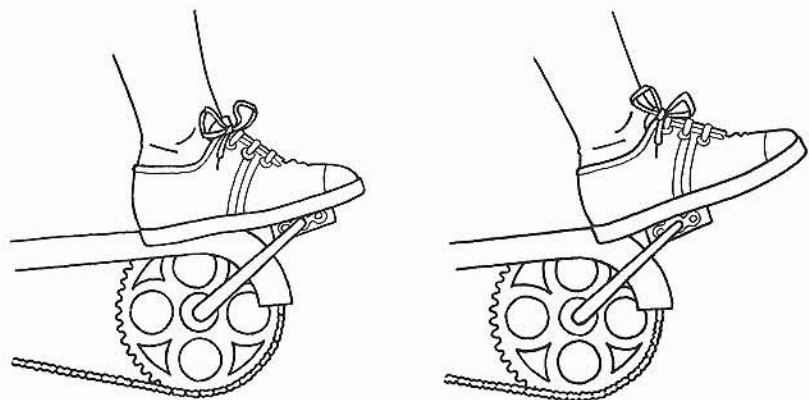
To learn how to start out by himself, the beginner should straddle the bike with the right pedal in the up position (left pedal up for the lefties) and place his right foot on it. Then he should kick off with his left foot and push down on the pedal with his right foot at the same time.

That's the basics. Confidence and skill will come with practice. However, there is one additional technique that all cyclists should learn, but many never do. That's correct ankling.

Ankling is a procedure that positions the foot correctly for maximum power through the widest possible arc of the pedal's rotation. Simply stated, it means that the toes are pointed upward just before the beginning of the pedal downstroke, then downward as the pedal moves toward and through the bottom of its revolution. Thus power is applied through more than half of the pedal's 360° rotation.

Power must be applied with the ball of the foot for ankling to be done effectively. Rat-trap pedals, toe clips and straps are required equipment for racers and long-distance tourers. Such equipment automatically positions the foot correctly, and also permits power to be applied on the up-stroke. Special bike shoes with cleats firmly attach the driver's feet to the pedals, providing the means for power application throughout the full 360° rotation of the pedals.

With a little practice (and with the use of toe-clips and straps) ankling becomes automatic, especially when terrain or wind requires full power application.

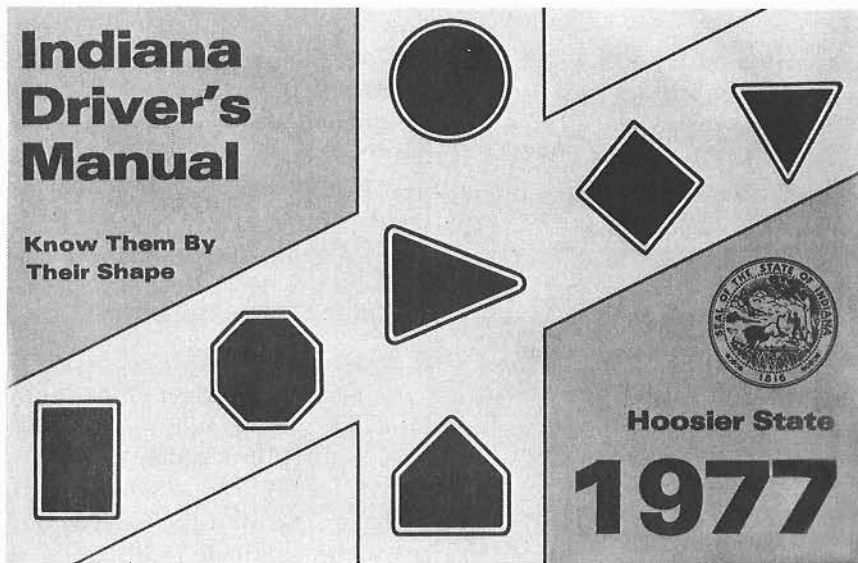


RIGHT

WRONG

The position for correct ankling means using only the ball of the foot to pedal.

## Traffic Laws and the Bicycle



Traffic laws make it possible for us to travel with reasonable speed and safety. They tell both the motorist and bicycle driver what they must do. It is particularly important for the bicycle driver to understand and obey traffic laws and follow good cycling habits. Often the driver and his bicycle are difficult for the motorist to see. It is up to the cyclist to watch for cars any time he drives into a street, so it's important for him to drive defensively at all times.

The bicycle driver is a part of the traffic just the same as any motor vehicle. The laws governing the operation of motor vehicles on the public streets and highways of Indiana also apply to the driving of bicycles on the roadways. Everyone must obey the traffic laws.

It is not possible to include here all the laws governing Indiana vehicle traffic. A comprehensive listing is presented in the *Indiana Driver's Manual*, available free of charge at all driver license examination stations or

by writing the Indiana Bureau of Motor Vehicles. Every bicyclist should obtain a copy of the *Driver's Manual* and become familiar with all laws that apply to bicycle driving.

The following are basic rules of the road that every bicycle driver should know and obey:

- Obey all applicable traffic regulations, signs, signals, and markings.
- Observe all local ordinances pertaining to bicycle operation.
- Keep right, drive *with* the traffic, not against it. Drive single file.

- Don't carry passengers or packages that interfere with your vision or control.
- Never hitch a ride on a truck or other vehicle.
- Use hand signals to indicate turning or stopping.
- Protect yourself at night with the required reflectors and lights.

Here are some additional safe practices that cyclists should be aware of and follow for their protection:

- Watch out for car doors opening, or for cars pulling out into traffic.
- Watch out for drain grates, soft shoulders, and other hazardous road surfaces.
- Be extremely careful at all intersections, particularly when making a left turn.
- Drive a safe bike. Have it inspected to insure good mechanical condition.
- Drive your bike defensively; watch out for the other guy.

Some cities have local laws called ordinances. These control the operation and parking of bicycles within city limits, and it is important to know what they are. Every cyclist should check with his law enforcement agency and obtain a copy of the bicycle laws and regulations for his area.



## Traffic Control Devices



Failure to obey traffic signs or symbols at intersections could result in this.

A collision between a bicycle and a motor vehicle is the most serious type of bicycle accident and the cause of a majority of the bicycle-related fatalities. For this reason it is extremely important for bicycle drivers to observe the same rules of the road as drivers of other vehicles. They must stop at red lights and stop signs, adhere to yield signs, obey "do not enter" signs, and ride on the right with the flow of traffic.

### Traffic Signs\*

The oldest devices for controlling, safeguarding, and expediting traffic are traffic signs. They are essential where special regulations apply at specific places or at specific times only, or where the hazards are not self-evident. They are also needed to give

information on highway routes, points of interest, directions, and destinations.

Regulatory signs inform highway users of traffic laws or regulations that apply at given places or on given highways. Persons who disobey or disregard these signs are guilty of infractions, violations, or misdemeanors. These signs are erected at the locations where the regulations apply.

Warning signs warn the driver of existing or potentially dangerous conditions either on or adjacent to the road.

Guide signs give directional information, distances, points of interest, and other geographical or cultural information.

Service signs provide direction to service facilities such as service stations, restaurants, camping facilities, hospitals, and telephones.

### Color Is Significant

Red indicates "Stop" or a pro-

hibition, yellow warns of a hazard, white indicates the speed limit, green shows movement permitted or gives directional guidance, blue points to motorist services, orange indicates construction and maintenance, and brown marks public recreation and scenic areas.

### Shapes Have Meaning

Diamond shaped signs signify a warning; rectangular signs, with the longer dimension vertical, provide a traffic regulation; and rectangular signs, with the longer dimension horizontal, contain guidance information. An octagon means "Stop", an inverted triangle means "yield", a pentagon means "No Passing", a pentagon shows the presence of a school, and a circle warns of a railroad crossing.

The United States is moving toward an international system of traffic control devices that emphasizes both pictures and symbol signs rather than written messages.

Symbolic signs are not entirely new. The familiar curve and crossroad symbols have been used for many years.

Symbols have several advantages over word messages. They provide almost instant communication with the driver, since they can be understood at a glance without having to be read. Also, they overcome language barriers.

Some of the present word signs will remain in use. These signs have proven effective in the past and contain easily understood messages, such as the "Stop" sign and speed limit sign.

Bicycle drivers should be familiar with the road signs that follow. An explanation of the mean-

\*Information on traffic control devices has been taken from the National Safety Council's safety education data sheet #33, TRAFFIC CONTROL DEVICES

ing of each sign accompanies the illustration.

### Regulatory Signs

#### Stop Sign



All drivers must stop.

#### Yield Sign



Drivers must yield, slow down or stop to give the other driver the right-of-way.

#### Do Not Enter



Drivers are prohibited from entering a specific area.

#### Turn Prohibition Signs



NO U  
TURN



NO RIGHT  
TURN



NO LEFT  
TURN

Drivers cannot make U-turns, right turns, or left turns.

#### Keep Right



Traffic is required to stay to the right—indicates obstruction ahead.

### Warning Signs

#### Divided Highway Signs



DIVIDED  
HIGHWAY



DIVIDED  
HIGHWAY  
ENDS

Indicates change from two-way road to divided highway; indicates change from a divided highway to a two-way road.

#### Merge Sign



Warns driver to be alert for merging traffic.

#### Slippery When Wet Sign



Indicates slippery pavement when wet.

#### School Crossing Signs



Informs drivers in advance of school areas and crossings where young children may be present going to and from school.

### Guide Signs

#### Lane Reduction Signs



Alerts drivers in advance to sudden changes in the number of lanes.

#### Expressway Interchange Signs



Diagrams on some signs are being introduced to help motorists find the correct path through complicated interchange ramp networks.

### Bike Route Signs



Guides cyclists on a prescribed bicycle route.

### General Information Sign



Gives directional and other general information to drivers.

### Service Signs



Informs drivers of service facilities.

### Signals

The most familiar of all traffic control devices is the three-colored traffic signal light with red for "Stop" at the top, green for "Go" at the bottom, and yellow in between to warn approaching motorists and cyclists to stop because the light is going to turn red. Arrows are increasingly being used in traffic signals to control specific movements.

In places where there is a particularly high volume of pedestrian and vehicle traffic, pedestrian "Walk" and "Don't Walk" signals are used to indicate when people are to cross the intersection. They are timed with the stop-and-go light.

When special "Walk" and "Don't Walk" signals are not placed at intersections, pedestrians should obey the regular traffic signal.

Flashing signals are placed at intersections where the volume of traffic is not heavy enough to warrant a full traffic signal. Red is





Communicating with symbols, a pentagon-shaped sign indicates school crossing.



Young driver obeys rules of the road.

like a stop sign; yellow means "Caution."

At busy intersections of the highway and the railroad, the railroad crossbuck is equipped with red lights that flash when a train approaches.

Another type of railroad signal is the Wig-Wag signal that is installed at busy crossings to stop vehicles when a train approaches.

In urban areas, gates are frequently installed to stop vehicles.

### Pavement Markings

Pavement markings serve as a guide and a source of protection to the motorist and cyclist. Pave-

ment markings channel traffic and identify hazards. The standard color is either "highway yellow" or "traffic white."

Standard center lines on highways are either continuous or broken lines: the continuous line is used to keep the motorist and cyclist in the proper lane, and the broken line is the standard center line that may be crossed if traffic permits. These lines are painted yellow.

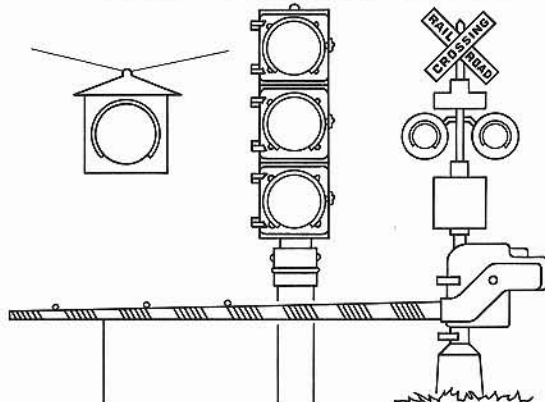
At curves, hills, or other places where the driver cannot see far enough ahead to be sure he can safely pass other vehicles, a "no passing zone" may be indicated by a solid yellow line along the right-hand side of the center line.

This barrier line continues until the hazard is passed.

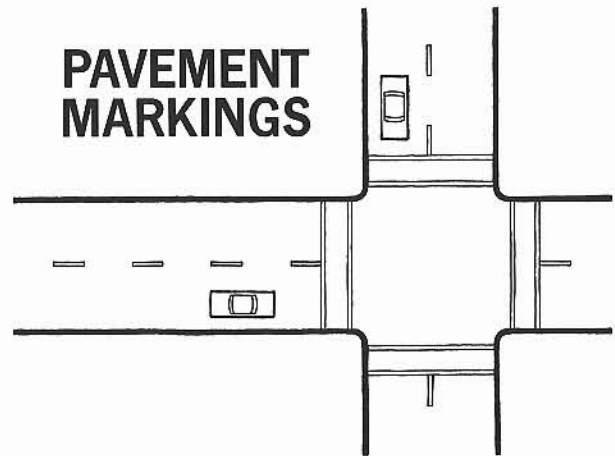
Crosswalk lines at the intersection guide the pedestrian, motorist, and cyclist. Pedestrians should cross streets only at these crosswalks, and motorists and cyclists should come to a full stop behind the lines so that pedestrian traffic is not blocked. Standard crosswalk lines are white. Standard turn markings are also white.

Hazards such as railroad crossings are marked in white on the pavement. These standard markings serve, along with the signs on the side of the road, to warn the driver of approaching hazards.

### TRAFFIC SIGNALS



### PAVEMENT MARKINGS





## Recognizing Hazards



The increased traffic on the roadways presents any driver with a number of hazardous situations, especially under adverse or unusual driving conditions. Some of these problems are shared by all motorists; others are unique to the bicyclist. The following suggestions are designed to draw the cyclist's attention to these situations and minimize the risk when he is confronted by them.

### Unstable Surfaces

Anything that reduces the amount of friction between the

bicycle tire and the road surface is a hazard to the cyclist. Whenever the road is wet, the danger of a fall increases. Wet leaves are especially slippery. Even when dry on top, they may be wet and slippery underneath.

Sand, gravel, oil spots, railroad tracks, and bridge expansion grates are other examples of unstable surfaces that present traction problems to the cyclist.

When approaching such surfaces, the cyclist should steer as straight a line as possible. He should avoid braking and sharp turns, and coast through if possible, or apply power gently.

He should remember, too, that when caliper brake pads are wet, they lose their effectiveness. In wet weather the driver should begin braking early.

Sewer covers with longitudinal grids are a real hazard in city cycling. Many of these drains are designed with sufficient space between the gratings to permit a bicycle wheel to drop down between them, resulting in a sudden over-the-handle bar stop.

### Dogs

For some reason many dogs,

including those that are normally well-mannered, will chase bicycles. Most of the time they are chasing the pedals or wheels that are going around, not the driver. In trying to avoid a dog, the bicyclist may swerve into other traffic or hit some obstruction. In snapping at the bicycle's tires or the rider's heels, the dog may run into the bicycle, creating an additional hazard. Kicking or taking a swing at the dog with a tire pump or some other object usually doesn't meet with much success. In the process the bicyclist may lose his balance. Some of the measures the cyclist can take are:

- Avoiding the area where the bicycle-chasing dog lives.
- Yelling or screaming at the dog and trying to scare him back into the yard. Saying "No," or "Go Home." A Freon powered horn will scare most dogs away.
- Getting off the bicycle and standing with the bicycle between the dog and the cyclist. This is an important consideration, especially if the driver is overtaken or ambushed from the front. The cyclist should stop before the



Bright clothing makes it easier for motorists to see cyclists.



In the glare of headlights, reflectorized materials stand out.



Unguarded cuffs can cause accidents!

dog stops him. Contact against the front wheel by even a small dog can cause a fall.

- Using a dog repellent. Commercial repellents like those used by postmen are available, and will discourage almost any dog. The repellent should be squirted toward the dog's face.

### Nighttime Driving

The majority of collisions between bicycles and motor vehicles take place during daylight hours, but studies have shown that nighttime accidents are more severe. The problem is that the motorist cannot see the bicyclist.

Brightly-colored clothes worn during daylight hours make it easier for motorists to see the bicycle rider. For the same reason, white or reflective clothing is strongly recommended for nighttime wear. But even with those precautions, it is still necessary to be extra careful at night. Cyclists should avoid streets where there is a heavy traffic. They should walk their bikes across intersections and try to be seen.

### Potholes

Hitting potholes can damage wheel rims, spokes, and bicycle forks. They are best avoided. When this is not possible, and the cyclist sees a pothole in his immediate path, he should face it straight on and try to lift the bike as he rides over it by standing up on the pedals and jerking up. He should try not to let his weight

drive the front tire forcefully against the far edge of the hole. Instead of jumping curbs or driving down steps, the cyclist should get off and walk.

### Crosswinds

Strong crosswinds can push the bicyclist off course badly or make him lose control. This may happen on high bridges, where hills or ridges channel winds through a valley, or on days of high and gusty winds. Some highways have signs indicating where strong crosswinds are known to occur. The cyclist should watch out for fast moving trucks and trailers, which create a sweep of wind that can cause him to lose control or even throw him from the bike. Such vehicles can usually be heard as they approach. If they are moving rapidly, the cyclist should get off his bike and wait until they pass, especially on two-lane roads.

### Proper Clothing

A wide variety of clothing is available to today's bicyclist. Department stores and bicycle specialty shops offer knickers, high-rise socks, and gloves that closely resemble those worn by sports car drivers. The hands can be easily cut or bruised in a fall.

