

NEW YORK STATE POLICE ACADEMY

This Manual describing the Methods and Procedures for using and maintaining State Police motorcycles is published for the information and guidance of members of the New York State Police.

It shall be the duty of each member of the Uniform Force assigned to motorcycle patrol to familiarize himself with the contents of this Manual and to adhere to the Methods and Procedures set forth herein.

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MOTORCYCLE TRAINING MANUAL

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MOTORCYCLE TRAINING MANUAL

I. INTRODUCTION

A. General

This course in how to properly ride and use a motorcycle is devoted to instruction in the operation of a motorcycle under various conditions with the greatest possible degree of safety. In addition, elementary care and maintenance of a cycle will be taught. Finally, instruction will be given in the approved techniques of using a motorcycle in traffic law enforcement.

B. Objectives

Motorcycle riding is hazardous, but the hazard can be reduced by training riders to respond rapidly and accurately, by reflex, to emergency situations. In some cases, there just isn't time to reason; the response must be automatic. Instilling conditioned reflexes through training is what will be done here.

It is recognized that some men will become proficient more rapidly than others. However, experience has shown that the average Trooper should reach a satisfactory level of basic skill upon completion of the training received at the school.

C. Uniform for Motorcycle Training

Beginning riders will not wear issue uniform clothing during the training sessions. Dungarees or old slacks and old shirts are to be worn. All members of the Division while operating Division motorcycles, will wear the motorcycle safety helmets provided, regardless of the purpose for which the machine is ridden or the distance travelled.

D. Training Discipline

The importance of learning to ride well, and the limited training time available, requires that all activities be conducted without any loss of time. During this entire training course, respond promptly to all commands and signals.

E. Fire Hazard

Instruction in the proper method of filling the gasoline tanks so as to reduce the fire hazard will be given. In addition to obeying these instructions, never smoke while sitting, leaning or riding on a motorcycle.

II. MAINTENANCE

A. General

The more important aspects of maintenance will be covered. These are the things that must be practiced to keep a cycle operating properly. They include how to check for needed services and repairs; oil supply; how to care for the battery; tire care and replacement; gasoline supply; care of the rear chain; care of carburetor; care and replacement of spark plugs.

B. Repairs

When any repair work becomes necessary during the training session, call it to the attention of one of the instructors.

Inspect the motorcycle. A motorcycle is subject to rough usage while used by novice riders in training, and by its very construction is subject to extreme vibration. This results in breakage, nuts and bolts working loose, wear, and other damage which must be promptly repaired. Don't wait for the machine to break down, stop running, or to otherwise become inoperative before reporting it to the instructor.

C. Oil

1. Supply

The only oil to be used in the motorcycle is heavy duty motorcycle oil - 75 weight for under 75 degree temperature, 105 weight for over 75 degree temperature. Oil is available at the training area.

2. Adding oil

The oil tank, when properly filled, holds one gallon. About one inch from the top of the tank is adequately full. Do not fill above this level as some air space in the tank is needed.

A motorcycle of the model used by the Division normally uses a quart of oil in 250 to 300 miles. However, it will be found that the machines used for training will exceed this amount due to constant slow operating speeds.

It is therefore important that the oil supply is checked frequently. It is desirable to keep the oil tank as full as possible. This eliminates the danger of running out of oil, and will cause the engine to run cooler because the greater amount of oil will circulate more slowly and have more time to dissipate heat in the reservoir.

3. Change oil every 2,000 miles.
4. Grease every 1,000 miles at an authorized Harley-Davidson motorcycle garage.

D. Care of Battery

1. General

State Police motorcycles are equipped with high amperage generators to maintain the considerable amount of electrical equipment (radio, red lights, headlights, etc.). These generators produce more current than the machine now consumes. One result of this high charging rate is to consume water from the battery more rapidly than is normal in field operation.

It is therefore important to check the battery each morning in order to replace water consumed and prevent battery failure.

2. Adding water

Raise the saddle by removing the seat pin and lifting up. Remove the battery cover and unscrew the battery caps. Water level should be maintained so that it just covers the plates.

Do not overfill batteries. Batteries are usually cold when filled and the fluid will expand during operation. If an air space is not left, fluid will attack any metal with which it comes in contact, but is particularly destructive to the rear chain over which it usually runs. Early chain failure, usually during operation, will result. It can be avoided by taking the proper precautions in adding water to the battery.

E. Tires

1. Pressure

Maintenance of proper air pressure is important, both for proper tire mileage and, more important, for safety and proper handling.

Recommended tire pressures for the 5.00 x 16 tires are:

a. Rider - weight up to 175 pounds

Front - 12 pounds

Rear - 14 pounds

b. Rider - weight over 175 pounds

Front - 12 pounds

Rear - 16 pounds

2. Switching of Tires

The front tire of a solo motorcycle will normally wear irregularly and become peaked to some extent. When this condition becomes apparent, tires should be switched by a motorcycle mechanic. This is particularly important to stabilize high speed operation, as well as equalize wear.

3. Replacement of Tires

When tire treads become sufficiently worn that proper traction can no longer be obtained, they should be replaced. Customarily, the new tire is mounted on the front, and the former front tire mounted on the rear, as the rear tire will usually be worn out first.

Remember, on a motorcycle there are only two wheels - make them both good ones.