The cyclist can wear what he wants, as long as he is comfortable. It's a good idea to carry some clothing that offers protection from chill or rain, but can be

easily discarded and packed away when the weather clears. Unguarded bell-bottoms or pants with flared cuffs should be avoided. These can easily become entangled with pedals, drive chain, sprocket, or other bicycle parts.

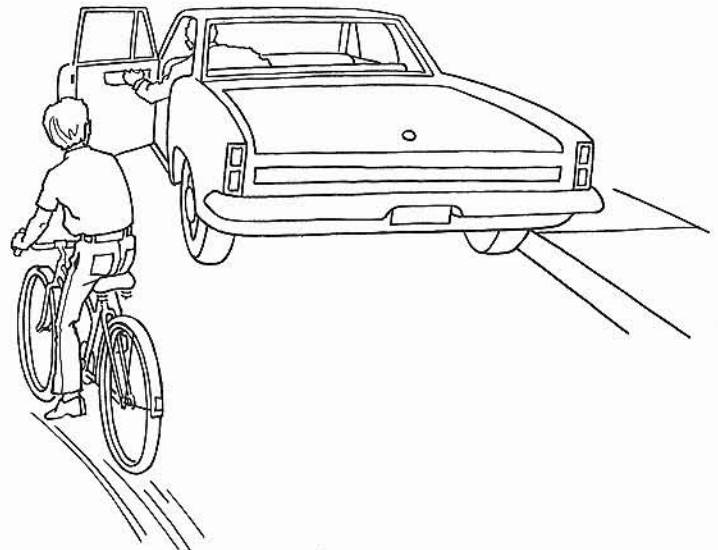
Indiana now requires all motorcyclists to wear approved protective headgear. Many bicyclists feel that this is also an appropriate safety measure for the bicyclist. Although a motorcycle may go faster, the bicyclist can still strike his head against concrete pavement, a curb, a car, or other unyielding surface.

### Parked Cars

Streets where no parking is allowed generally have high-density traffic and are best avoided by the bicyclist. Cyclists are more likely to drive on streets where cars are parked, and these can be a serious hazard. The motorist may open the door directly in the cyclist's path, either because he is discourteous or not very observant (it's hard to see a bicyclist using only the car's mirrors). So the cyclist should keep a close watch on cars parked ahead and try to anticipate motorist's actions.

Cars pulling away from the curb present similar problems, especially when they don't signal their intentions. When the cyclist sees or hears a motor running, he should be prepared for a car to pull out.

Keep close watch on cars parked ahead, and try to anticipate motorist's actions.



## Safety Tests and Rodeos

Bicycle safety tests and rodeos should be fun, and an educational experience for all those involved—sponsors, promoters, judges, and participants. But, as in any other activity, they must be carefully planned in order to be successful.

The basic purpose of these events is to encourage the development of the skills needed to be a safe and effective bicycle driver. While school-age children will be naturally attracted to the activities, all bike-driving adults should find great value in these challenges to their ability and judgment.

The test and rodeo should emphasize bicycle safety, including the bicycle driver's skill and his responsibility to himself and others who share his world. It should strive to develop and reinforce proper driving attitudes and to teach an understanding of traffic laws and rules.

The first step in organizing the event is securing a sponsor. Civic organizations, schools, churches, youth groups, and retail merchants are all likely candidates.

Once the sponsor is determined, it is necessary to decide who will participate. The event can be a neighborhood, school, city or county-wide event. Participants might be separated by sex, age, ability, or type of bike.

With the target group selected, the next step is to find a place to hold the test and rodeo. The site must be convenient for the participants and located away from traffic. A large, clean, smooth, flat surface is needed. Playgrounds and parking lots are ideal; possibly a shopping center parking lot could be used on Sunday. In case of rain, a school gym can be sub-

stituted if the group isn't too large.

One other consideration in choosing a site is the availability of parking space for officials and spectators.

One of the most important decisions to be made is the choice of qualified and dependable people to serve as officials. Some possibilities are the state and local police, teachers, youth and women's groups, civic leaders, and civic organizations. To assure an efficient and well-run event, one person should be in complete charge.

Promotion of the activity comes next. We all know that in order to get maximum interest and participation, the event must be well publicized. The newspapers, radio, and TV stations all contribute time and space as a public service.

It's a good idea to hold a poster contest in the schools, or have one sponsored by a youth group. The posters can be placed in store windows, churches, and anywhere else a cyclist might see them.

Awards may be provided for the winners of rodeos and skill tests that emphasize competition, but it's also a good policy to give each participant a memento of the event. Reflectors provide an inexpensive way of welcoming each person and reminding him of the importance of being a safe bicycle driver.

Now for the event. It can consist of a handful of skill tests or be built into an elaborate rodeo. But no matter what the size of the event, certain basic materials are needed. They are: a 50- to 100-foot tape for marking boundary lines; score sheets, clip boards,

chalk, pencils (with erasers), stop-watches, measuring tapes, and possibly a public address system for a large rodeo. Also, the organizers should provide for emergency care in case of an accident.

There are two main types of bicycle rodeos. One emphasizes improvement of individual skills, the other emphasizes competition as well as skill. Both types have been included in this manual.

### Bicycle Rodeo I

(Reprinted from the Maryland State Department of Education's SAFETY INSTRUCTIONAL SYSTEM)

This rodeo is designed for use in skill development as well as skill evaluation.

Each activity should be laid out with chalk or masking tape on a playground or parking lot, as indicated by the following illustrations. Measurements are provided with each activity, along with its purpose, suggested scoring method, and the nature of the task to be accomplished.

A proficiency progress record form is also provided for reproduction. This record form and the design of the activities place emphasis upon self-improvement and not on competition between participants.

If possible, the entire series of activities should be available to participants over a period of time—during a free period, in a physical education class, or as the after-school activities—in order to allow participants time to become proficient in each exercise.

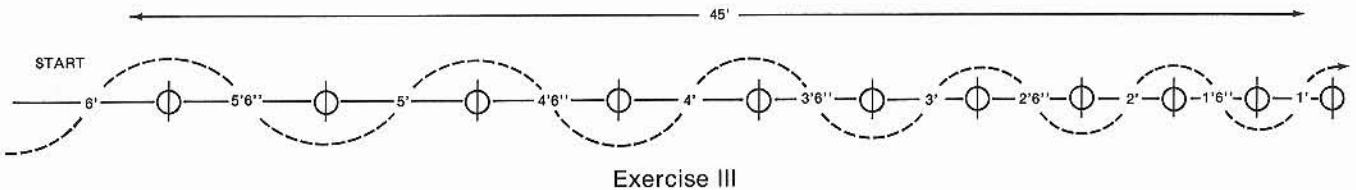
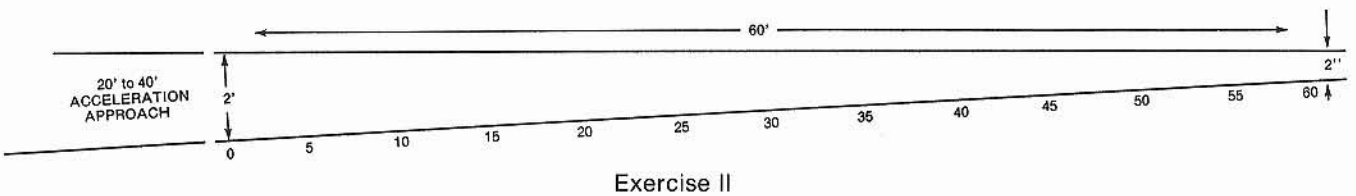
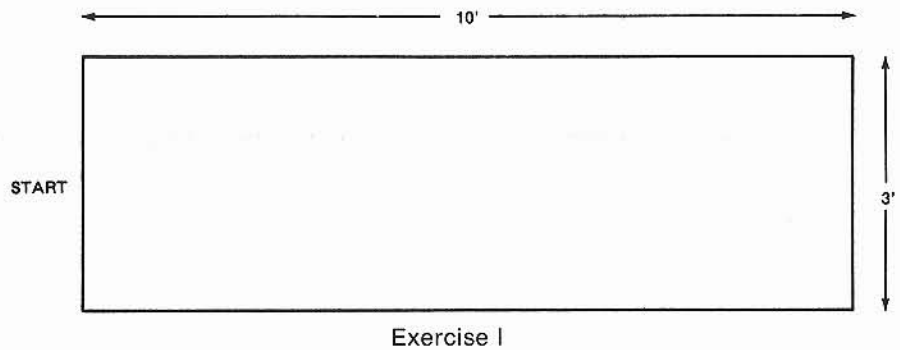
(Rodeo I begins on next page)

### EXERCISE I – Balancing Ability

**Purpose** – To test the balancing skill of the driver.

**Task** – The driver attempts to travel the length of the course very slowly, staying within boundaries and taking as much time as he can. All movements must be in a forward direction (no turning around). Feet must remain on the pedals at all times – sitting or standing.

**Scoring** – Score will be determined by maximum time accumulated in traveling the course.



### EXERCISE II – Speed Coordination Skill

**Purpose** – To test a driver's ability to judge straight-line driving at high speed.

**Task** – The driver should start 20 to 40 feet behind the starting line and enter the wide end of the course at top speed. He should continue to keep up his speed while traveling the narrowing course.

**Scoring** – Scoring is interpreted in feet attained without touching either side of the course.

### EXERCISE III – The Decreasing Serpentine

**Purpose** – To test the driver's skill in steering maneuvers and balance.

**Task** – The driver should attempt to follow an alternating path around the pylons as indicated.

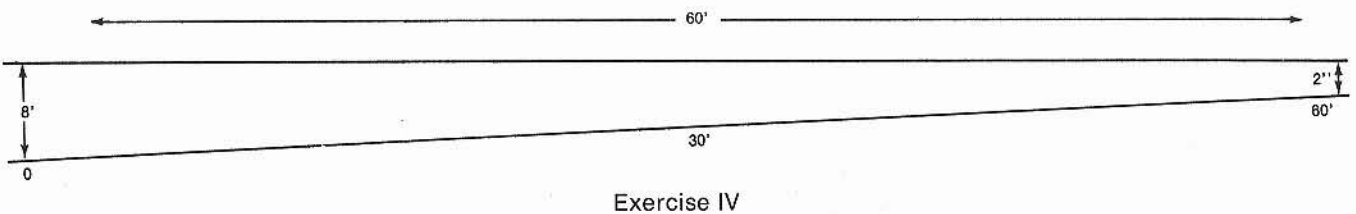
**Scoring** – The number of pylons passed without touching represents the score.

### EXERCISE IV – Slow Speed Coordination

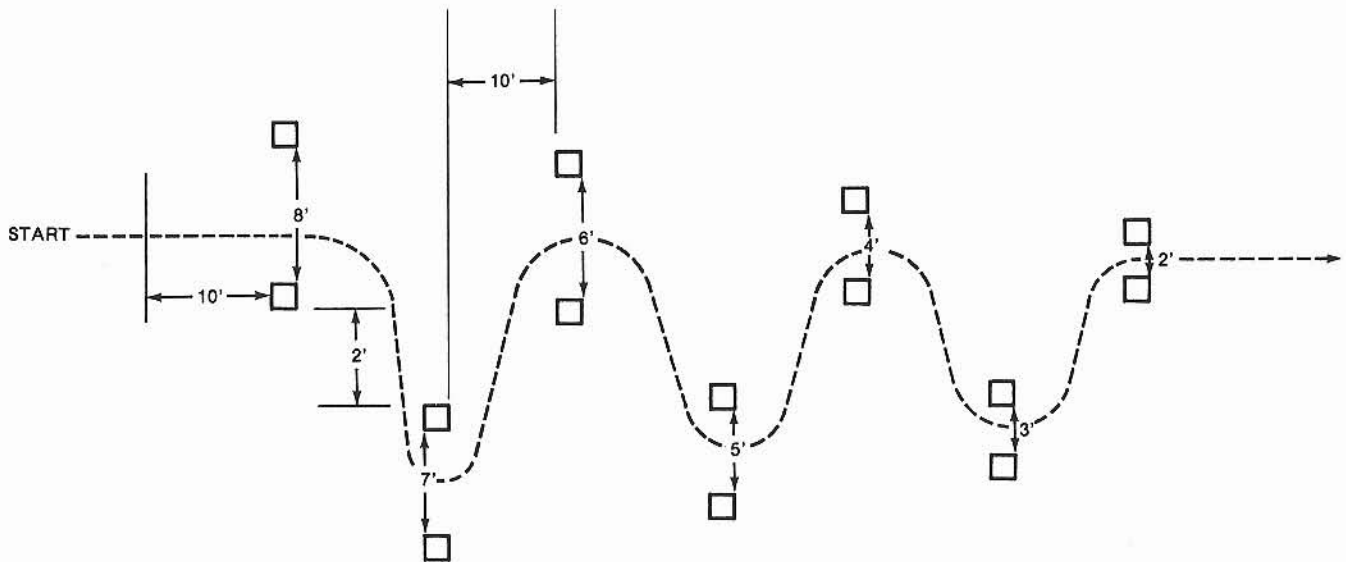
**Purpose** – To test the ability to drive in a straight line over a great distance.

**Task** – The driver should begin from a full stop at the wide end and proceed to the narrow end without touching either side. Speed must approximate walking pace.

**Scoring** – Score is interpreted in feet attained without touching either side.







Exercise V

### EXERCISE V—Decreasing Space Maneuvering

**Purpose**—To increase the driver's ability to estimate space and distance.

**Task**—Driving at a slow rate of speed, the driver must drive his bicycle through each pair of obstacles without his tires touching the obstacles and without his feet touching the ground.

**Scoring**—Score is determined by the number of obstacles successfully passed.

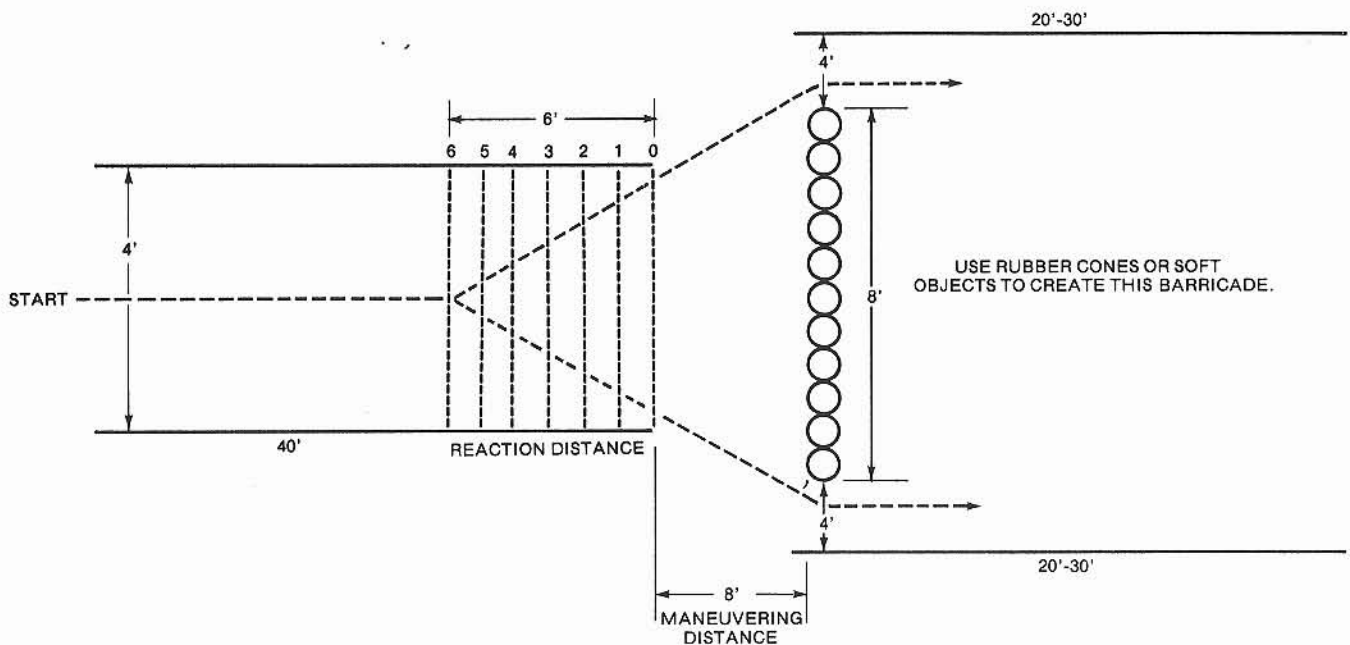
### EXERCISE VI—Right or Left Evasion

**Purpose**—To test the bicycle driver's skill in interpreting and reacting to a situation.

**Task**—The driver should drive his bicycle at a fast pace toward the center barricade line. When he reaches a preselected reaction distance, a judge gives the command "right" or "left". The driver must maneuver his bicycle in the appropriate direction without hitting the barricade or going over any boundary lines.

If the driver successfully maneuvers his bicycle through the obstacle course, the judge moves to the next shorter reaction distance.

**Scoring**—Score is interpreted in terms of the reaction distance needed to maneuver through the course. The shortest reaction distance successfully completed would be the score (0 would be excellent).



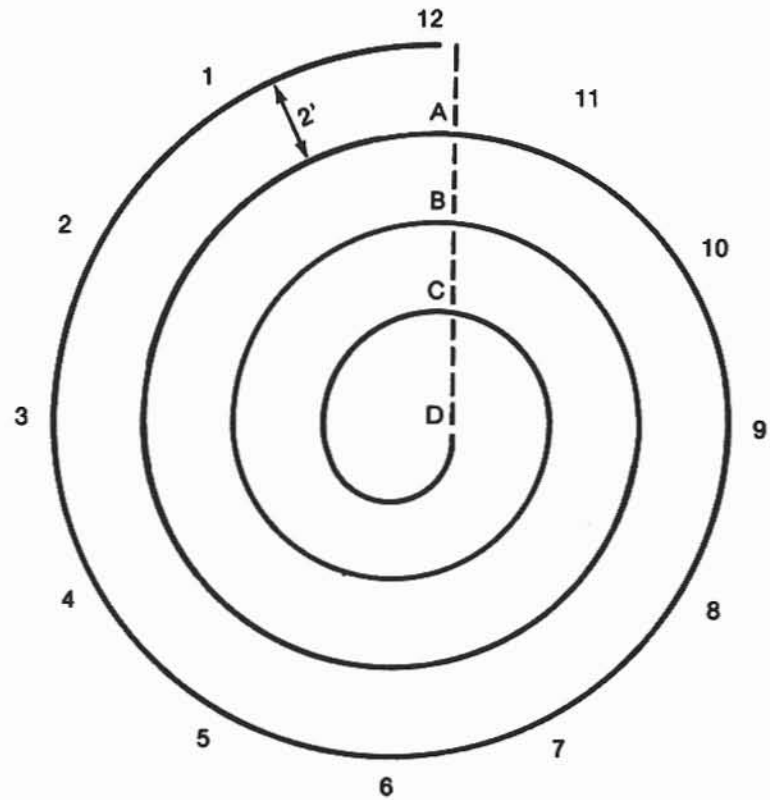
Exercise VI

### EXERCISE VII – Left Spiral

**Purpose** – To develop a bicycle driver's left turning skill and balance.

**Task** – The driver should follow the spiral to the center without touching any lines.

**Scoring** – The score is taken from the distance reached at the point the first line is touched. For example: a score of C-9 would mean the driver touched his first line in Ring C at 9 o'clock.



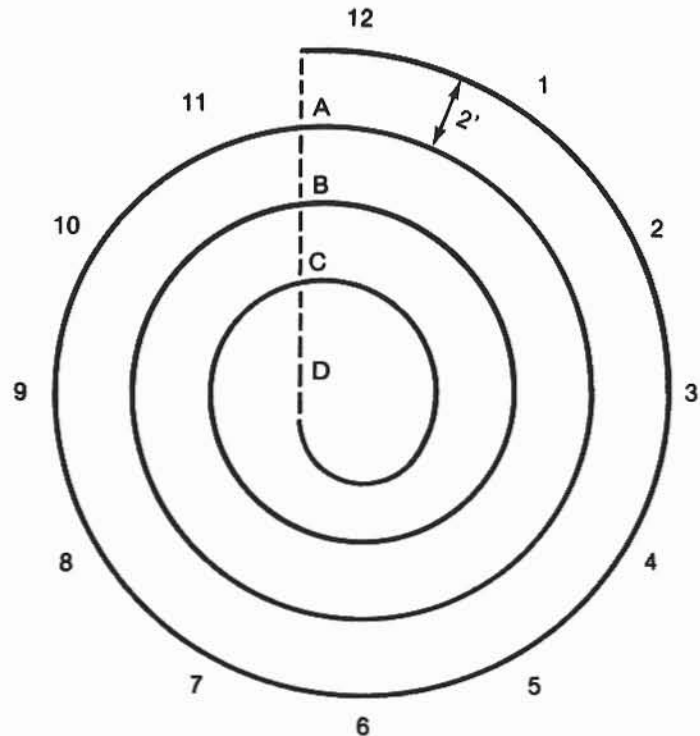
The dotted line shows where one ring ends and the next ring begins as the driver travels around the spiral.

### EXERCISE VIII – Right Spiral

**Purpose** – To develop a bicycle driver's right turning skill and balance.

**Task** – The driver should follow the spiral to the center without touching any lines.

**Scoring** – The score is taken from the distance reached at the point the first line is touched. For example: a score of C-9 would mean the driver touched his first line in Ring C at 9 o'clock.



## BICYCLE SKILL PROGRESS RECORD

NAME \_\_\_\_\_

Score each activity as indicated on each exercise description. Record only those scores that show a definite improvement. Note the date of improvement.

EXERCISE	SCORE	DATE	SCORE	DATE	SCORE	DATE	SCORE	DATE	SCORE	DATE
Balance ability	____ Min. ____ Sec.		____ Min. ____ Sec.		____ Min. ____ Sec.		____ Min. ____ Sec.		____ Min. ____ Sec.	
Speed coordination	____ Feet		____ Feet		____ Feet		____ Feet		____ Feet	
Decreasing serpentine	____ Pylons		____ Pylons		____ Pylons		____ Pylons		____ Pylons	
Slow speed coordination	____ Feet		____ Feet		____ Feet		____ Feet		____ Feet	
Decreasing space	____ Obstacles		____ Obstacles		____ Obstacles		____ Obstacles		____ Obstacles	
Right or left evasion	____ Feet		____ Feet		____ Feet		____ Feet		____ Feet	
Left spiral	____ Ring ____ O'clock		____ Ring ____ O'clock		____ Ring ____ O'clock		____ Ring ____ O'clock		____ Ring ____ O'clock	
Right spiral	____ Ring ____ O'clock		____ Ring ____ O'clock		____ Ring ____ O'clock		____ Ring ____ O'clock		____ Ring ____ O'clock	

# Bicycle Rodeo II

(Reprinted from the Connecticut Safety Commission's BICYCLE SAFETY—A COMMUNITY ACTION PROGRAM)

**List of Events**—The following outline is suggested as a guide for the arrangement of activities:

### Skill Tests

1. Changes in balance
2. Maneuvering
3. Obstacle
4. Emergency stop
5. Turning
6. Weaving
7. Balancing at slow speed

### Contests

1. Hitting the target
2. Coaster race
3. Slow race

### Awards

Recognition can stimulate interest in a bicycle safety program and provide an incentive for encouraging top performance. Trophies, certificates, or prize merchandise can be awarded as goals toward which contestants can strive. All contestants should receive some form of recognition. However, participation should not be mandatory for school age children.

### The Parade

One of the most exciting ways of kicking off the bicycle rodeo is a parade. A full dress parade is most effective, but if it is not practical, some "downtown" activity could be promoted to call attention to the event. A procession of brightly decorated cars with public officials, rodeo officials, sponsoring organization officials, a high school band, some of the contestants, other bike drivers, and plenty of placards advertising the rodeo and bicycle safety can be the nucleus of an attractive parade.

## SKILL TESTS

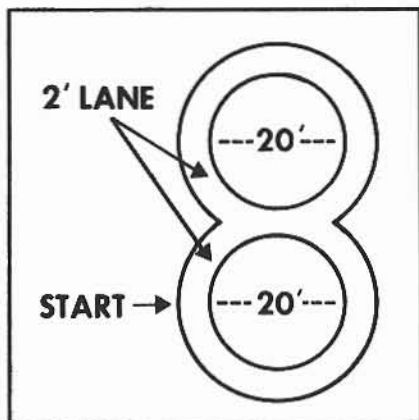
**Classifications**—The officials may decide to have two or more classifications based on age.

**Essential Factors**—There are many factors to remember in giving these skill tests:

1. Tests may be conducted on a success-failure basis, or on a point basis (i.e., 10 points minimum per event).
2. It is important to explain the tests to drivers before they start. The purpose, procedure, and method of timing should be fully outlined.
3. Drivers must use their own bicycles when performing tests.
4. Each participant should wear an identification number.

**Materials**—Powdered chalk or masking tape is needed to mark the course, and special materials should be provided to serve as obstacles in tests 3, 4 and 6. A stopwatch is used in test 7.

### Test I — Changes in Balance



**Purpose**—To test the driver's ability to change balance in order to change direction.

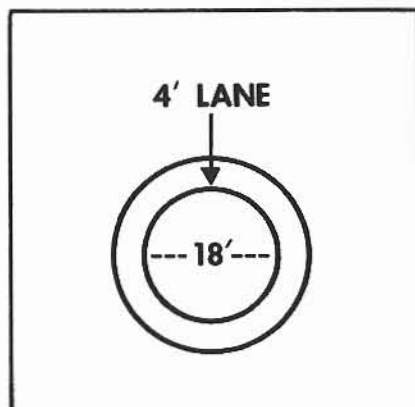
**Task**—The contestant drives three times (clockwise or counterclockwise) around a figure formed by two touching circles, each of which is 20 feet in diameter. The meeting point of the circle is where the rider changes his balance. He must change it at just the right instant to keep on the line of the circles. A two-foot lane is marked off with chalk around each circle.

**Scoring**—Ten points is the best possible score. Two points should be

deducted for each time the driver swings off the marked lane.

**Significance**—Traffic frequently demands that the driver change his direction, sometimes with little advance warning. In case of a sudden hazard, the bike driver must shift his balance and change direction.

### Test 2 — Maneuvering



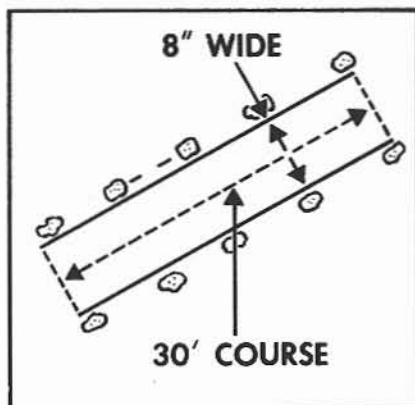
**Purpose**—To test balance in relation to momentum.

**Task**—The driver stays just inside a circular path, the inner circle of which is 18 feet in diameter, without crossing inner or outer circle or stopping. He makes five complete trips around the circle.

**Scoring**—Ten points is the best possible score. Two points are deducted for each time the driver crosses either line or stops.

**Significance**—The ability to drive in a curve in close proximity to some road obstacle should be part of the technique of a driver qualified to be in traffic.

### Test 3 — Obstacle



**Purpose**—To test poise and percep-



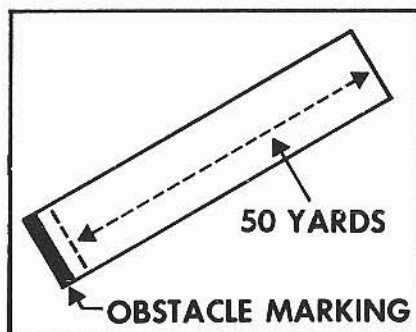
tual judgment in driving.

**Task** — The contestant drives 30 feet on a straight path eight inches wide and flanked at six-foot intervals on alternate sides with fist-sized stones. He must not touch the stones.

**Scoring** — Ten points is the best possible score. Two points are deducted each time the driver crosses over a side boundary or touches one of the obstacles.

**Significance** — Young drivers tend to watch obstacles in their paths, and consequently are apt to steer where they are looking. If they learn to focus their attention on the clear path, they will more likely avoid obstacles.

#### Test 4 — Controlled Stop



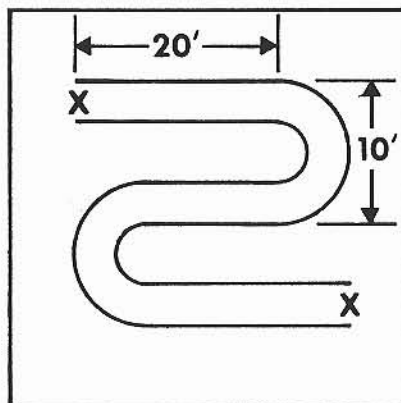
**Purpose** — To test visual reactions in relation to momentum.

**Task** — The contestant drives for a length of 50 yards directly toward a marked edge (not a solid wall), stopping one to two feet from it. The driver should remain where he stops until the judge can measure the distance between the obstacle and the front wheel of the bike.

**Scoring** — Ten points is the best possible score. One point is deducted for each 1/2 foot the driver stops from the obstacle in excess of two feet. Ten points are deducted if the driver touches or knocks over the obstacle.

**Significance** — This test is designed to show drivers what chance they have to stop their bikes before they collide with an obstruction. It also should help them to realize that the distance required to stop a bike varies according to speed.

#### Test 5 — Turning



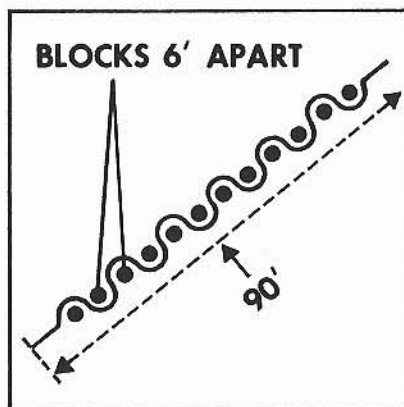
**Purpose** — To test the ability of the driver to turn the bicycle easily and smoothly within a limited area and to test his knowledge of proper arm signals.

**Task** — The contestant drives along the first side of the 20-foot lane and turns around clockwise. He then goes in the opposite direction, making the next turn in a counter-clockwise direction. The driver demonstrates a right-turn signal on the first turn and a left-turn signal on the second turn.

**Scoring** — Ten points is the best possible score. One point is deducted for each time the driver: (1) touches a foot to the ground, (2) does not signal or turn, (3) crosses either border line.

**Significance** — This test familiarizes the driver with the techniques involved in making sharp turns.

#### Test 6 — Weaving



**Purpose** — To test balance and perceptual judgment in driving.

**Task** — The contestant drives at normal speed, in a weaving fashion, through a series of 12 blocks set six feet apart in a straight line.

**Scoring** — Ten points is the best possible score. One point is deducted for each time the driver makes a wrong turn or touches a block.

**Significance** — This test will help drivers focus their attention on the clear path, rather than on the obstacles, and improves balance.

#### Test 7 — Balancing at Slow Speed

**Purpose** — To test balance while driving at slow speed.

**Task** — The contestant drives into a lane three feet wide and 60 feet long at slow speed.

**Scoring** — Ten points is the best score. One point is scored for every second over 20 seconds that the driver stays inside the lane. The watch is stopped when either of the driver's wheels leaves the chalked lane.

**Significance** — This test is designed to familiarize the driver with techniques involved in keeping his balance while pedaling in close quarters at slow speed.

### CONTESTS

**Classifications** — It may be necessary to have two or more classifications based on age.

**Essential Factors** — Following are several important factors to be considered in conducting these contests:

1. It is recommended that these contests be scored on a point basis.
2. The officials should carefully explain the contest to all participants before they start. The purpose, procedure, and scoring method should be fully outlined.
3. Participants must use their own bicycles when competing.
4. Each contestant should continue to wear the same identification numbers worn during the skill tests.

**Materials** — A powdered chalk is needed to mark the courses. Contest 1 requires about 10 plastic containers or similar receptacles and a sufficient

number of marbles or other small objects as outlined in the description of this contest.

**Personnel** — It's recommended that at least two judges be present at each contest to watch for any drivers who may go outside the boundary lines.

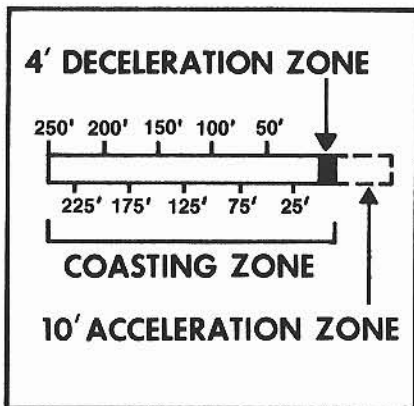
### Contest 1 — Hitting the Target

**Purpose:** To test skill and coordination.

**Task:** Five plastic containers or similar objects are placed in a row about 15 feet apart along a 75-foot course. It is suggested that the receptacles be half filled with sand or dirt. Each contestant is given five marbles, stones, or other small objects. He then drives outside a chalked line, dropping the objects, one at a time, into each can. If the driver stops during his run or goes over the chalked line, he is disqualified. (The judge should remove the objects dropped into the cans before another contestant takes the test.)

**Scoring:** Ten points is the best possible score. Two points should be awarded for each object the driver is able to drop into a can.

### Contest 2 — Coasting Race



**Purpose:** To test balance and poise while coasting.

**Task:** The contestant lines up his front wheel at rest on the starting line. On the command "Go" he pedals as fast as he possibly can for a distance of 10 feet, after which he enters a four-foot deceleration zone in which he must begin coasting; then the contestant enters a one-foot

wide coasting zone and coasts as far as possible up to 250 feet.

**Scoring:** Ten points is the best possible score. Points are scored on the basis of how far the contestant coasts without going out of the coasting zone lane. The following point system is suggested:

- 25 feet — 1 point
- 50 feet — 2 points
- 75 feet — 3 points
- 100 feet — 4 points
- 125 feet — 5 points
- 150 feet — 6 points
- 175 feet — 7 points
- 200 feet — 8 points
- 225 feet — 9 points
- 250 feet — 10 points

The distances listed above should be marked alongside the coasting zone lane to permit easy scoring. A driver's distance is recorded at the place where his wheels leave the zone or where he comes to a dead stop in the zone.

### Contest 3 — Slow Race

**Purpose:** To test balance and poise at the slowest possible speed with the bicycle in continuous motion.

**Task:** Five level, parallel lanes are set up. They should be 100 feet long and four feet wide, with about four feet of space between each lane. Five contestants compete at the same time, with a preliminary winner chosen from each group of five drivers.

**Scoring:** The last driver to cross the finish line is declared the winner in each preliminary race. If the contestant touches his foot to the ground, or either of his wheels crosses the boundary lines of the lane in which he is driving, he is then disqualified. Those drivers winning preliminary races are the only ones eligible to receive points in the final races. In the runoff race, the driver crossing the finish line first receives one point, the second driver crossing the finish line receives two points, etc. The last contestant to cross receives the highest number of points and is declared the winner.