F. Gasoline

1. General

The two gasoline tanks are interconnected, so that gasoline will be used from each until the right tank is empty and the level in the left tank is below the standpipe. Total gasoline capacity of the machine is about 3.9 gallons. Capacity of the lower half of the left tank, the reserve supply, is about one gallon, sufficient for approximately 20 miles of normal riding.

2. Filling the Tanks

The tanks are filled when the cycle is setting on the jiffy stand, leaning to the left. The right tank is therefore higher than the left. It was previously noted that the tanks are interconnected. Therefore, if both tanks are filled to the top, the gasoline in the right tank will run down into the left and overflow onto the hot engine. A definite fire hazard exists if this is permitted to happen.

In fueling the machine, fill the left tank to within about one-half inch from the top. Then fill the right tank to that point which would be even, or level with the height of the fuel in the left tank.

3. Shut off Control

There is a gasoline supply control located just ahead of the left gas tank cap. When screwed down tight, this control shuts off the gas. For normal riding it should be unscrewed and left loose on top of the threads. When the motor stops because the gas supply is gone, raise the control lever to the top position. This provides a reserve supply, good for about 20 miles. Warning - as soon as the reserve supply is being used, head for a gas pump - it is very difficult to push a motorcycle.

G. Rear Chain

1. General

The rear chain must be lubricated periodically, at least once each 1,000 miles and preferably more frequently.

2. How to Lubricate

The chain may be lubricated by pouring residual oil from the quart cans of engine oil over it, or by using Harley-Davidson "chain saver." It may be poured on by one man while another pushes or slowly moves the machine along. Oil the entire chain, not just the portions readily accessible, while motorcycle is standing still.

3. Tension of Chain

The rear chain will gradually become loose and will sag to a point where it causes the motorcycle to jerk at low speeds. The chain must be kept at the proper tension to prevent this sag - about 1" slack. An experienced motorcycle mechanic will tighten the chain, as it involves moving the rear wheel backward.

H. Carburetor

1. Adjustments

Adjustment of the carburetor mixture valves will be done only by an experienced mechanic, as improper adjustment can seriously damage the motor.

2. Air Cleaner

Remove cartridge every 1,000 miles and tap dirt out of it. If metal, it should be replaced about every 5,000 miles, depending on its condition. Disposable paper element should be replaced every 1,000 miles.

3. Gasoline Strainer

This is located in bottom of carburetor below the air cleaner. To service the strainer, the gas supply must be shut off. Unscrew the nut and remove the wire strainer. Clean sediment and dirt from strainer and replace tightly.

I. Spark Plugs

Plugs should be kept clean and properly adjusted. Plugs shall be obtained and serviced from a Harley-Davidson dealer.

J. Maintenance Inspection

1. Inspection Periods

During school, cycles will be inspected twice each day, once in the morning and again before they are stored overnight. All cycles will be cleaned at the time of last inspection. Windshields will be cleaned with water and paper towels.

2. What to Cover

At each inspection, all maintenance points will be covered. In addition, riders should look for anything else that might be wrong. Broken parts, loose nuts, bolts, cotter pins, etc., should be detected. Cycles become very dirty during school use. They are cleaned daily for appearance sake and also as an aid in observing any oil leaks.

3. Cotter Pins

Cycles have 5 cotter pins on the left side; one on the right. The loss of any one pin can make it impossible to control the machine. All riders will check each pin at every inspection. You will be shown their exact locations by your instructor.

K. Windshields

1. Care

- a. Clean with water
- b. Don't use cleaning material which will scratch the surface of the windshield.

2. Danger

- a. Restricts mobility at high and low speeds.
- b. Could cause added injury to motorcycle operator if an accident does occur.

3. Value

- a. Keeps motorcycle operator from being exposed to excessive wind and bugs.
- b. Affords better visability for motorcycle operator, which is a major safety factor.

III. FAMILIARIZATION

A. General

Ability to ride well, will necessitate knowing the general characteristics, nomenclature and functioning of a motorcycle.

The instructor will have the Trooper lay a motorcycle over on its side and pick it up. This is done for two reasons; to acquaint him with its weight, and to show him the proper method of picking up the machine. The motorcycle weighs about 800 pounds equipped as it is, and with a good size rider in full pack will weigh approximately half a ton. The engine will develop 53 horsepower at 5,000 r.p.m. In good condition, the machine is capable of doing over 100 miles per hour. These machines are not motorscooters and deserve the respect to which their weight, power and potential hazard entitle them.

B. Controls and Instruments

1. General

In order to ride well, it will be necessary to learn not only how to properly operate all the various controls and to understand the instruments, but to do so automatically and very rapidly.

2. Explanation

a. Throttle

Closed with the right grip turned all the way outward, clockwise. Fully opened turned all the way inward, counter-clockwise. With all adjustments correct, a warm engine will idle with the throttle closed.

b. Spark

Retarded with the left grip turned all the way outward. Advanced with the grip turned all the way inward. Normally operated all the way inward, fully advanced. Normally retarded slightly when engine is laboring under a hard pull, or when knocking occurs. Operating engine with spark retarded at other times will result in power loss and overheating.

c. Clutch Foot Pedal

On the left side of the engine, just above the footboard. Engaged with the toe down, released with the heel down. Should be fully released when shifting (up). Clutch must always be left in the engaged position when cycle is parked (down). When in disengaged position, the clutch springs are compressed, and if left for any considerable period of time will be weakened.