### Suggested Score Sheet

**Instructions:** The contestant should give this score sheet to the judge before starting each test. After the test is completed, each judge will tally the score and return this sheet to the contestant. The judge of the last test will keep the sheet to compare with the other contestants' scores.

NAME OF CONTESTANT \_\_\_\_\_

#### SKILL TESTS:

1. Changes in Balance
2. Maneuvering
3. Obstacle
4. Emergency Stop
5. Turning
6. Weaving
7. Balancing at Slow Speed

	First Test	Second Test
1. Changes in Balance	___ points	___ points
2. Maneuvering	___ points	___ points
3. Obstacle	___ points	___ points
4. Emergency Stop	___ points	___ points
5. Turning	___ points	___ points
6. Weaving	___ points	___ points
7. Balancing at Slow Speed	___ points	___ points

#### CONTESTS:

1. Hitting the Target \_\_\_\_\_ points
2. Coasting Race \_\_\_\_\_ points
3. Slow Speed Contest \_\_\_\_\_ points
- TOTAL SCORE \_\_\_\_\_ points
- GRAND TOTAL \_\_\_\_\_ points

Signed \_\_\_\_\_

(Scorer)

## Chapter 12

# Bicycle Safety in Schools



We all know that bicycle safety education should begin in the home, but unfortunately when it does, it often consists of a series of no-no's—the parent telling the child “don't do this” and “don't do that.”

On the other hand, many parents do an excellent job of teaching their children the knowledge and skills necessary to be safe bicycle drivers.

In many cases the parent will be the only “bicycle safety teacher” the child will have throughout his lifetime. But this picture is changing, and there are now many organizations and institutions taking an active role in bicycle safety. One of the most influential is the schools.

The schools in the State of Indiana have two ready-made bicycle safety programs. They are the State Department of Public Instruction's K-6 TRAFFIC SAFETY EDUCATION CURRICULUM and the National Safety Council's ALL ABOUT BIKES program.

The K-6 TRAFFIC SAFETY EDUCATION CURRICULUM

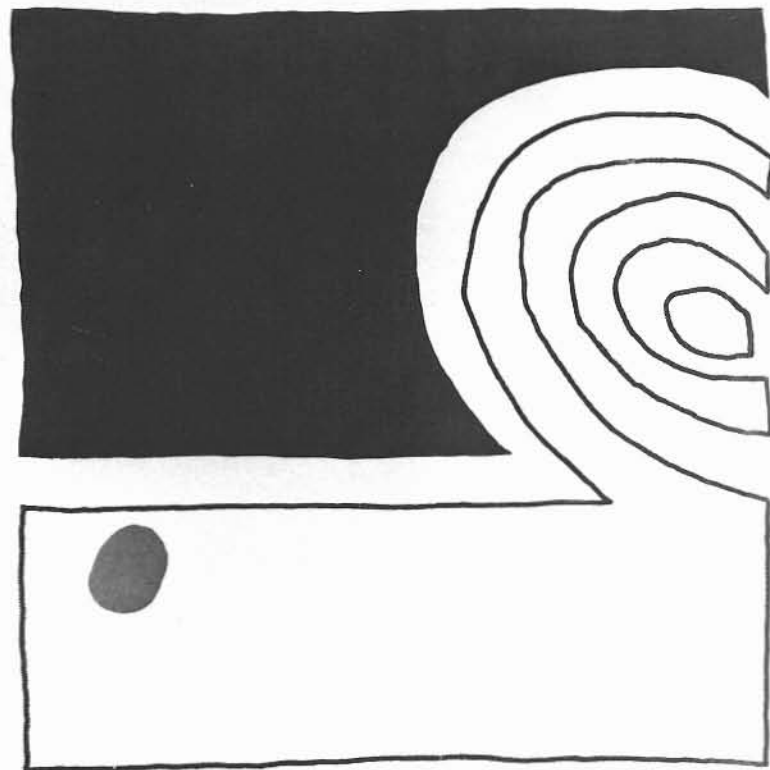
was developed by the State Department of Public Instruction with the help of teachers and administrators throughout the State. The curriculum is divided into 3 levels. Level I was written for kindergarten and first grade children, level II for second and third grade children, and level III for fourth through sixth graders. Within each level the publication is further sub-divided into four safety content areas, one of which is bicycle driving. Teachers can determine the needs of their students and select activi-

ties in levels above or below their students' actual grade.

Masters for reproduction are provided for the teacher to make transparencies or to duplicate a copy of the master for each of their students.

If you wish to secure a copy of this curriculum for your school, write:

Indiana State Department of  
Public Instruction  
Blue Cross-Blue Shield Bldg.  
120 W. Market St.  
Indianapolis, IN 46204  
The National Safety Council's



**k-6 elementary traffic safety education curriculum**

indiana state department of public instruction, harold h. negley, superintendent  
in conjunction with the national safety council

ALL ABOUT BIKES program is a total, self-contained teaching unit that provides for maximum flexibility and minimal preparation on the part of the instructor. It is based on the concept that a bicycle is a vehicle—not just a toy—and that cyclists are not just passive “riders,” but active, responsible drivers.

It emphasizes the child’s decision-making capacity and is suitable for the needs and abilities of many different children in many different settings. The program does not restrict itself to a classroom situation, but incorporates the use of visuals, dramatization, and field experience. In this way the child is able to immediately practice what has just been taught.

Here are the program components:

**TEACHING GUIDE** containing 6 instructional units in a convenient loose-leaf binder.

**ARTWORK PACKET** with 56 printed originals for direct use or for reproduction as transparencies and duplicating stencils.

**CASE FILE CARDS** of 36 case histories involving bicy-

cle incidents for role playing to situation analysis.

**THE STUDENT ACTIVITY BOOK**, available in both basic and advanced versions.

The teaching guide is developed in outline form, allowing the instructor to be selective in structuring the program, keeping in mind the interest level of the students and the time available. The guide also gives two parallel presentations of the materials—one basic and one advanced. It is a multigrade program serving all elementary levels.

Similarly, the student activity book comes in two corresponding versions: a basic edition geared to grades 2 through 4, and an advanced edition for grades 5 through 8, where more abstract concepts may be introduced.

The average time for the program is six hours, but the time is also flexible and can be adjusted to meet the instructor’s and student’s needs.

For more information and prices write:

National Safety Council  
444 N. Michigan Ave.  
Chicago, IL 60611

In addition to bicycle safety instruction, schools also have a re-

sponsibility for control of bicycles on and around the school grounds. One of the most frequent decisions to be made is whether or not the students should be permitted to drive their bikes to schools. Establishing an over-all policy for the entire district is usually not feasible, since conditions vary so widely from school to school. However, the board of education should have a policy statement that permits the individual school to establish its own regulations—with equal voice being given to parents, instructors, administrative and custodial staff, police officials, and traffic engineers. The safety and well-being of the students should be the criteria by which the group makes its decision.

If the group decides to permit bike driving to and from school, then regulations must be established and enforced. The regulations should specify under what conditions driving permission will be granted: age, distance from school, traffic conditions, etc. Regulations should also establish violations that could result in revocation of the driving privilege: driving two on a bike, traffic violations, reckless behavior, etc. A procedure for reporting and processing violations should also be established. A student court can be an effective means for enforcing bicycle regulations while at the same time teaching fundamental concepts of our jury and legal system.

In these schools that permit bikes, provision must be made for temporary and overnight storage. Bike racks must be provided, kept in good repair, and properly used. The racks must be strategically placed so their use doesn’t create problems with vehicular or pedestrian traffic. Furthermore, racks should be lighted at night to offer protection for cyclists who have to leave their bikes overnight because of bad weather or other emergency conditions.

The National Safety Council  
presents

# ALL ABOUT BIKES

A BICYCLE SAFETY PROGRAM





## Non-School Group Programs

Presently, there are three national bicycle safety programs for non-school groups. They are the National 4-H Bicycle Safety Program, the Cub Scouts Program, and the National Safety Council's Bicycle Youth Instructor's Seminars. All three are used in the State of Indiana.

### National 4-H Bicycle Safety Program

"Fun on Wheels" is the theme of the extensive 4-H Bicycle Safety Program. The aim is to begin with 4-H members, and through them reach younger children, so that greater safety-consciousness can be generated among all bike drivers.

The program is divided into three units. Each unit may be a year's program, or they may be covered consecutively in an accelerated program. The units are designed to cover 8 to 12 meetings or lessons.

The three units cover the uses of the bicycle, type of bikes, proper fit, care, maintenance, and minor repairs. Safe driving, basic traffic laws and signs, games and skill tests, personalizing and customizing bikes, planning and taking a bike trip, and serving the community are emphasized.

The awards program provides up to four medals of honor in each county. Junior and teen leaders in the program submit records for educational scholarships, trip awards and U.S. Savings Bonds.

### Cub Scout Program

The Cub Scouts conduct five sessions in a month-long bicycle training program during April or May. The program encompasses



bicycle maintenance, safe driving, traffic signs, and the rules of the road. Each den meeting includes both instruction and practice in skills. During the month a bicycle clinic is held, with the leaders inspecting the Cubs' bicycles. The program is climaxed by a bike rodeo where the Cub Scouts show their skills and compete in bicycle driving contests and safety tests.

Three recognition incentives are awarded: a special mold for the Cub Scout's necktie to show that he participated in den and pack bicycle safety activities, a safe bicycle decal to be placed on all bicycles that pass the safety inspection at the bike clinic, and a recognition award for the pack for participating in the program.

### Bicycle Youth Instructor's Seminars

ALL ABOUT BIKES, a comprehensive six-hour course, was originally designed as a school program, but because of its proven flexibility, there have been

many adaptations.

To meet the demand for bicycle safety programs, the National Safety Council designed the Bicycle Youth Instructor's Seminar Program. The goal of the program is to provide a cadre of youth and young adults capable of teaching programs in their communities.

The Bicycle Youth Instructor's Seminar consists of a 15-hour course, with five hours devoted to presenting the ALL ABOUT BIKES Program, the 4-H Program and the Cub Scout Program. Maintenance-repair and skill driving contests each take up two hours. The remaining time is spent with four hours for student teaching and a final two-hour rap session. Upon completion of the course the student receives a certificate designating him as a National Safety Council certified bicycle safety instructor.

When he has successfully taught two courses, he becomes eligible to register with the National Safety Council as an instructor trainer.

## Community Safety Programs

Voluntary organizations—service clubs, fraternal organizations, women and youth groups, church groups, PTA's—can be the key to the success of a community bike program.

Members of a voluntary organization know who is active in their area, their concerns, and the work they do. They also know their leaders and can team up with them on projects of community-wide significance.

A complete, comprehensive community bike program involves a number of considerations: school education, public education, police supervision, bicycle inspection and registration, parking, security, laws and ordinances, and provision of safe places to drive. A voluntary organization can be effective in the areas of public education, getting programs into the schools and rounding up public support for official action to improve the bicycling environment.

Why should an organization pitch in on bike safety?

Most members of voluntary groups are parents, grandparents or friends of bike-driving young people. Most probably ride bicycles themselves for fun, exercise, or transportation. Therefore, they have a personal stake in what can be done to improve bicycle safety and pleasure in the community.

They should get involved because the bicycle accident problem threatens the people of the community. Most bicycle accidents can be prevented, and the biking environment improved, by the action of public and school officials, voluntary organizations, parents, motorists and, of course, young people.

Finally, most people like to be known as good citizens concerned about the quality of their community and welfare of their fellow citizens. The same is true of community organizations.

### Steps in Building a Community Bike Safety Activity

1. Identify the problem:
  - Study accident information.
  - Survey local people (parents, children, teachers, officials) to learn about their knowledge and attitudes.
  - Survey the bicycle driving environment in the community, noting correctable hazards and lack of safe driving places.
  - Observe the behavior of bike drivers.
2. Find out where you can fit in:
  - What is being done about the problem by others?
  - What aspect of the problem interests you and your group?
  - Who and what resources are available?
3. Determine what you want to accomplish. Set specific goals. For example:
  - Obtain official action on ordinances, inspection, security, bike trails and correction of bike safety hazards.
  - Purchase educational materials for schools and local programs.
  - Educate the general public in order to change the behavior of bicycle drivers and motorists, and to gain citizen support for official actions.
  - Become directly involved in changing the individual behavior of bicycle drivers by promoting programs such as

"All About Bikes," National 4-H Bicycle Safety Program, Cub Scouts Bicycle Program, or the National Safety Council's Youth Safety Instructor's Seminars, as well as sponsoring skilled driver contests and other activities involving bicycle driver participation.

4. Design activities needed to accomplish your goal:
  - Identify who you must reach and what you want done.
  - Find out who can help you reach target people.
  - Set up lines of communications to target people.
  - Determine needed resources.
  - List necessary activities to make best use of available resources.
  - Set up a timetable.
5. Carry out planned activities:
  - Check to make sure everything is ready to go.
  - Use all available communication tools in information programs, such as talks, meetings, personal contacts, radio, TV, newspapers, company publications, farm publications, church bulletins, etc.
6. Evaluate:
  - Did the activities go off as planned?
  - How did the community or target people respond?
  - Did your efforts result in changing attitudes and behaviors, improvements in the bicycling environment, official action, fewer accidents, or your anticipated goal?

### What's The Problem?

One reason why many local safety programs fail is because the nature and extent of the accident problem in that particular



community is not understood or accurately stated. National and state accident statistics are useful to give the general scope of a problem, but the main thing local leaders and citizens want to know is "what's wrong around here?"

Before approaching his own group and other organizations to organize a bike safety activity, the individual should assemble some facts about the bicycle accident situation and hazardous conditions or practices in the community. Before going to the public, the group should have enough facts in hand to convince people that there is a problem or potential problem that could harm them, and that something must be done about it.

A little searching should reveal the bicycle accident experience in the community. Information sources include traffic officials, police, schools, parent organizations, medical people, bike dealers, and youth leaders. Newspaper files in smaller communities may also be a good source of bike accident information.

It's important that accident information be gathered about the population subject to risk at the local level, and that an accurate definition of the problem be set forth in order to select the best possible solution. The more a group knows about the whole bike safety problem in its area, the better equipped it is to get public support and action.

Also important to a bike program is an understanding of the bicycling environment and the level of bike safety knowledge and driving practices in the community. Such information will help to determine what needs to be done and where to place program emphasis.

Surveying the bicycling environment includes a look at the physical features of the area where bikes are used—the roads, streets, hills, play-grounds, parks, etc. Are there safer places to drive? Are there special bike

lanes on streets or bike trails separate from motor vehicle traffic? Where are the accident trouble spots—the bad intersections, steep hills? Visits to the sites of serious bike accidents may reveal conditions in the biking environment that could be improved. Group action could help get the conditions improved.

One way to get information on driving practices, types of bike games played, and levels of bicycle safety knowledge is through questionnaires. This might be done in cooperation with schools, PTA's, churches, local youth organizations and clubs. Also, a booth featuring an educational display, handout materials and a questionnaire might be set up at the county fair, football games, and other community events.

Another way to estimate driving practices and safety knowledge is by direct observation. Teams can be assigned to watch various locations where bikes are driven. Driver behavior, driving errors, dangerous games, horse-play, lack of skill, and poorly fitted bikes should be noted. Unsafe practices that show up frequently could be tagged for special attention in the program.

And the group shouldn't forget about motor vehicle operators. It should look into their attitudes toward bicyclists and traffic ordinances, as well as their behavior behind the wheel.

Past bike safety efforts and current efforts by schools and other organizations should be evaluated and an estimate made of their impact. The group should try to assess through surveys how much people know about bike safety and the accident problem. What are their attitudes, concerns, and feelings? Do they want improved law enforcement and a safer biking environment, or are they generally apathetic? Would they support school bike safety programs and official actions in this direction? This assessment will help in two ways: The group will

know what needs doing, and will also have a baseline to measure the effectiveness of its bike safety activities.

### **Which Way Shall We Go?**

Organizational support in a community bike program can take several forms. And it is important for a group to establish what it wants to do in line with its own interests, resources, and expertise. A top service club, for example, with a membership that includes many leading citizens, might be influential in getting official action, cooperation from the editors and broadcasters in a public information program, or in providing man power for bike inspection programs and skilled drivers contests. A women's club would have a special "in" with parents; PTA could work closely with school officials; a youth group could directly involve the young bicycle drivers.

A group may wish to concentrate on motor vehicle operators—encouraging them to watch out for cyclists, slow down near schools and playgrounds, and give bicycle drivers every chance.

Another group may wish to appeal to the parents—to spell out their role, to give them information on bicycle safety, to encourage them to have their children participate in bike safety programs, or to win their backing for needed official actions.

One group might go directly to the bicycle drivers themselves by improving their biking performance through sponsorship of rodeos, training classes, safety demonstrations, bike hikes, or special inspection and registration days.

Or another group may be interested in working with public or school officials for needed ordinances or stricter law enforcement, bicycle inspection, parking facilities, bike lanes or trails, and more recreation areas where bikes could be safely driven.

## Chapter 15

# Bicycle Clubs

With the dramatic growth of cycling in recent years, many special interests have developed among cyclists—cycling for recreation, for transportation, to keep fit, to explore nature and new places, and just for fun and companionship.

At the same time, bicycle clubs have also grown phenomenally, and their reasons for existence are as varied as the reasons for cycling.

### How To Start A Club

If the club is to be sponsored by a school, it will need a competent, enthusiastic advisor. In the community, interested individuals are needed to get things started. Then there are national organizations, such as the 4-H, League of American Wheelmen, American Youth Hostels, and a variety of youth organizations eager to get involved in the organization of a bicycle club. In addition, the local park department may already have a program or will offer assistance in starting a bicycle program.

The first step in organizing a bicycle club is to hold a meeting, inviting anyone who might be interested in joining.

First, the purpose of the club must be determined. Is it for recreation? Touring? Racing? All three? The public should know the purpose when the first meeting is announced, so no time is wasted explaining it to those cyclists who have other interests.

In schools the public address system, bulletin boards, and posters can be used to announce the time and place of the meeting. However, it's a little harder if it's a community affair.

In many cities the local radio or



TV stations are glad to make public service announcements. The schools, churches, civic groups, and youth organizations are good places to get the message heard. Also, well-placed posters can draw attention and bring interested people to the first meeting. And, of course, word of mouth among known cyclists will help spark interest.

As soon as the group is organized, the club will need a name. A name may not seem important, but it is—it gives the group identity. It's a good idea to have a contest and let the group vote on the final name.

The club also needs to determine its objectives. Three important aims that should be included with the others the group decides on are:

- 1) Bringing together people with a common interest.
- 2) Planning of events—hikes, tours, races, etc.
- 3) Providing for safe cycling through:
  - a. Periodic inspection.
  - b. Minor maintenance instruction.
  - c. Up-to-date information on laws.
  - d. Improvement of driving skills.

The bicycle club might also consider broader objectives that will benefit the community, as well as contribute to safer cycling. For example, the members might study existing legislation. Is it sufficient? Is it enforced? Is there a local ordinance? Is it valid? Does it meet the community's needs? Projects to lend support to the local authorities can be developed from looking into these questions.

A bicycle club can be a positive force in encouraging legislation and the enforcement of legislation. In addition, many bicycle clubs have been responsible for establishing bicycle paths and routes in their communities.

Once the club has been organized, the group will need to consider additional points, such as: membership requirements, dues, officers, committees, elections, and by-laws. The Bicycle Manufacturers Association of America, Inc., has published an excellent free booklet, "Bicycle Clubs—How to Organize and Enjoy Them," which gives complete details. Their address: 1101 15th St., N.W., Washington, D.C. 20005.

Affiliation with national organizations (League of American Wheelmen, American Youth Hostels) will keep the club advised on national problems, programs, legislation, meetings, etc., and will provide assistance with tours and other matters pertaining to club organization and activities. Information is available by writing to: League of American Wheelmen, 19 S. Bothwell, Palatine, IL 60067; and American Youth Hostels, 20 West 17th St., New York, NY 10011.

# Model Bicycle Ordinances

A municipal bicycle ordinance is the basis for the community's registration, inspection, and licensing program. It gives the local officials and police department the legal authority needed

to enforce the laws, to impound bicycles, and to suspend or revoke licenses.

To guide communities in designing their own bicycle ordinances, two ordinances are pre-

sented in this chapter.

The first is a model ordinance developed by the Bicycle Manufacturers Association of America, Inc. The other is in use in the city of Des Plaines, Illinois.

## Model Ordinance\*

### Section 1 – Registration of Bicycles

It is hereby ordained by the \_\_\_\_\_ of the \_\_\_\_\_ of \_\_\_\_\_

Section 1. (a) It shall be unlawful for any person residing in the \_\_\_\_\_ of \_\_\_\_\_ to drive or use a bicycle without first obtaining from the police department a license therefore as prescribed in Section 1 of this ordinance.

(b) No person, firm, partnership or corporation shall maintain, operate or conduct a business of buying or selling new or secondhand bicycles within the limits of the \_\_\_\_\_ of \_\_\_\_\_ without first obtaining therefore a license from the police department as prescribed in Section 9 sub-division (b) of this ordinance.

(c) From and after the passage of this ordinance it shall be unlawful for any person, firm, partnership or corporation to maintain, operate or conduct a bicycle renting agency within the limits of the \_\_\_\_\_ of \_\_\_\_\_ without first obtaining a license from the police department as herein prescribed for in Section 9 of this ordinance.

### Section 2 – Issuance of License

Section 2. The police department is hereby authorized and directed to issue upon written application, to residents of the \_\_\_\_\_ of \_\_\_\_\_ bicycle licenses that shall be effective for one year, and all licenses shall be dated \_\_\_\_\_ of the year of issue, which license when issued, shall entitle the licensee to operate such bicycle or bicycles for which said license shall have been issued upon all the streets and public highways of the \_\_\_\_\_ of \_\_\_\_\_ and upon the sidewalks of any streets or highways where riding is permitted by the police department.

### Section 3 – License Plates

Section 3. The police department shall provide each year a license plate (or tag or decal), together with registration certificate cards stamped in numerical order beginning with the number one; and shall indicate the year for which they were issued and letters indicating that they were issued by the \_\_\_\_\_ of \_\_\_\_\_. The license shall be suitable for attachment to the bicycle at a location where it will always be plainly visible, and it shall also be the duty of the police department to attach the license to the bicycle, or supervise its attachment in such manner as will prevent removal. The police department shall also provide and issue a registration card – with numbers corresponding with the numbers on the license.

\*Reprinted with permission of the Bicycle Manufacturers Association of America, Inc.

The issuance of the registration card and license to the licensee shall be after the collection of the registration fee for the license as provided for in sub-division (c) of Section 9. Funds collected by the police department for the licenses provided for in this ordinance shall be returned by the police department as collected and under conditions to be determined by the treasurer of the registration fund. The license shall remain attached to the bicycle during the valid term of such license. The police department shall keep a record of the date of issue of each license.

#### **Section 4 – Dealers and Rental Agencies**

Section 4. All persons, firms, partnerships or corporations engaged in the business of buying or selling new or secondhand bicycles are hereby required to make regular reports to the police department on forms to be furnished by the police department, giving a list of all purchases and sales made by said dealer, as well as the name and address of all persons, firms, partnerships and corporations from whom said bicycles are purchased and to whom sold, a description of each bicycle purchased or sold and the serial number thereof, and in the case of a secondhand bicycle bought from an individual or taken in trade from a person buying a new bicycle, or a secondhand bicycle taken from a dealer's stock, the number of the license thereon if any.

#### **Section 5 – Transfer of License**

Section 5. It shall be the duty of any person who sells or transfers ownership of any bicycle to report such sale or transfer by returning to the police department the registration card issued to such person as license thereof, together with the name of the person and his or her address to whom the bicycle was sold or transferred, and such report shall be made within two days of the date of sale or transfer thereof. It shall be the duty of the person who made the purchase or the transferee of said bicycle to apply to the police department for registration thereof within two days of the date of said sale or transfer.

#### **Section 6 – Altering License**

Section 6. It shall be unlawful for any person, firm, partnership or corporation to willfully, maliciously remove, destroy, mutilate or alter the number of any bicycle frame licensed pursuant to this ordinance. It shall also be unlawful for any person, firm, partnership or corporation to remove, destroy, mutilate or alter any license plate, seal or registration card during the time in which said license plate, seal or registration card is operative, provided, however, that nothing in this ordinance shall prohibit the police department from stamping on the frame of bicycles on which no serial number can be found or on which said number is illegible for identification purposes. The police department may also stamp upon the frame of any bicycle registered a number which shall be the secret number of the police department, if so required, in the administration of this ordinance to prevent bicycle larceny and recover stolen bikes.

#### **Section 7 – Rental Practices**

Section 7. No person, firm, partnership or corporation engaged in the business of renting bicycles for hire shall rent a bicycle to a minor unless the written consent of the parents or guardian is provided. The renting agency must keep the written consent on file for police inspection.

#### **Section 8 – Conditions of License**

Section 8. The following rules and regulations shall be observed in the operation of a bicycle on the streets and public places of \_\_\_\_\_:

- (a) Every person operating a bicycle shall at all times operate said bicycle with due regard for the safety of other persons and vehicles lawfully upon the streets, highways, parkways and public places, as well as for his own or her safety, and shall at all times and under all conditions yield the right-of-way to pedestrians on the streets, highways, parkways, public places and on the crosswalks.
- (b) Every person operating a bicycle shall comply with all the vehicle traffic laws, except where such laws, by their nature, do not apply to bicycles, and all vehicle traffic signs and signals erected for the regulation of traffic.
- (c) It shall be unlawful for any person to operate a bicycle upon the streets, highways,



parkways and public places of the \_\_\_\_\_ of \_\_\_\_\_ during the period of one hour after sunset to one hour before sunrise unless such bicycle is equipped with a front light, casting a beam of white light in front of such bicycle visible for not less than five hundred feet, also a rear signal, i.e., a state-approved reflector or red light visible for not less than three hundred feet.

(d) It shall be unlawful to operate a bicycle upon the streets, highways, parkways and public places of the \_\_\_\_\_ of \_\_\_\_\_ that is not equipped with adequate brakes, lights and warning signal, all of which are in proper working order during all of the time of the operation of such bicycle that has the approval and has passed police inspection.

(e) It shall be the duty of all persons operating a bicycle to drive single file, in a straight line and as near the right-hand curb as possible, on all main highways and thoroughfares and in central business sections and when driving on other streets must not drive more than two abreast.

(f) Before turning or changing the direction of any bicycle upon any street, highway, parkway or public place, it shall be the duty of the bicycle driver to give a signal by the extension of the hand to indicate the direction it is the intention to proceed.

(g) It shall be unlawful for any person operating a bicycle upon any street, highway, parkway or public place to attach himself or herself to any other moving vehicle.

(h) It shall be unlawful for any person operating a bicycle equipped for carrying only the driver to carry another person on the front or rear frame or handle bar of a bicycle.

(i) It shall be unlawful for any person operating a bicycle to engage in fancy or trick driving without maintaining full control of such bicycle, and keeping both hands on the handle bar except when necessary to signal.

### **Section 9—Issuance of License**

Section 9. The following fees shall be collected by the police department for the various types of licenses provided under this ordinance:

(a) The license fee to be paid for each bicycle shall be \_\_\_\_\_ for the first year or any part of the first year for which such license shall be issued, it being understood that all licenses issued under this ordinance expire on the last day of the month of \_\_\_\_\_, unless that date shall happen on a Sunday in which event the license shall be dated on the first following legal date. In the case where the transfer of bicycle ownership is made in the manner prescribed in this ordinance, the fee for the transfer of said license shall be in the sum of \_\_\_\_\_. Upon the loss of a license and upon evidence satisfactory of said loss, a new license shall be issued upon payment of \_\_\_\_\_.

(b) Each person, firm, partnership or corporation engaged in the business of buying and selling new and secondhand bicycles shall be required to have a license issued by the police department. Said license shall be effective for one year. Any person, firm, partnership or corporation engaged in the business of renting bicycles for public hire shall procure a license for their bicycle rental agency.

(c) Each person, firm, partnership or corporation engaged in the business of renting bicycles for public hire, in addition to the license fee prescribed for each bicycle, as provided for in sub-division (a) of this ordinance, shall be required to have a license to operate a bicycle rental agency. All bicycles owned by said agency offered for public hire shall be registered in the name of said agency, but a record of the name, address and age of such person hiring a bicycle shall be kept on file for the inspection of the police department. License plates and registration cards issued to a bicycle rental agency shall contain the letters "RA" indicating they are issued to a bicycle rental agency.

### **Section 10—Penalty**

Section 10. Any person, sixteen years of age and under, who violates any of the provisions of this ordinance relating to the vehicle traffic laws or the bicycle safe driving rules and regulations and the official police instructions for the safe operation of a bicycle, shall be, for the first offense, reprimanded in writing by the police department, addressed to the parents or guardian of the offender, stating the nature of the violation and a warning that a repetition of the violation—or any other violation—must be prevented by the parents or guardian or the offender's registration certificate will be suspended for a period of time at the discretion of the police department and during that period of time the offender cannot drive his or her bicycle on the streets. On the

second offense the offender will be summoned to appear at police headquarters with his or her bicycle, accompanied by a parent or guardian, and after a hearing on the violation, if in the discretion of the chief of police, or his representative, it is decided to punish the offender for the violation, the offender's bicycle may be impounded for a period of time not to exceed \_\_\_\_\_ days at the discretion of the chief of police or his representative— with the approval if possible of the parent or guardian— but the decision of the chief of police shall prevail and the bicycle shall be impounded. It is ordained that no violation of this ordinance, relating to the vehicle traffic laws or the safe bicycle driving rules and the official police instructions for the safe operation of a bicycle, as prescribed in Section 8 of this ordinance, shall be considered a criminal offense or made a matter of a court record where the offender is sixteen years of age or under. Any person over sixteen years of age or firm or partnership violating any of the provisions of this ordinance shall, upon conviction thereof, in addition to the suspension or revocation of such license as herein mentioned, be punished by the payment of a fine not to exceed \_\_\_\_\_ dollars, or by imprisonment for a term not to exceed days/months or both fine and imprisonment; and any corporation violating any of the provisions of this ordinance, upon conviction thereof, will be subject to a fine not to exceed \_\_\_\_\_ dollars which may be recovered by an action for debt.

### **Section 11—Inspection**

Section 11. The chief of police, or his designated representatives, shall inspect each bicycle offered for registration and shall also examine the driving qualifications of the applicant as to his or her knowledge of the vehicle traffic laws of the state applying to bicycles, traffic signs and signals, as set forth in Section 8 of this ordinance, and if the applicant's riding qualifications, knowledge of the vehicle laws of the state applying to bicycles, and the bicycle safe driving rules and regulations and the official police instructions for the safe operation of a bicycle are not satisfactory, or the bicycle is not in good drivable condition and properly equipped as provided for in this ordinance, registration of the applicant's bicycle must not be issued until all requirements are fulfilled.

### **Section 12—Qualifications of Dealers**

Section 12. In the matter of the issuance of business licenses for the dealers in secondhand bicycles and the conduct and operation of a bicycle rental agency, the chief of police must be satisfied that applicants for such licenses are of good character and financially responsible.

### **Section 13—Impounding**

Section 13. Whenever any bicycle shall be impounded for violations of the provisions of this ordinance it shall be surrendered at the expiration of the impounded period to the parents or the guardian of the offender on the payment of a charge for storage, at the discretion of the chief of police, but if a charge is made it shall not exceed \_\_\_\_\_ cents/dollars. In the case of the seizure of a bicycle because it has been found in the possession of a person, firm, partnership or corporation not the legal owner thereof, and the bicycle is not reclaimed by the legal owner thereof, it shall be sold at public auction— after the expiration of \_\_\_\_\_ days from the date of seizure. Notice containing a description of the bicycle shall be published in a newspaper circulating in the \_\_\_\_\_ of \_\_\_\_\_ at least one week prior to the date of the sale. The proceeds of the sale shall be remitted to the treasurer of the registration fund.

### **Section 14—Definition of Bicycle**

Section 14. The term "Bicycle" as used in this ordinance shall mean a device having two wheels, with tires sixteen inches or more in diameter, connected by a frame of metal or wood and arranged to be propelled by human power. This definition does not apply to toy bicycles or velocipedes.

As time progresses, portions of this Ordinance may be supplanted by recommendations included in the Uniform Vehicle Code.

## Des Plaines, Illinois, Bicycle Ordinance

10-12-1 LICENSE REQUIRED: No person who resides within the City shall drive or propel a bicycle on any street or upon any public path for the use of bicycles, unless such bicycle has been licensed and a license is attached thereto as provided herein.

10-12-2 LICENSING OF BICYCLES: (A) The parent or guardian of any child below the age of fourteen (14) owning or operating a bicycle, shall obtain a permanent license for each bicycle. Any person fourteen (14) years of age or over owning a bicycle shall himself obtain a permanent license for each bicycle. Such licenses are not transferable. (B) Licenses shall be obtained from the Police Department. Licenses shall be provided free of charge. (C) Loss of a license or bicycle with license attached shall be reported immediately to the Police Department.

10-12-3 ISSUANCE OF LICENSE: The Chief of Police or someone designated by him shall issue a license to the owner of the bicycle if the bicycle meets the requirements of this Chapter.

10-12-4 REGISTRATION FILE: The Police Department shall keep on file a list of registrations for official use. The license application shall include name of owner, address, telephone number, make of bicycle, type, size, color and manufacturer's serial number, if any.

10-12-5 ATTACHMENT OF LICENSE: (A) The person designated to issue licenses shall issue a bicycle license upon presentation of a properly executed application as stated above. The license shall contain the number assigned to the bicycle and the name of the City. (B) The Chief of Police shall cause such license to be firmly attached to the rear mudguard or frame of the bicycle for which issued in such position as to be plainly visible from the rear. (C) No person shall remove a license from a bicycle during the period for which issued, except upon a transfer of ownership or in the event the bicycle is dismantled or no longer operated upon any street in the City, or when removed by Police Order.

10-12-6 TRANSFER OF OWNERSHIP: Upon the sale or other transfer of a licensed bicycle, the licensee shall remove the license.

10-12-7 RENTAL AGENCIES: A rental agency shall not rent or offer any bicycle for rent within the City, unless the bicycle is licensed and a license is attached thereto as provided herein, and such bicycle is equipped with lamps and other equipment required in this Chapter.

10-12-8 TRAFFIC LAWS APPLY: Every person driving a bicycle upon a roadway or public path shall be subject to the provisions of the traffic laws of the City applicable to the operation of a vehicle, except as to special regulations in this Chapter and except to those provisions of the traffic laws which by their nature can have no application.

10-12-9 OBEDIENCE TO TRAFFIC CONTROL DEVICES: (A) Any person driving a bicycle shall obey the instructions of official traffic signals, signs and other control devices applicable to vehicles, unless otherwise directed by a police officer. (B) Whenever authorized signs are erected indicating that no right or left or "U" turn is permitted, no person driving a bicycle shall disobey the direction of any such sign except where such person dismounts from the bicycle to make such turn, in which event the person shall obey the regulations applicable to pedestrians.

10-12-10 OPERATING BICYCLES: A person operating a bicycle shall not drive other than upon or astride the permanent and regular seat attached thereto. A seat designed for carriage of an infant, properly manufactured and installed over the rear fender may be used, provided there is a safety belt around said infant while driving the bicycle.

10-12-11 SPEED: No person shall operate a bicycle at a speed greater than is reasonable and prudent under the conditions then existing.

10-12-12 DRIVING ON RIGHT: Every person driving a bicycle upon a roadway shall drive as near to the right hand side of the roadway as practicable, exercising due care when passing a standing vehicle or one proceeding in the same direction.

10-12-13 **EMERGING FROM ALLEY OR DRIVEWAY:** The operator of a bicycle emerging from an alley, driveway or building shall, upon approaching a sidewalk or the sidewalk area extending across any alleyway, yield the right-of-way to all pedestrians approaching on said sidewalk or sidewalk area and upon entering the roadway shall yield the right-of-way to all vehicles approaching on the roadway close enough to constitute a hazard.

10-12-14 **CLINGING TO VEHICLES:** No person operating a bicycle shall attach the same or himself to any vehicle upon a public roadway or public path.

10-12-15 **OPERATING IN A GROUP:** Persons operating bicycles upon a roadway shall drive in single file except on paths or parts of roadways set aside for the exclusive use of bicycles.

10-12-16 **PRUDENT OPERATION:** No person operating a bicycle shall carry any package, bundle or article which prevents the operator from safe normal operation of the bicycle. Driving a bicycle on a public roadway or path with no hands on the handle bars is specifically prohibited.

10-12-17 **PARKING:** No person shall park a bicycle so it will interfere with normal flow of pedestrian traffic, vehicular parking or vehicular flow of traffic.

10-12-18 **RIDING ON SIDEWALKS:** (A) The Chief of Police is authorized to erect signs on any sidewalks or roadway prohibiting the operation of bicycles thereon by any persons and, when such signs are in place, no person shall disobey same. (B) Whenever any person is driving a bicycle upon a sidewalk, such person shall yield the right-of-way to any pedestrian and shall give audible signal before overtaking and passing such pedestrian.

10-12-19 **LIGHTS:** It shall be unlawful to operate a bicycle on any street or sidewalk during the period from one-half ( $\frac{1}{2}$ ) hour after sunset to sunrise, which bicycle is not equipped with at least one (1) lighted lamp firmly secured to the front mudguard or handlebars of the bicycle, showing a white light visible at least five hundred feet (500') in the direction toward which the bicycle is proceeding and at least one (1) lighted lamp showing a red light in the opposite direction. In lieu of such rear lighted red lamp, a red reflector glass button, not less than one and one-half inches ( $1\frac{1}{2}$ " in diameter or not less than four square inches (4 sq.) of red reflecting tape may be mounted securely on the rear mudguard, or lacing a mudguard on the rear of the saddle.

10-12-20 **SIGNALLING DEVICES:** It shall be unlawful to operate a bicycle on any street, sidewalk or other public place, when bicycle is not equipped with a mechanical or electrical signalling device in good working order and audible at a distance of not less than twenty-five feet (25') when sounded, except that no bicycle may be equipped with or make use of any gong, siren or mechanical whistle.

10-12-21 **BRAKES:** Every bicycle shall be equipped with a brake adequate to control the movement of and to stop such bicycle whenever necessary. The brake shall be maintained in good working order at all times.

10-12-22 **GENERAL BICYCLE CONDITION:** No bicycle shall be operated where its mechanical condition shall impair the safe operation of the bicycle.

10-12-23 **PARENT'S RESPONSIBILITY:** The parents of any child and the guardian of any ward shall not authorize or knowingly permit any child or ward to violate any of the provisions of this Chapter. Any parent or guardian authorizing or knowingly permitting such violation shall, upon conviction thereof, be guilty of a misdemeanor.

10-12-24 **ENFORCEMENT:** The Des Plaines Police Department is specifically designated to enforce all provisions in this Chapter.

10-12-25 **PENALTIES:** (A) Any person convicted of a violation of any provision of this Chapter shall be punished by a fine of not less than one dollar (\$1.00) nor more than twenty-five dollars (\$25.00) for each offense, or (B) Fulfill other penalties imposed by the Bicycle Violators Court or Court Appointed Officer.

10-12-26 **SAVING CLAUSE:** If any clause, sentence or part of this Chapter shall be adjudged invalid by any court, it shall not affect the remainder of this chapter.



## Regulatory Procedures

Bicycles are registered, inspected and licensed for the same reasons as motor vehicles—prevention of accidents, protection against theft, aid in recovery if lost, and identification in case of an accident or traffic violation.

However, in order to be effective, the program must be predicated on a sound local ordinance—one that is enforced by local officials. (See Chapter 16, "Model Bicycle Ordinances.")

### Registration

Registration applications can be distributed by the retailer at the time of purchase or secured from the police department or city clerk. In some communities a registration fee is charged; in others it is not.

The application form should be filled out by the cyclist or a parent or guardian, and taken with him and his bicycle for inspection and written or oral testing.

The actual inspection and testing can be a function of a service club, the local schools, or a youth organization. The police department, however, is the best agency to perform this function.

### MODEL REGISTRATION FORMS

#### Transfer of Bicycle Ownership

This is to certify I have this day of \_\_\_\_\_, 19\_\_\_\_ sold or transferred the bicycle described on the reverse side of this certificate:

To: \_\_\_\_\_ Signed \_\_\_\_\_  
Address \_\_\_\_\_ Address \_\_\_\_\_  
(New Owner) (Former Owner)

#### Reverse Side of this form:

Regis. & License No. \_\_\_\_\_  
Make of Bicycle \_\_\_\_\_ Serial No. \_\_\_\_\_

#### Bicycle Registration Application

Date \_\_\_\_\_ License No. \_\_\_\_\_  
Make of Bicycle \_\_\_\_\_  
Model Name (if any) \_\_\_\_\_  
Color \_\_\_\_\_ Serial Number \_\_\_\_\_  
Type \_\_\_\_\_ Frame Size \_\_\_\_\_  
Wheel Diameter \_\_\_\_\_ Size Tire \_\_\_\_\_  
Gearing: Hub Gear \_\_\_ Make \_\_\_ Model \_\_\_  
No. Speeds \_\_\_\_\_ Brake? \_\_\_\_\_  
If Derailleur: Make and No. Sprockets \_\_\_\_\_  
Type Handle bar \_\_\_\_\_  
Accessories: Carrier front \_\_\_\_\_  
Rear \_\_\_\_\_ Bell Horn \_\_\_\_\_  
Headlamp \_\_\_\_\_ Tail Lamp \_\_\_\_\_  
Refl. Size \_\_\_\_\_ Brakes Front \_\_\_\_\_  
Rear \_\_\_\_\_ Hub or Rim \_\_\_\_\_  
Pedals: (steel or rubber) \_\_\_\_\_  
Mudguards \_\_\_\_\_  
Remarks: \_\_\_\_\_  
Applicant's Name \_\_\_\_\_  
Tel. No. \_\_\_\_\_ Address \_\_\_\_\_  
Age \_\_\_\_\_

#### Bicycle Dealer's Report of Sales of New and Secondhand Bicycles

Dealer's Name \_\_\_\_\_ Address \_\_\_\_\_  
Purchaser's Name \_\_\_\_\_  
Address \_\_\_\_\_ Sales No. \_\_\_\_\_  
Description of Bicycle \_\_\_\_\_  
(Use Registration Form.)

#### Dealer's Report of Purchase of New and Secondhand Bicycles, or for Secondhands Taken in Trade

Dealer's Name \_\_\_\_\_ Address \_\_\_\_\_  
Date \_\_\_\_\_  
Purchased From \_\_\_\_\_  
Address \_\_\_\_\_ Purchase No. \_\_\_\_\_  
Description of Bicycle Secondhand \_\_\_\_\_

(For Description of Bicycle, Use Registration Form.)

The preceding model registration forms were reprinted from "Bike Ordinances in the Community" with the permission of the Bicycle Manufacturers Association of America, Inc.

#### Bicycle Registration Card

BICYCLE REGISTRATION CARD  
City of Anderson, Ind.

Owner \_\_\_\_\_  
Address \_\_\_\_\_  
Make \_\_\_\_\_ Lic. No. \_\_\_\_\_ Ser. No. \_\_\_\_\_  
The accompanying number plate has been assigned to addressee named hereon to be used on above described bicycle for the year ending June 30, 19\_\_\_\_.  
Doyle Wright, Chief of Police  
Report change of address or loss of this card.

Void unless signed by Licensee

### Inspection

For a number of years school officials, police departments, service clubs, and others have made periodic bicycle inspections as part of their community service programs. These inspections are usually made in school yards, playgrounds, parking lots and other areas, frequently on a high-volume basis. The following bicycle inspection maintenance plan was designed specifically for this type of high volume program. This is the reason it provides for five inspection stations.

However, this program is flexible!

One or more of the work stations can be combined if an organization wishes to conduct a bicycle inspection program involving a small number of bicycles, or if adequate inspection personnel are not available.

Finally, this section and the checklist are equally valuable for families or individual bicycle owners. The important thing is to check, inspect, and service all of the items listed for the five inspection stations.

The following pages give the

details on the personnel lineup necessary to man a high volume inspection program, the tools necessary for immediate repairs,

and the bicycle parts to be inspected. They also include the written test to be given before or immediately following the actual

inspection of the bicycle and a copy of the Safety Inspection Checklist form.

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*INSPECTION STATIONS*

*WORK, REPAIR AND ADJUSTMENT STATIONS*

*BICYCLE INSPECTION TOOL LIST*

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One person with clipboard and adequate supply of safety inspection sheets. Fill out information at the top of the sheet and send to Station 1, along with the checklist.

**Station 1 – Proper Fit**

Two persons - one with clipboard, one to do inspection.

Two persons - one with clipboard to review recommended corrections from Station 1; second person to make adjustments and minor repairs.

**STATION 1 (Inspection)**

No tools will be needed to perform the checks at Station 1.

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**Station 2 – Bicycle Wheels**

Two persons - one with clipboard and inspection form, one to do inspection.

Two persons - follow same procedure as above, but restrict work to Station 2 maintenance instructions.

**STATION 2 (Inspection)**

Bicycle stand. (A stand of some sort to hold the bicycle off the ground would prove helpful in checking wheel trueness.)

Bicycle tire pressure gauge. (A good bicycle tire pressure gauge is a must for checking tires. Automobile tire gauges do not read high enough.)

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**Station 3 – Wheel Bearings**

Two persons - one with clipboard and inspection form, one to do inspection.

Two persons - follow same procedure as work stations above, but restrict work to Station 3 maintenance instructions.

**STATION 3 (Inspection)**

No tools will be required to perform the inspection checks at Station 3.

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**Station 4 – Brakes**

Two persons - one with clipboard and inspection form, one to do inspection.

Two persons - follow same procedure as work stations above, but restrict work to Station 4 maintenance instructions.

**STATION 4 (Inspection)**

No tools will be needed to perform the inspection checks at Station 4.

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**Station 5 – Local Law Requirements - Accessories**

Two persons - one with clipboard and inspection form, one to do inspection.

**STATION 5**

No tools are needed at this station.

One person with clipboard-review checklist, approve or disapprove safety inspection, include necessary remarks, sign sheet and include the date.

**BICYCLE ADJUSTMENTS  
TOOL LIST**

---

**STATION 1 (Adjustments)**

To adjust the position of the handlebar, handlebar stem, and saddle, the following tools will be needed:

1/2" wrench      12mm wrench

9/16" wrench      13mm wrench  
5/8" wrench      14mm wrench  
11/16" wrench      15mm wrench  
Ratchet handles with the above size sockets will greatly speed

the service work involved.  
8" adjustable wrench for odd-size nuts and bolts (or in place of the above wrenches).  
Oil or other lubricant.

---

**STATION 2 (Adjustments)**

Bicycle stand.  
Spoke wrenches.  
Bicycle tire pressure gauge.

Bicycle tire pump. (A long bore, high volume pump will save a lot of time and pumping.)  
Tire levers (not essential, but

helpful).  
Talcum powder (to dust the tubes if they are removed).

---

**STATION 3 (Adjustments)**

Set of cone wrenches (1/2", 9/16", 5/8", 11/16", 3/4", and 7/8").  
Set of metric cone wrenches (13mm through 18mm).

1/4" open end wrench (for crank hanger locknuts).  
3/16" open end wrench (for head locknuts).  
or 12" adjustable wrench.

3/8" wrench (for chainguard nuts and bolts).  
7/16" wrench (for chainguard nuts and bolts).  
Bicycle oil.  
Chain lubricant.

---

**STATION 4 (Service Checks)**

Metric brake wrench set (8 mm through 11mm).  
"Third Hand" tool. (This tool

holds the shoes against the rim while making cable adjustments.)  
Large-blade screwdriver.

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## STATION 1

### Proper Fit Check

The height of the saddle is important for driving comfort, riding efficiency and safety. As a minimum safety measure, the bicycle driver should be able to stand over the bicycle and have both feet flat on the ground.

For optimum comfort, however, the cyclist should sit on the bicycle saddle and place one of the pedals in its lowest position. In this position the knee should have only a slight bend in it. An alternative arrangement is to have the bicycle driver place his heel (in stocking feet) on the pedal. Then when the ball of the foot is placed on the pedal, the knee will be slightly bent.

### Adjustments

Raising or lowering the saddle is a relatively simple operation. All bicycles have some manner of clamp arrangement near the point where the seatpost enters the frame. The inspector loosens the seatpost clamp bolt and raises or lowers the seatpost as required. It may be necessary to twist the saddle and seatpost within the frame or apply some oil or other lubricant to the seatpost to free it. When the saddle is in the correct position, the inspector fully tightens the seatpost clamp bolt and nut. The seatpost clamp bolt is properly tightened when the saddle cannot be twisted, even with a considerable amount of pressure.

The inspector checks the positioning of the saddle and the nuts and bolts that hold the saddle on the seatpost. The saddle top should be straight or have only a slight tilt upwards. To check for proper tightening of the saddle clamp bolts, the inspector hits the nose of the saddle hard with his fist. If the saddle moves, the saddle clamp nuts and bolts need more tightening.

At least two inches of the seatpost must remain in the frame to assure the safety of the bicycle driver. Most bicycle seatposts do not have any markings on them to indicate this maximum extension. Therefore, if the seatpost is raised or lowered this should be judged as closely as possible.

### Handlebar Position Check

The handlebar of the bicycle should be tight and properly aligned with the front wheel. To check for these conditions, the inspector straddles the front wheel and holds the wheel securely between his legs. Then he applies a moderate amount of pressure to see if the handlebar and stem can be twisted.

The inspector also checks to see that the handlebar is properly aligned in relation to the bicycle frame and the front wheel. This is determined by noting if the center portion of the handlebar is parallel to the front hub axle.

### Adjustments

The handlebar should be set so that the cyclist can comfortably and easily reach the grips (and the controls and brake levers if the bicycle is so equipped). In the case of high-rise handlebars, the grips should be below the driver's shoulder level. In the case of drop bars or tourist handlebars, the handlebar height should be even with the saddle or slightly below.

To adjust the height of the handlebar and handlebar stem, the inspector loosens the handlebar stem wedge bolt and taps the bolt lightly until the stem is free. He then raises or lowers the handlebar as required and fully tightens the bolt.

Stamped on the side of the handlebar stem is a line indicating the maximum that the stem can be raised. Under no circumstances should the stem be raised beyond this point. *At least two*

*inches of the stem must remain in the fork stem.*

To adjust the position of the handlebar within the handlebar stem, the inspector loosens the clamp bolt and makes adjustments to the handlebar position as required.

After making any adjustments, he should see if he can twist the handlebar sideways or up and down. If he can, the nuts and bolts have not been tightened sufficiently. He should tighten them until no twisting is possible. But he must avoid tightening them too much.

All handlebars should be equipped either with handlebar grips or, in the case of drop bars, handlebar tape and plugs. The open ends of the handlebars should not be exposed, and the handlebar groups should be tight enough so that they cannot be twisted.

### Bicycle Frame Check

To assure proper riding characteristics of the bicycle, the frame must be in proper alignment. The inspector can check some of the areas on the bicycle frame as follows:

Standing at the front of the bicycle, he should sight along the head of the bicycle towards the rear. The head and the seatmast of the bicycle should be parallel with each other and in line with one another.

Any buckled tubes in the area of the frame head should then be noted.

The bicycle head and the front fork should be in line.

Both wheels should be vertical to the ground (viewed from the front or rear) and should not lean to either side.

### Adjustments

If there is any suspicion that the bicycle frame is out of line, the bicycle should be returned to the dealer for more thorough checks and service. Bicycle frame



alignment requires service items that normally only a bicycle dealer would have available.

### **Pedals Check**

The pedals should be firmly secured in the crank arms and the pedals should turn freely. In addition, the pedals should be complete and intact. The bicycle should not be allowed to pass if the rubber treads have broken off and only the pedal shaft remains.

### **Adjustments**

If the pedals are not properly secured in the crank arm, they should be tightened until they are firmly seated against the crank arms. NOTE: The right-hand pedal has a right-hand thread and the left-hand pedal has a left-hand thread.

If the pedals are damaged or have missing parts, the bicycle should be returned to a dealer for service.

## **STATION 2**

### **Bicycle Wheel Check**

To test bicycle wheels for trueness, the inspector lifts the bicycle up and spins the wheel. The spinning bicycle wheel should not rub against any part of the frame or the brakes. However, there will be some movement of the bicycle wheel to either side and perhaps up and down. As long as this is within reason (no more than  $\frac{1}{16}$  inch), the bicycle should be checked OK in this category.

### **Adjustments**

Although trueing a bicycle wheel is not a very complex procedure, it does require the services of a person who is reasonably familiar with the procedure. For example, if the bicycle wheel is out of true towards the left, the inspector must loosen the spokes in the suspected area that come

from the left side of the hub and tighten the spokes in the suspected area that come from the right side of the hub. This should be done gradually, a little bit at a time, with the inspector checking as he proceeds until the wheel runs reasonably true.

### **Bicycle Spokes Check**

The bicycle wheel should not be missing any spokes. All of the spokes should have approximately the same degree of tightness. The spokes can be checked by simply feeling to see if they are tight or by snapping them with a finger. A properly tightened spoke should have a relatively high pitched "ping" sound.

### **Adjustments**

To replace any missing spokes, the wheel must be removed from the bicycle and the tire and tube must be removed from the wheel rim. Additionally, the correct size spoke and nipple must be obtained. Because of the variables involved in such a procedure, the bicycle should be returned to a dealer for replacement of any missing spokes. Tightening the spokes is a much simpler operation and can be performed in the field, provided that a good spoke wrench is used. All the spokes should be tightened enough to be taut, but not enough to upset the wheel trueness.

### **Wheel Rim Check**

The wheel rims should be reasonably free of rust. If the bicycle is equipped with caliper brakes, the sides of the rim should be clean and free of any lubricants. Additionally, the rims should not have any noticeable dents or kinks that might interfere with proper seating of the tire.

### **Adjustments**

If the wheel rims are badly rusted, dented, or kinked, the bicycle should be returned to a

bicycle dealer for servicing.

### **Bicycle Tire Check**

Tires make a bigger difference in the riding qualities of bicycles than the load being carried. Bicycle tires will give thousands of miles of service if they are kept properly inflated and given reasonable care. Probably the one greatest expense in bicycle maintenance results from tire neglect, and especially neglect of proper tire inflation. The only accurate way to check for proper tire inflation is to use a bicycle tire gauge. The inspector should check the reading on the tire gauge against the recommended pressure stamped on the side of the tire.

He should also check to see that the sidewall of the tire is not damaged, cut or badly bruised. The tread on the bicycle tire should not have worn smooth and there should be no bald spots on the tire. The valve stem should be properly equipped with a valve cap and should be perpendicular to the wheel rim. If the valve stem is crooked, the normal flexing of the tire may eventually cut into the valve stem and cause a slow leak.

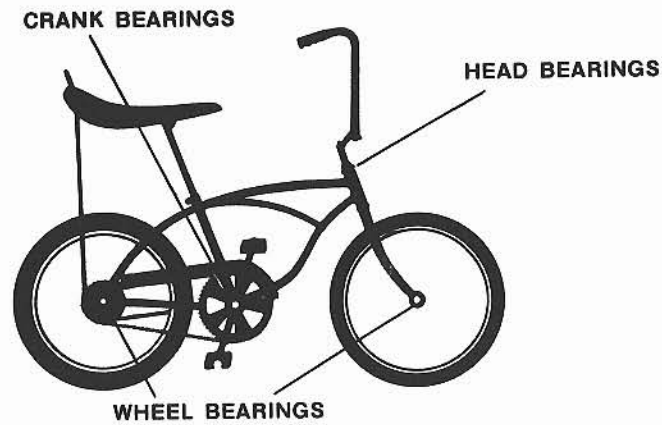
### **Adjustments**

If the bicycle tire is under- or over-inflated, the bicycle should be brought to the service check station to check for proper inflation with a tire gauge. If the tire is badly worn or damaged, the bicycle should be brought to a dealer for installation of a new tire. If the valve stem is not properly positioned, the bicycle tire must be removed and replaced. The following directions apply to this procedure or any other service requiring tire and tube removal.

1. Remove the wheel from the bicycle.
2. Depress the valve core and be sure that the tube is completely deflated. Remove the

tire from the wheel, using care not to puncture the tube. This is most easily done while depressing the bicycle wheel toward the floor. This forces the tire beads to enter the well in the center of the rim. While holding pressure on the tire, slide your hands down around the tire toward the floor. When your hands are almost together, grasp the tire firmly and roll it off the rim.

3. Examine the rim carefully. It must not be bent. It must also be free from rust and have no loose or rough spoke heads which would damage the tube.
4. Make sure that a rim strip is on the rim covering the spoke heads.
5. Inflate the tube until it just starts to regain its shape. Place the tube in the tire. Insert the valve through its hole in the rim. Carefully mount the tire on the rim, using your hands only. Avoid the use of tools, especially screwdrivers, when mounting tires.
6. Inflate carefully to about 10 pounds pressure. Check to see that both tire beads rest properly in the rim and that the rim line on the tire is visible all the way around on both sides. Deflate the tube by depressing the valve core. This permits the tube to free itself, avoiding pinching and binding within the casing.
7. Again inflate carefully to about 10 pounds pressure and examine the tire, making sure beads are in place and the rim line is visible all the way around on both sides. Then inflate to the correct pressure shown on the side of the tire.
8. Replace the wheel in the frame and tighten all nuts and bolts.



### STATION 3

#### Wheel Bearings Check

To check the bearing adjustments on the front and the rear wheels, the inspector holds the edges of the wheel and tries to twist it. There should be no more than a trace of side play in the wheel.

Next, he spins the wheel to see if it turns easily. There should be no grinding noises and the wheel should come to a slow stop, usually with the valve stem ending up at the bottom of the wheel revolution.

#### Head Bearings Check

The inspector lifts the bicycle up and turns the handlebar. The handlebar should turn freely and there should be no more than a trace of side play at the edges of the handlebar.

#### Pedal Crank Bearings Check

When the pedal crank bearings are properly adjusted, the crank should turn freely with no binding and with no unusual noises. To test for excessive side play in the crank, the inspector attempts to move the crank from side to side. There should be no more than a trace of side play at the end of the cranks.

#### Wheel Bearing Adjustments

Wheel bearing adjustments are

not especially difficult, but the proper size cone wrenches are absolutely essential. The cone wrenches should be available in both American and metric sizes.

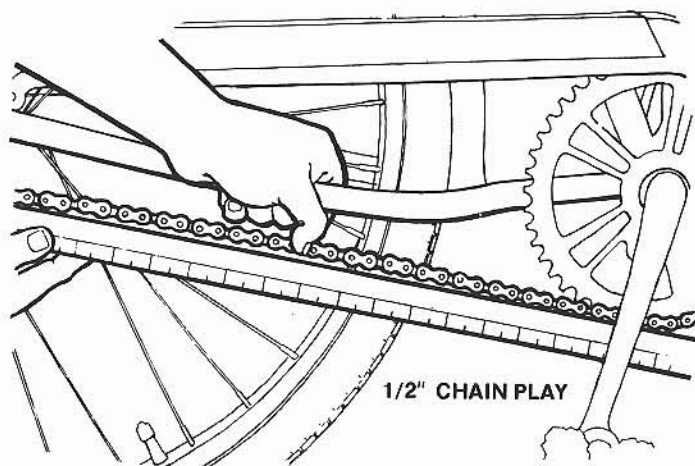
To adjust the wheel bearings, the inspector locates the adjusting nut on the hub and loosens the axle nut on that side. He turns the adjusting nut until the wheel runs freely and has only a trace of side play. Then he retightens the axle nut.

#### Head Bearings Adjustments

Again, head bearing adjustments are not difficult, but the proper tool is essential—in this case a 1-<sup>3</sup>/<sub>16</sub>" open-end wrench. The inspector loosens the head locknut and turns the adjustable bearing cone, which is usually just below the locknut, until the fork turns freely with no more than a trace of side play. Then he retightens the head locknut. NOTE: An adjustable pipe wrench should not be used on the head and cranks hanger locknut as the jaws will probably damage the finish and perhaps round off the flats.

#### Pedal Crank Bearings Adjustments

Although bicycles are equipped with a variety of cranks, most bicycles have some sort of an adjusting cone on the crank opposite from the sprocket. The general procedure is usually as



follows: the inspector loosens the locknut or retaining nut and then adjusts the adjustable cone bearing until the crank has the proper amount of side play. He makes sure there is a keyed lock washer between the locknut and the adjustable bearing, then fully tightens the locknut.

#### **Bicycle Chain Check**

To check for proper adjustment of the bicycle chain, the inspector turns the pedals until the chain is in its tightest position. At this point the chain should have approximately  $\frac{1}{2}$  inch of play. If the chain is not properly adjusted, it will either have excessive play or make cracking and grinding noises.

#### **Adjustments**

To adjust the bicycle chain, the rear hub must be repositioned. The inspector loosens both nuts on the rear hub, and if the bicycle is equipped with a coaster brake hub, he loosens the brake arm mounting nuts. He pulls the rear wheel toward the rear to tighten the chain, or pulls the wheel forward to loosen the chain. When the hub is properly positioned, he tightens the nut on the chain side of the bicycle. He makes certain the wheel is properly centered between the frame tubes and then tightens the opposite rear hub nut. Then he checks on the chain tension again.

**NOTE:** If the bicycle is equipped with a three-speed hub and the wheel is repositioned, the three-speed cable will require adjustment.

If the bicycle chain is dirty and rusted, the chain should be cleaned with some sort of degreasing fluid and lubricated either with oil or with a specially made chain lubricant. If the chain is very rusty, the bicycle should be returned to a dealer for a chain replacement.

#### **Bicycle Chain Guards Check**

All the bicycles (except derailleur-equipped bikes) should be equipped with a chain guard that covers the chain from the front sprocket to the rear sprocket. The chain guard should have all mounting nuts and bolts properly tightened, and neither the chain nor the crank should hit the chain guard.

Some derailleur-equipped bikes have a kind of chain guard built into the chain wheel. However, even if the bike is so equipped, pant guards should be worn.

#### **Adjustments**

The inspector replaces any missing nuts and bolts and tightens all mounting nuts and bolts. If the chain guard interferes with the chain or the crank, he should see if a slight amount of gentle bending will correct the situation. If the bicycle is not equipped with a chain guard, it

should be returned to a dealer to have one installed.

### **STATION 4**

#### **Coaster Brakes Check**

Mounting nuts and bolts on the brake arm strap should be fully tightened. There should not be excessive pedal travel between engagement of the forward driving clutch and the brake. There should be no more than about 20 degrees of travel before the brake is engaged when the pedals are turned backwards. When activated, the coaster brake should bring the wheel to a quick stop.

#### **Adjustments**

There must be no question about the safe and sure operation of the coaster brake. If there is any doubt about its safe operation, the bicycle should be returned to a servicing dealer for further checks and adjustments.

#### **Caliper Hand Brakes Check**

The inspector makes the following checks on the bicycles that are equipped with caliper hand brakes:

The brake levers should not touch the handlebar before the brakes are fully engaged and the wheel is locked.

The caliper brake shoes should be centered over the rim and have no end play. The inspector takes hold of the brake shoes to see if the arms can be moved forward and backward. If there is excessive play, the mounting nut should be tightened.

The inspector checks to see that the nuts holding the brake shoes to the arms are fully tightened.

He also checks to see there is at least  $\frac{3}{16}$  inch of braking surface left on the rubber brake shoes.

Finally, he checks to see that cables are taut and there are no frayed ends.



## Adjustments

Excessive lever travel or a loose cable can usually be corrected with the built-in cable-adjusting barrel. This is usually located somewhere along the caliper brake arms (or sometimes on the brake lever).

To tighten the cable, the inspector turns the adjusting barrel out of its holder until the cable is almost taut. He operates the hand brakes again to see if this corrects the problem of excessive lever travel and loose cables.

If there is no adjustment left on the adjusting barrel, he turns the adjusting barrel all the way back into its holder and loosens the cable anchor bolt, freeing the cable. He holds the brake shoes tightly against the rim and pulls the cable through the cable anchor bolt. Then he fully tightens the cable anchor bolt and checks the operation of the brakes again.

The caliper brakes must be shifted if they are not centered properly and one shoe touches the rim. The brakes are attached to the bicycle by means of a long bolt with one securing nut in the rear and two nuts in the front. Using the thin-style caliper brake wrenches, the inspector turns the two front nuts against each other, locking them. He turns both wrenches in the direction necessary to center the caliper arms over the rim. He also checks to make sure that the rear mounting nut is fully tightened.

If the brakes squeal when they are applied, the inspector bends the brake arms slightly so the front part of the brake shoe engages the rim first.

If the brake shoes are excessively worn, he removes the brake shoe holders and the brake shoes. He replaces the brake shoes and reinstalls the brake shoe holders onto the arms, making sure that the closed part of the brake shoe holder faces the front of the bicycle.

If the brakes operate very slowly or sluggishly, or if the cable is rusted or has frayed ends, the entire cable should be replaced. Since this requires quite a bit of time, the bicycle should be returned to a servicing dealer for removal, lubrication and installation of new brake cables.

## Multispeed Controls Check

If the bicycle is equipped with either three-speed or five-speed gears, the inspector checks to see that the gear shift lever operates properly and that the hub or derailleur is functional in all of its gears.

## Adjustments

Since there are a number of multi-speed hubs, controls, and derailleurs currently on the market, it is impractical to give detailed adjusting instructions for all of the different types available. Any problem with multi-speed mechanisms should be referred to a servicing dealer for further checks and adjustments.

## STATION 5

Local laws and ordinances dictate the types of reflectors, lights, and accessories that the bicycle requires. Local and state laws concerning these items should be checked before this station is set up.

As a minimum, the bicycle must be equipped with a red rear facing reflector securely mounted either on the fender or the saddle. The rear reflector may be mounted on the caliper brake assembly on some bicycles without fenders.

Additionally, some communities require the use of pedal reflectors, a front facing clear reflector and side facing red and amber reflectors. If the bicycle is not properly equipped according to state or local law, it should not pass this check until it is properly

equipped.

Some communities require that if a bicycle is to be driven after dark, it must be equipped with a front light capable of emitting a white light for a specified number of feet. Some communities specify that a bicycle must be equipped with a bell, horn, or other warning device. Local and state laws should be checked.

## Bicycle Accessories

Some local municipalities may also have laws or ordinances against certain types of accessories such as sirens, whistles, "chopper forks," and "sissy bars."

Chopper forks drastically affect the handling characteristics of a bicycle and should not be allowed.

Sissy bars or other accessories that prevent normal dismounting make a quick stop hazardous and should also be banned.

## Written Test

The following test may be given to any individual at the junior high age level or above. For very young applicants, a simple oral test should be given. The inspector should ask them to demonstrate the proper arm signals and identify the basic traffic signs and signals. He should also check their knowledge of the basic rules of the road.

1. Bicycle drivers should observe and obey all traffic signs, stop and go signals, and other traffic control devices. T F
2. Bicycle drivers should try to crowd ahead between the cars at a signalized intersection so as to be in front when the light changes. T F
3. Bicycles should be walked across those streets that are heavily traveled. T F
4. Passengers interfere with the proper control of a bicycle. T F
5. It is all right to "hitch a ride"



- on a truck or other motorized vehicle as long as the driver gives permission. T F
6. It is safe to drive bicycles three abreast when riding in a group. T F
  7. Bicycle drivers should carry bundles in one hand if the bundles must be carried upon a bicycle. T F
  8. The street is a safer location to do bicycle stunts than a field or yard. T F
  9. Motorists will know what a bicycle driver expects to do if he drives in a wobbling and weaving fashion. T F
  10. A safe place to pass slowly moving vehicles is at an intersection. T F
  11. Bicycle drivers should keep to the right when driving in the street. T F
  12. The proper way to make a left turn is to cut the corner. T F
  13. Bicycle drivers should give hand signals before making a turn. T F
  14. Before entering the street from a driveway, sidewalk, or alley, the bicyclist should

- stop and be sure the way is clear before proceeding. T F
15. Pedestrians are required to give the right-of-way to bicyclists driving on the sidewalk. T F
  16. The roadway is a safe place to park a bicycle. T F
  17. Bicycle drivers should select routes with low speed traffic and the fewest automobiles. T F
  18. It is dangerous to drive on wet leaves because they are very slippery. T F
  19. When riding on sidewalks, the bicycle driver should be especially careful at alleys and driveways. T F
  20. When crossing an intersection, the bicyclist should slow down, look left, then right, and proceed quickly if the way is clear. T F
  21. Bicyclists should not drive in the street until they have learned how to control their bikes under all conditions. T F
  22. Bicyclists should avoid driving at night, but if they do,

- they must have a white light on the front and a red light or reflector on the rear of their bike. T F
23. It is wise to buy a bicycle just a little "too big" so the bicyclist will grow into it. T F
  24. A bicycle must be in good mechanical condition in order to be driven safely. T F
  25. When making a left turn at an intersection, it's best to move to the center of the street before turning. T F

### Licensing

The bicycle license should be issued immediately following successful completion of the inspection and testing program.

The license number should be recorded on the bicycle registration form, along with the bike's serial number.

On new, American-made bikes the serial number is located on the left rear toe-plate. On older bikes, the number is found on the toe-plate or under the crank hanger.

### Sample License Plate

A brochure of sample license plates can be obtained from: Superintendent of Industries, Indiana State Prison, Michigan City, Indiana 46360.

Local Imprint: The name of the city may be imprinted on the plate. The charge for this service will vary with the size of the order.



## SAFETY INSPECTION CHECKLIST

Owner's Name \_\_\_\_\_

Address \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Phone Number \_\_\_\_\_

Bicycle Make and Model \_\_\_\_\_ Color \_\_\_\_\_ Frame Size \_\_\_\_\_ Wheel Size \_\_\_\_\_

License Number (if any) \_\_\_\_\_ Serial Number \_\_\_\_\_

	Insp. Check OK NO.	Serv. Check OK NO.*		Insp. Check OK NO.	Serv. Check OK NO.*
<b>STATION NO. 1</b>					
Size—Fit of bike to driver.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Can driver straddle frame with both feet on ground?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Check height of seat post (2" minimum in frame).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Handlebars—Tight and in line with wheel?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Height below driver's shoulder level?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Check height of stem (2" minimum in frame).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Grips tight and ends in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Frame—All tubes in line, not bent?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Front fork straight, in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pedals—Tight, intact, no binding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>STATION NO. 2</b>					
Wheels—both run true side to side and round?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spokes—good tension, none missing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Rims—no dents or kinks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tires—good tread, no sidewall damage, valve stem straight and properly inflated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>STATION NO. 3</b>					
Bearings—No looseness or binding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Front wheel.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Front fork.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Rear wheel.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pedal crank.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chain— $\frac{1}{2}$ " play, no excessive looseness?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chainguard—unbent, free of chain?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chain clean and free of rust?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>STATION NO. 4</b>					
BRAKES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Coaster brakes—operate within 20 degrees of horizontal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hand brakes—sufficient reserve when lever is engaged, and brake lever tight?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Caliper brakes centered and tight?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Nuts tight on brake shoes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
At least $\frac{3}{16}$ -inch rubber on shoes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cable taut, no frayed ends?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Shift control operating properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Multi-speed mechanism operating properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>STATION NO. 5</b>					
*NOTE: Follow local laws in approving or disapproving bikes at this station.					
Rear Reflector—conforms to local laws?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional reflectors, if required.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Front light—battery or generator and bulb satisfactory? (*If applicable under local laws or ordinances.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
This bicycle <input type="checkbox"/> approved for night riding. <input type="checkbox"/> not approved for night riding.					
Bell or horn—working and audible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Accessories, other.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Illegal or unsafe accessories?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Unsafe modification of bicycle?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

This bicycle has passed this safety inspection

This bicycle *has not* passed this safety inspection

Final Inspectors Name \_\_\_\_\_

Date \_\_\_\_\_

# Chapter 18

## Bicycle Courts

A variety of corrective methods are used to attempt to modify the behavior of bicycle drivers who do not observe safe cycling practices and community laws or regulations. They range from the student bicycle safety court to the official court conducted in cooperation with the local police. No matter which method is used, it is important to remember that the court should be a place for instruction, not punishment. It should operate on the theory that violations are due to lack of driving knowledge and skills. The main objective is to prevent accidents.

### Student Bicycle Safety Court

There is a great deal of controversy concerning the value of student courts. In some areas they have been very popular and have served a useful purpose. In other areas, however, this effort has been strongly opposed by educators, police, judiciary, and parents, who feel that young people should not be given responsibility that rightfully belongs to official agencies.

Most student bicycle safety courts are set up in the school system, with students serving as jury and judge. The court should be supervised by a representative of the police department, and assisted by school personnel and possibly the PTA.

First a letter of notification is sent to the parents. Then the court tries all cases referred to it by the officer in charge. Charges should only be filed by eyewitnesses including school patrol members, police, or faculty members.

The most severe sentence is



restricting the offender from using his bike. The most effective way of doing this is to recommend to parents that the child be grounded for a specific time. Another method is to deny the offender the privilege of bringing his bicycle onto the school property.

### Traffic Instruction School

A traffic instruction school is conducted by the police department, and one or both parents must accompany the juvenile offender. The sentence is usually a recommendation to the parents to curtail the activities of the offender. Hopefully, this will help them realize the importance of safe driving practices. In addition, the inconvenience to the parents usually serves as a reminder that parental guidance is needed.

A school may also be conducted for bike drivers who have violated the law or followed unsafe practices.

### Official Bicycle Court

This is a court in the true sense. The success is primarily dependent on three factors: a city ordinance, which will permit a

bicycle court to function; the cooperation of the judiciary and police department, and community support.

The court is conducted by the local court system or police department. A summons for a violation requires the offender to appear in court with his parents (if the offender is a minor) and his bicycle.

In the case of minors, the burden of correction is usually placed on the parents, although in some cases officials may revoke the offender's license.

A unique, cooperative, bicycle enforcement and education program is set up in Normal, Illinois. It could serve as a model for any community.

The Normal City Council, at the urging of local citizens, became concerned by the failure of bicycle drivers to observe regulations covering all moving vehicles. The City Council began to push the police department to be stricter in enforcing the regulations.

Because many young people seemed to be careless in following traffic regulations, the police chief proposed that a course be offered in lieu of court actions so that offenders could be taught the proper, legal, and safe operation of the bicycle in traffic situations.

Shortly before those events took place, a group of Illinois State University students participated in the National Safety Council's Youth Bicycle Safety Instructor Course and were certified to teach the course in bicycle safety.

The Coordinator of Environmental Health and Safety at Illinois State University read an account of the city council meeting

in the local paper, and, having been involved in sending the students to the Instructor Course, immediately contacted the police chief and volunteered their services.

The police chief was very receptive to the idea and asked them to develop a course that would be appropriate for young people as well as adults. The city

council had insisted that every first offender ought to have the opportunity to attend such classes in lieu of courts and fines.

One by-product of this program is that every person who goes through the course must register his bicycle. This helps increase the number of bicycles registered and thus increases protection from theft.

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**NOTICE TO REPORT**

Traffic Instruction School, Address \_\_\_\_\_

If further information is necessary, phone \_\_\_\_\_

NOTE: One Parent or Guardian Must Accompany the Child on  
 Wednesday \_\_\_\_\_ at 7:00 P.M. \_\_\_\_\_.

Name \_\_\_\_\_ School \_\_\_\_\_

Address \_\_\_\_\_ Phone \_\_\_\_\_

Violation \_\_\_\_\_

Location \_\_\_\_\_ Date and Time \_\_\_\_\_

Officer \_\_\_\_\_ Division \_\_\_\_\_

This is a suggested form that may be changed to comply with local environment.

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**BICYCLE COURT SUMMONS**

Police Department, Columbus, Indiana

Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_

You are hereby commanded to appear in Bicycle Court at Police Station, \_\_\_\_\_, time AM-PM \_\_\_\_\_ on \_\_\_\_\_ for the violation noted below. Bring your bicycle with you. Failure to appear will cause your case to be referred to City Court.

Date \_\_\_\_\_ Make of Bicycle \_\_\_\_\_

Place \_\_\_\_\_ Time \_\_\_\_\_ M.

License \_\_\_\_\_ Violation No. \_\_\_\_\_ (see below)

By order of Chief of Police

By Officer \_\_\_\_\_

**VIOLATIONS**

- |                                     |   |
|-------------------------------------|---|
| 1. Failure to obtain license.       | 6. Driving at night without lights or reflectors. |
| 2. Violating traffic signal light.  | 7. Driving on wrong side of street.               |
| 3. Violating stop street ordinance. | 8. Driving more than two abreast.                 |
| 4. More than one person on bicycle. | 9. Driving on the sidewalk.                       |
| 5. Clinging to moving vehicle.      | 10. Improper driving.                             |

TO PARENTS: We are endeavoring to protect your children from injury and death in traffic accidents. We will appreciate your full cooperation and help in assisting us in our efforts.

CHIEF OF POLICE

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## Where to Get Help

Bicycle Manufacturers Assn. of America, Inc.  
1101 15th Street, N.W.  
Washington, DC 20005

Bicycle Safety Tests and a Proficiency Course, a comprehensive compilation of skill tests and mechanical inspection guidelines, as well as a list of other materials, are available from BMA. Inquire about other safety literature, including the newsletter *Boom in Bikeways*.

League of American Wheelmen, Inc.  
National Headquarters  
19 South Bothwell  
Palatine, IL 60067

Information on cycling activities of all kinds, including skill tests, safety checks, community programs, and bicycle touring.

Youth Activities Department  
National Safety Council  
444 North Michigan Avenue  
Chicago, IL 60611

Information on the All About Bikes program and Bicycle Instructor's Seminars. A complete listing of bicycle materials, including quantity price quotations, will be provided upon request. Single sample copies of the following will be sent upon receipt of a stamped, self-addressed #10 envelope.

*The Bike Book* — eight pages of cycling safety tips, including 12 rules of the road, directed to the young bike driver.

*Bicycle Safety Maintenance Manual* — Illustrates how to do minor maintenance on your own bicycle.

*Bicycle Safety Information Test and Answer Sheet* — A 25-item quiz designed for elementary school students. Includes correct answers with explanation, plus directions for self-administration, scoring, and rating.

*Everything You Always Wanted to Know About Bicycling* — Designed

for the adult cyclist, this colorfully illustrated 18-page handbook provides clear answers to many questions adults may be reluctant to ask. Highly recommended for the junior/senior high student who may think he knows everything there is to know about cycling. (Single copies available from NSC, but for quantities write the publisher: New Jersey Office of Highway Safety, 4 Scotch Road, Trenton, NJ 08628.)

*Safety Education Data Sheet #1 - Bicycles* — An 8-page fact sheet briefly covering virtually all aspects of bicycling - statistics, bicycle sizing, condition, maintenance, safe driving technique, group driving, etc. Illustrated.

*Skill Tests For Pedal Pushers* — Contains directions (diagrams and illustrations) for setting up, administering and evaluating 12 bike safety performance and skill tests. Includes test on driving performance under normal traffic conditions, plus summary score sheet.

### BOOKS

The bike boom has produced a tremendous proliferation of publications dealing with a wide variety of cycling and cycling related activities—touring, racing, camping, ecology, etc. The three books listed are generally acknowledged to be among the best: Sloane, for general reference; Glenn, for maintenance and repair; DeLong, for technical information.

1. DeLong, Fred. *DeLong's Guide to Bicycles and Bicycling: the Art and Science*. Shulton Book Company, 1974. DeLong is an engineer, and this book reflects his training. Every bit as comprehensive as Sloane's text, but far more technical. The writing tends to be ponderous. A must for the serious cyclist.

2. Glenn, Harold T., and Coles, Clarence W. *Glenn's Complete Bicycle Manual: Selection, Maintenance, Repair*. Crown Publishers,

New York, 1973. For the do-it-yourself cyclist, this book is a treasure. Everything from bike assembly to repair and overhaul of free-wheels is treated in a profusely illustrated, step-by-step procedure. If you can recognize a wrench, this book will show and tell you how to use it on your bike. You'll save money and in many cases do a better job than your local bike shop.

3. Sloane, Eugene A. *The New Complete Book of Bicycling*, 2nd edition. Simon and Schuster, 1974. Generally accepted as "the" reference for cyclists. Sloane covers virtually everything you want to know about cycling, in a light, readable style. Often opinionated, Sloane leaves no doubt about where he stands. ("My advice is to go to your bike shop and have these unsafe safety levers removed, or do it yourself. . .")

### FILMS

*BICYCLES ARE BEAUTIFUL*. 16 mm, sound, color, 27 minutes. Narrated by Bill Cosby, the film includes a history of bicycling, discussions on the rules of the road and the safety inspection of bicycles, along with a safety test in which the audience participates. Available for purchase from Cooper & Golin, 360 N. Michigan Avenue, Chicago, IL 60601. Available on free loan from Modern Talking Picture Service, 2323 New Hyde Park Road, New Hyde Park, NY 11040.

*BICYCLING ON THE SAFE SIDE*. 16mm, sound, color, 16 minutes, upper elementary through adult. Using the 10-speed bicycle, this film demonstrates safe driving techniques and discusses bicycle traffic laws and potential bicycling hazards. Basic maintenance, gear shifting, braking, pedaling, and theft prevention are also explained. Available for purchase (\$210) or rental (\$20 per day — \$40 per week) from Ramsgate Films, 704 Santa Monica Blvd., Santa Monica, CA 90401.

**THE WONDERFUL WORLD OF BIKES.** 16 mm, sound, color, 27 minutes, all ages. As through a kaleidoscope, the audience is treated to the gamut of cycling experiences with emphasis on its wholesome enjoyment for fun and fitness by the very young, the newly independent, and the adult. Some spectacular scenery provides the backdrop for a series of Amateur Bicycle League events. (Source follows)

**CHAMPIONSHIP BICYCLE SAFETY.** 16 mm, sound, color, 13 minutes, primary and secondary grades. Music as bright as a country hoedown introduces this fast-paced film which relates the cycling skills of the champs to the skills needed in everyday cycling situations, with emphasis on the idea that it takes practice to drive like a pro. Simple narration gets across the message that cycling is more enjoyable if it is done right. Especially good for scouting groups and youngsters in primary and secondary grades. (Source follows)

**PLANNING A COMMUNITY BIKE SAFETY PROGRAM.** 16 mm, sound, color, 27½ minutes. Motivational film keyed to responsible and responsive community sparkplugs. Emphasizes the need for and the how to's of implementing a community bike safety program by following the activities of a motorist in Anytown, USA, who brings the idea for a safety program to his club members. (Source follows)

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Three foregoing films are produced by the Bicycle Manufacturers Association of America, Inc., distributed on free loan by Association-Sterling Films, 600 Grand Avenue, Ridgefield, NJ 07657.

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**THE BICYCLE DRIVER.** 16 mm, sound, color, 14½ minutes, all ages. Five important keys to safer cycling are highlighted. These include how to choose and equip a bicycle with traffic safety in mind; driving according to the rules of the road; mastering bicycle skills; knowing and abiding by traffic regulations, and practicing defensive driving. A limited number of prints are available on loan from Safeco Insurance Companies, Safeco Plaza, Seattle, WA 98125. Produced and distributed by Jim Lawless, Motion Picture Consultants Inc., 1545 N.E. 130th Street, Seattle, WA 98125.

**EVERYTHING ABOUT BICYCLES.** 14 minutes, animated, color film. The film offers a humorous history of the bicycle – from a hypothetical beginning in the Stone Age to its widespread use today, makes a detailed exploration of correct maintenance and driving techniques, and takes an imaginative look at the bike's possible future. The film may be purchased for \$200 or rented for \$20 per day. One complete Teacher's Manual from the "All About Bikes" program, published by the National Safety Council (value \$30), and two sample student workbooks from the same program are included free of charge with each copy of the film purchased. Films may be purchased or rented from: Pyramid Films, Box 1048, Santa Monica, CA 90406. Prospective purchasers and film reviewers may preview the film upon request.

**BICYCLE SAFETY.** 16 mm, sound, color, 12 minutes, primary, elementary, junior-senior high, health, safety, guidance, P.E., recreation. The film illustrates typical dangers, shows why accidents happen, and how to avoid them. It demonstrates such safety practices as checking out a new bike, proper maintenance, driving close to the curb in single file and with the flow of traffic, correct use of arm signals, good visibility for night riding, awareness of mid-block hazards, and procedures at intersections. It suggests methods of protection against theft and shows the importance of registering and licensing. The film establishes the value of safe driving habits for all ages. A film by Rick Pollack, distributed by Film Fair Communications, 10900 Ventura Boulevard, Studio City, CA 91604 Rental: \$15.00

**BIKEWAYS FOR BETTER LIVING.** 16 mm, sound, color, 24 minutes, adults. Film is designed to help leaders in the bikeways movement explain what bikeways are and what they can do for a community in providing safer bike driving facilities for transportation and recreation. Some of the finest bikeways developed throughout the U.S. and Europe are shown in the film. Included with each film is an up-to-the-minute bibliography of available bikeway planning and implementation literature, which will help groups promote bikeways in their own community. Produced by Valdhre Films, Inc., and distributed by Association-Sterling Films, 600 Grand Avenue, Ridgefield, NJ 07657. Rental: \$4.50.

**STRAIGHT TALK ABOUT DEFENSIVE BIKE RIDING.** 16 mm, sound, color, 9 minutes, upper elementary. This film is more than just a recitation of the "rules of the road." Although that is basic, the film goes beyond the rules to the concepts of learning and practicing fundamentals of safe bike driving. Included are practical, common sense advice and pointers on driving in groups, how to handle busy intersections, and what special precautions are needed for nighttime and inclement weather driving. Available for purchase (\$78) and free loan from Sales Promotion Department, Schwinn Bicycle Co., 1856 N. Kostner Avenue, Chicago, IL 60639. Order at least 60 days in advance of showing date.

**BICYCLE DRIVERS DON'T HAVE TO HAVE ACCIDENTS.** 16 mm, sound, color, 13½ minutes (cleared for TV). Narrated by popular young movie and TV star Joseph Bottoms, the film is directed specifically to the 10 to 14 age group, showing bicycles as vehicles to be driven – no longer toys. The subject matter is also valuable and interesting for adults and/or parents. This film should *not* become obsolete for some time as material is based on factual studies with emphasis on accident-causing behavior. Specific accidents are used along with animation to reinforce learning concepts. Instructors guide included. Available for purchase (\$170) from Golden Coast Film Productions, 2044-A Alameda Padre Serra, Santa Barbara, CA 93103.

**BIKE PEOPLE.** 16 mm, sound, color, 11 minutes, junior and senior high. More and more people are driving bikes today and this film deals with basic safety precautions, optional equipment, and protection against theft. Explains bike vehicle code rules, which are designed to make riding safe and fun. Treats optional equipment that can add to safe driving. Distributed by AIMS Instructional Media Services, Inc., P. O. Box 1010, Hollywood, CA 90028.

**A FREE PROGRAM ON BICYCLE SAFETY.** Includes a safety film, teacher's guide, posters, and materials for a learning by doing safety clinic. Available through most local Travelers agents or, if local agents are out of stock, from Travelers' National Headquarters: Cycle Safety for PEP, 9PB, The Travelers, 1 Tower Square, Hartford, CT 06115.